How do mobile and fixed broadband stack up in SA?

While South Africa ranks poorly on prepaid mobile prices compared to other African countries, it does better on pricing of mobile broadband data. But while South Africa performs well on high-usage mobile data packages for both prepaid and postpaid mobile baskets (and for lower-use post-paid), the prices for lower–use prepaid mobile, where affordability is most likely to be an issue, remain relatively high. ADSL across the board also is high. Further, unlike in more developed nations, where fixed is the predominant form of broadband access in South Africa, mobile broadband is predominant - it is also, unlike in those markets, both cheaper and faster than fixed. However, wireless is inherently less stable than fixed broadband technologies such as XDSL and fibre and the implications of not having ubiquitous, reliable always on high-speed connectivity for the economy and global competitiveness are serious.

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Mobile broadband is cheaper and faster than fixed-line broadband

Unlike in mature markets in the North, mobile broadband is cheaper and faster than fixed broadband in South Africa, though the nature of wireless means that its broadband performance is inherently less stable than fixed.

Lower prices for contracts than prepaid

At a national level, mobile broadband contracts are cheaper than prepaid options. When compared to other African countries, South African prices of prepaid and postpaid mobile 5GB baskets, and postpaid 1GB baskets, rate well for affordability, prepaid 1GB baskets do not rate well.

Broadband provision is where the competitive pressure amongst mobile operators is focused

Consumers are benefitting from stiff price competition in the mobile broadband market. Mobile operators seek to attract, lock in, and retain data customers through attractive high-usage and contract data packages.

Fixed-broadband offerings neglected in favour of mobile

While prices for fixed-line ADSL (chiefly delivered by Telkom) have come down, they are not nearly as competitive as the mobile broadband services offered by Telkom's mobile arm, Telkom Mobile, which is also much faster.

Will fixed-line operators survive the competition in the broadband market?

Fixed-line operators need to invest in the new technologies, such as VDSL and fibre-to-the-home, required for reliable, critical services –a key policy challenge if fixed broadband is to stand a chance against mobile broadband.

Introduction

The competitiveness of ICT markets can no longer be understood in terms of distinct market segments. Voice and data services need to be understood in relation to each other in order to understand the changing nature of business and the impact on consumer welfare. Although South African voice prices are finally coming down with further reductions in termination rates, the decline of voice services and the growth of data services are having a significant impact on the development of the mobile market. It is becoming increasingly difficult to distinguish between voice and data subscribers, as airtime is purchased and converted for data use while, at the same time, data services are increasing used to make voice calls through VoIP, and private paid-for SMSs are giving way almost entirely to free instant messaging services. With mobile operators offering different broadband data options and packages for different market segments, the mobile broadband market is where pricing pressure is occurring, as operators compete to attract and retain broadband customers.

Table 1. Type of Internet connection by household with Internet access (multiple response)

Using mobile phone	Mobile model (3G)	Wireless broadband	Modem/ ISDN dial-up	ADSL
56.4%	54.8%	7.5%	4.9%	22%

Source: RIA South Africa Household and Individual Survey 2011-12

Tables 1 and 2 demonstrate that wireless internet is the main type of broadband connectivity at household level in South Africa. Almost 20% of South African households have internet access, and of those, 56.4% get access to the internet via a mobile phone and 54.8% via a mobile modem (3G). Only 22% of households with internet connectivity have an ADSL line.

Table 2. Individual Internet users - location for accessing the Internet in the last 12 months (2012 survey)

Home	Work	Place of education	Community Internet access	Any place via a mobile phone	Any place via another mobile device
42.7%	35.9%	20.6%	9.8%	70.8%	18.2%

Source: RIA South Africa Household and Individual Survey 2011-12

At an individual level, 70.8% of South African internet users[1] use the mobile phone handset to browse the Internet.

South African fixed and mobile broadband market segments, which have evolved so differently from the same segments in mature economies (where ADSL-upgradable copper networks and cable networks were almost universal at the advent of broadband), need to be understood in relation to each other.

As elsewhere in Africa, mobile broadband has overtaken fixed broadband in South Africa in terms of subscribers, price, and speed of service. Mobile operators offer cheaper and faster internet plans than

[1] The total number of Internet users in South Africa is equal to 33.7% of the total population 15 years old or older.

fixed operators and offer more options for prepaid internet products. Fixed-line operators mostly offer ADSL services, which no longer compete successfully with the speeds achieved by mobile broadband speed. Due to the low penetration of fixed-line infrastructure, the fixed-line operators do not enjoy the economies of scale enjoyed by operators in the North (or by the mobile operators in the South).

However, at the same time, connectivity of mobile networks is inherently more variable than that of fixed connections, making fixed broadband the preferred service for corporates, critical public sector services, and other users requiring stable and reliable (even if lower-speed) connectivity. However, if their speeds continue to be far lower than those offered on 3G/LTE/4G networks, fixed-line operators will continue to lose customers able to tolerate some variations in service quality to mobile operators.

To avoid further reductions in their share of the broadband market, fixed operators need to invest in high-speed and reliable technologies such as VDSL and fibre. Currently, several new services with development and business potential, such as some of those offered on the cloud, are not being introduced or optimally utilised because of the absence of reliable high-speed bandwidth.

The cost drivers underlying South Africa's high fixed-broadband prices need to be identified. While international bandwidth prices, once the major factor in South African data prices, have plummeted, terrestrial and IP transit prices are now major cost drivers. The impact of these prices on the cost of communications requires regulatory assessment. Achieving an enabling policy and regulatory framework conducive to investment, the rationalisation of existing infrastructure and the coordination of infrastructure planning going forward is a key challenge for countries such as South Africa wishing to develop their societies and economies and become globally competitive.

Mobile is cheaper than fixed broadband

While prices for South Africa's prepaid mobile voice services continue to be very high by continental and global standards, the country's mobile data market, which is becoming a significant revenue stream for mobile operators, is highly competitive. From analyses of prepaid and contract mobile and ADSL (fixed) broadband price baskets, it is clear that fixed-line packages are far more expensive than comparable mobile packages. Also boosting mobile data's appeal compared to fixed, particularly for low data use and uneven consumption, are mobile data's lower setup costs (e.g. no monthly line rental charges and installation fees) and its more convenient prepaid charging options. For these reasons, it is unsurprising that many South African home users opt to use a 3G dongle modem or mobile handset to access the internet instead of setting up an ADSL connection.

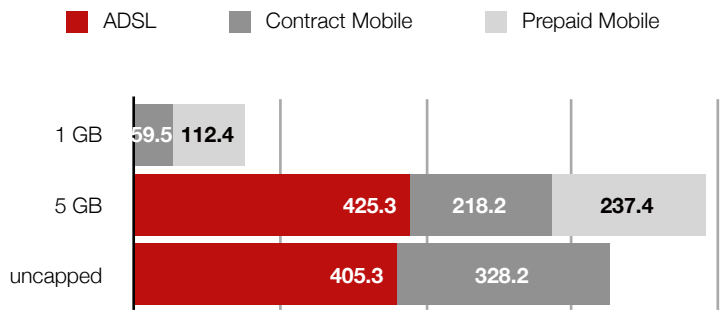

Figure 1: Cheapest broadband products available in South Africa in ZAR per month.

Figure 1 above compares ADSL offerings with postpaid and prepaid mobile data products. ADSL is much more expensive than mobile in both the 5GB and uncapped baskets. The ADSL 5GB basket is more expensive than mobile 5GB contract and 5GB prepaid baskets, and the ADSL uncapped basket is more expensive than a mobile uncapped contract basket.

Contract mobile broadband cheaper than prepaid

Table 3: South African prepaid broadband cheapest products in ZAR, July 2013

	CellC	MTN	Telkom Mobile	Vodacom
1GB	112.42	318.17	209.125	178.17
5GB	237.42	1096.17	848.125	428.17
Uncapped		328.17		

Table 4: South African contract broadband cheapest products in ZAR, July 2013

	CellC	MTN	Telkom Mobile	Vodacom	ADSL
1GB	59.50	108.17	98.17	68.16	
5GB	218.17	528.17	278.17	288.17	425.315
Uncapped					405.315

Tables 3 and 4 above illustrate that the mobile operators have cheaper contract offers compared to prepaid packages. Telkom appears to have neglected its ADSL products while trying to gain a foothold for Telkom Mobile in the lucrative but competitive mobile market. Telkom Mobile's 5GB prepaid broadband basket, offered at a maximum speed of 21 mbps, only costs ZAR278.17 per month, compared to the offering by Telkom's fixed-line arm provides its slowest ADSL broadband 5GB product for a price of ZAR425.32.

Cell C is competing aggressively in the mobile broadband market, and is the cheapest operator both for prepaid and contract baskets. Conversely, MTN, which (with Vodacom) holds a dominant position in the mobile voice market, has the most expensive broadband price baskets both in prepaid and postpaid offerings.

Table 5: Comparison of 1GB cheapest broadband baskets in USD per month, April 2013

	Prepaid		Postpaid		ADSL	
	Rank	USD	Rank	USD	Rank	USD
Ghana	1	**3.72**	4	10.92	3	37.17
Kenya	2	8.52	3	10.81	4	37.22
Tanzania	3	10.17	2	10.17	1	**18.77**
South Africa	**4**	**11.23**	**1**	**9.81**	**6**	**42.15**
Rwanda	5	13.92				
Mozambique	6	23.68	9	28.75	8	58.60
Namibia	7	31.89	8	27.34	5	40.32
Uganda	8	40.12	5	15.71		
Cameroon	9	40.67			9	59.14
Nigeria	10	50.99	6	19.77		
Botswana	11	73.48		23.48	7	58.59
Ethiopia			7	19.98	2	21.53

In comparison to other African countries, South Africa has the cheapest 1GB postpaid mobile broadband basket, at a price of USD9.81 (see Table 5). Due to a relatively high number of postpaid customers compared to other African countries, competitive forces in this market segment have pushed mobile operators to reduce postpaid broadband prices. However, prices of prepaid mobile broadband products are still relatively high in South Africa compared to other African countries, with South Africa ranking only fourth in the 1GB prepaid broadband sub-index (South Africa's 1GB mobile prepaid basket costs three times more than the same basket in Ghana). South Africa also rates poorly in pricing of fixed-line ADSL broadband, ranking sixth in the 1GB ADSL basket sub-index (USD42.15).

Table 6: Comparison of 5GB cheapest broadband baskets in USD per month, April 2013

	Prepaid		Contract		ADSL	
	Rank	USD	Rank	USD	Rank	USD
Tanzania	1	**13.30**	3	28.94	1	**18.77**
Ghana	4	28.27	4	30.97	2	37.17
Kenya	5	33.40	5	36.10	3	37.22
Ethiopia			7	60.81	4	37.68
Namibia	8	119.05	6	39.41	5	40.32
South Africa	**2**	**22.47**	**2**	**21.80**	**6**	**42.15**
Mozambique	7	54.11	8	64.25	7	58.60
Cameroon			11	198.90	8	59.14
Botswana			10	105.68	9	117.30
Rwanda	3	25.22				
Uganda	6	40.03	9	98.91		
Nigeria			1	**19.77**	10	50.99

Similar to the situation with the 1GB mobile postpaid (contract) basket, South Africa is relatively cheap for the 5GB mobile postpaid basket, at a cost of USD21.80 (ZAR218.17). Only Nigeria is cheaper than South Africa in this basket. In addition, contrary to the situation with 1GB (where South Africa's prepaid basket was relatively high), South Africa's prepaid 5GB basket rates well, coming in cheaper than a similar basket in several other African countries. South African mobile operators are expanding the higher data/bandwidth usage market, bringing prices down. Nevertheless, South Africa is very expensive in the 5GB ADSL basket, ranking in 6th position in this sub-index (see Table 6).

Table 7: Comparison of uncapped cheapest broadband baskets in USD per month, April 2013

	Contract mobile		ADSL	
	Rank	USD	Rank	USD
Tanzania	3	19.55	1	**18.77**
Kenya	2	7.16	2	37.22
Namibia	9	100.96	3	40.32
South Africa	**6**	**32.80**	**4**	**53.14**
Cameroon	8	50.56	5	59.14
Ghana	4	20.83	6	94.16
Botswana				
Rwanda	5	25.22		
Uganda	7	36.43		
Ethiopia				
Mozambique				
Nigeria	1	**5.20**		

Table 7 above shows that for uncapped broadband, both postpaid mobile and ADSL in South Africa are expensive compared to other African countries covered by the RIA Africa Broadband Pricing Mini-index. South Africa is in sixth position with its uncapped postpaid mobile broadband basket and in fourth position in uncapped ADSL broadband pricing.

Mobile is faster than fixed broadband

A South African pilot study of broadband quality of service has shown that mobile speeds are faster than fixed-line speeds overall, and when comparing similar packages. Using host-based measurements from MyBroadband, Figure 2 depicts a cumulative distribution function showing the distribution of downstream throughputs for fixed-line and mobile users. Figure 2 shows that no matter where the measurements are taken to (i.e. to a local or international server), fixed-line speeds are slower than mobile speeds. Similarly, Figure 3 shows the cumulative distribution of downstream throughputs by network type for two different mobile technologies (3G and LTE) and two different fixed-line technologies (ADSL and VDSL). The median downstream throughputs of the LTE connections are the highest, at around 25 mbps. The 3G connections also generally experience higher download throughput than the fixed-line service plans. To summarise, the download speed of mobile broadband is far outperforming fixed-line broadband speed in South Africa.

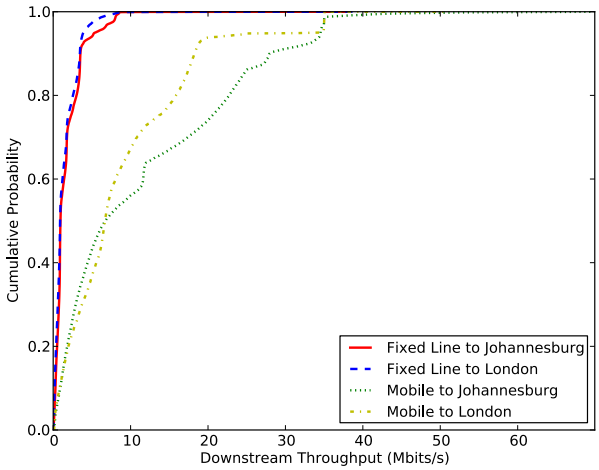

Figure 2: Distribution of download throughputs (speeds) for fixed and mobile users (MyBroadband data).

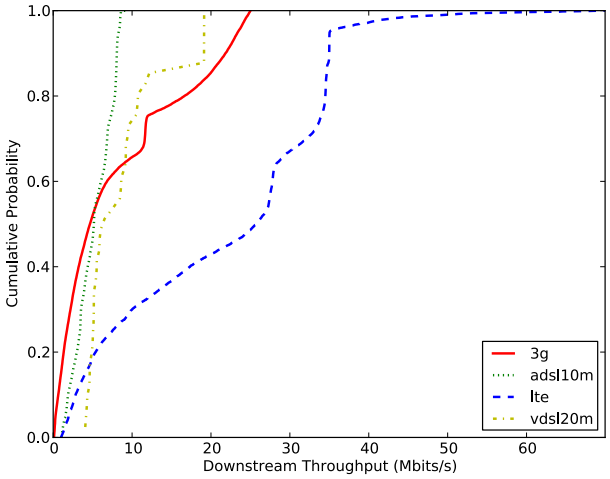

Figure 3: Cumulative distribution of download throughputs (speeds) for different fixed-line and mobile network technologies (MyBroadband data).

Conclusions

While South Africa scores poorly in the RIA Africa Prepaid Mobile Price Index for voice, it does better on data. But prices for prepaid mobile baskets are higher than postpaid at a national level. When compared to other African countries, prepaid lower usage baskets (i.e. 1GB) remain high compared to 12 countries measured in the RIA Africa Broadband Pricing Mini-index. For higher use baskets (i.e. 5GB)., South Africa performs better, for prepaid and postpaid.

Analyses of prepaid and postpaid mobile and ADSL broadband price baskets at a national level reveal that fixed-line packages are far more expensive than comparable mobile packages. South African fixed-line ADSL also remains relatively expensive when compared to other African countries, despite South African fixed-line enjoying greater economies of

scale. Based on pricing and speed, together with ease of setup and prepaid charging options, mobile connectivity is more appealing than fixed-line, in particular for low data use and uneven consumption.

While mobile prepaid broadband prices in the lower usage basket (i.e. 1GB) are still relatively high compared to other African countries, South African operators are competing for the lucrative postpaid and higher data-bandwidth usage market (i.e. 5GB basket) and therefore prices for contract higher users rate fairly well in Africa. However, uncapped postpaid mobile services in South Africa are higher than six of the other 11 countries under review. Uncapped ADSL services are priced higher in South Africa than in four of the other five African countries where uncapped ADSL service was found and analysed.

With data revenue growth outstripping traditional voice revenues, and clearly becoming the major source of revenue for the future, mobile broadband is where the competitive pressure amongst mobile operators is focused. South African consumers are benefitting from stiff price competition between mobile operators seeking to attract and retain data customers.

Unlike mature markets in the North, mobile broadband is not only cheaper but faster than fixed broadband in South Africa, though the nature of wireless means it is inherently less stable and the quality of the connectivity is more variable.

Although prices in South Africa are low (second most affordable) among African countries surveyed for prepaid and postpaid higher-use baskets (i.e. 5GB), and low (first in affordability for postpaid low-use (i.e. 1GB, South African prices rank less well (fourth in affordability among African countries surveyed) for prepaid low-use.

Evidence suggests that South African mobile connections are not only cheaper to use and cheaper/easier to set up than fixed, but also faster. While South Africa's ADSL prices have come down over the past few years, they are still not anywhere near as competitive as services offered by ADSL provider Telkom's owned mobile arm, Telkom Mobile.

Due to the variable performance of mobile broadband despite its speed, meeting the need for the stable, high-speed connectivity (such as via VSDL or fibre) required for a modern economy and critical public services remains a key South African policy challenge.

Despite the take-off of mobile broadband, South Africa's broadband penetration remains poor compared to other lower-middle-income countries and indeed some such countries in Africa (North Africa and African island states). Fixed-broadband penetration is particularly low in South Africa, despite the need for secure, stable broadband connectivity in a modern economy. South African enterprises dependent on stable high-speed broadband frequently identify broadband as a major input cost in their businesses.

Poor broadband penetration levels in the country are an outcome of high prices. The high prices and poor quality of ADSL services reflect the absence of competition in this segment of the broadband market, in contrast to the more competitive mobile segment of the broadband market. The factors that are driving up the cost of fixed broadband services need to be addressed through policy and regulation where present policy and regulation are creating bottlenecks that constrain responses by operators and potential players to the changing nature of communication. Major policy challenges remain for South Africa if it is to create the conditions for large-scale investment in backbone and backhaul networks to deal with demand for high-speed spectrum.

Recommendations

In order to meet the increasing demand for data bandwidth and reliable connectivity, there is a need to create enabling policy and regulatory frameworks conducive to investment in an open access national backbone; rationalisation of existing infrastructure; and coordination and sharing of infrastructure going forward.

With the dependence on mobile for broadband access policy bottlenecks to ICASA urgently allocating high-demand spectrum need to removed in order to enable operators to respond to the changing demand for mobile services, to build new revenue streams, and to grow new value-added services and applications which can further drive demand.

This requires wholesale/access regulation in the growing broadband data market. At the same time, ICASA must review the prices of wholesale facilities, terrestrial transmission and IP transit, which make up the underlying cost of end-user prices, to assess how these prices can be controlled while not removing investment incentives

Also needed is systematic monitoring of broadband performance, which would inform users on the quality of their connectivity and would increase pricing transparency in demonstrating what people were getting for what they were paying. Although the data from the studies measuring broadband performance under taken by MyBroadband and RIA, shows that mobile broadband outperforms fixed broadband, mobile broadband infrastructure is inherently less stable than a robust fixed network. It is recommended that there is monitoring of the scope of variability of mobile and fixed connectivity, in order to allow policy and network investment decisions to be based on a medium- to long-term strategy aiming to offer reliable broadband services for real-time applications, cloud computing services, and critical public service applications.

See the RIA policy paper on broadband quality of service for a detailed description of the methodology applied to assess mobile and fixed broadband performance. The policy paper is available at www.researchICTafrica.net

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