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Mobile wholesale and retail price interplay:

the somewhat contrary case of South Africa in Africa

By

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Mobile wholesale and retail price interplay: the somewhat contrary case of South Africa in Africa

Christoph Stork (Research ICT Africa[1]) & Alison Gillwald (University of Cape Town)

This paper analyses the link between termination rate reductions and retail prices. It draws on in-depth case studies of South Africa, Namibia and Kenya where regulators have reduced termination rates towards the cost of an efficient operator. To varying degrees these have all led to lower retail prices and a significant market expansion. While both Namibia and Kenya, experienced significant retail price reduction following substantial termination rate reductions, the case of South Africa demonstrates that termination rate reductions are not automatically passed through to consumers. In South Africa only the second reduction in March 2012 allowed smaller operators to reduce their off-net prices to a level could tempt subscribers from dominant operators to switch. The case studies confirm that retail prices do not go up in response to termination rates going down, in CPNP (calling-party's-network-pays) markets as contended by dominant mobile operators. This is also in contrast to a body of academic literature stating that termination rates and mobile retail prices constitute a two-sided market and that termination rate reductions will lead to a so called "waterbed effect". This study draws on a database of all prepaid products available in 46 African countries which were collected monthly for the period January 2011 to June 2012. The OECD price basket methodology is used to compare prices between countries and between operators. In-depth face-to-face interviews on termination rate regulations were also held with regulators in Kenya, Namibia and South Africa. The analysis is further supplemented with an analysis of audited financial statements of dominant operators in each market, namely Vodacom South Africa, MTN South Africa, Telkom South Africa, MTC[2] in Namibia, and Safaricom in Kenya.

Keywords: Mobile termination rates, retail prices, Waterbed effect, two-sided markets, South Africa, Kenya, Namibia

INTRODUCTION

Call termination is a monopoly. While call origination can be made competitive in numerous ways, there is simply no alternative to terminating a call on the network of the operator who owns the number a caller is trying to reach. This provides a rationale for regulatory intervention if termination rates are above cost of an efficient operator. This can be established through a benchmarking exercise of termination cost that are publicly available or through detailed cost studies. There is overwhelming international evidence that cost-based termination rates encourage competition and more affordable pricing.[3] Cost-based termination rates remove market distortions and provide efficient investment incentives. The net effect of fairer competition is lower costs of communication, better services and more equitable returns on investment for all operators (See Stork 2011 and Stork 2012).

Table 1: Vodacom - Impact of mobile termination rates in South Africa in

	FY 2011 ending March 2011		FY2012 ending March 2012	
	ZAR million	USD million	ZAR million	USD million
Interconnection Revenue	6,755	936	6,062	840
Interconnection Expenditure	5,682	787	4,923	682
Net Interconnect Profit	1,073	149	1,139	158

Source: Vodacom 2012
Exchange rate based on average exchange rate for 2011 from Oanda.com

In support of high termination rates, dominant mobile operators have argued that lowering termination rates will lead to increases in access and usage prices[4], resulting

in fewer people being able to afford communication services and lower profits that limit operators' capacity to invest.

Incumbent operators are fast to point out the loss in revenue their company suffered due to termination rate cuts, while generally omitting to report on cost savings in termination payment. Operators receive termination revenues from and pay termination fees to other operators. The question is not whether an operator has less revenue from termination after termination rate cuts but how the net-profit or net-loss from termination has changed. The net-profit from termination of South Africa's largest mobile operator, Vodacom, increased despite a reduction in their incoming termination revenue after the rates were cut, for example (see table 1).

Table 2: Telkom Fixed-line operating revenues and expenses in ZAR million

		FY 2010 ending March 2010		FY 2011 ending March 2011		FY 2012 ending March 2012	
		ZAR million	USD million	ZAR million	USD million	ZAR million	USD million
Interconnection Revenues	Mobile Domestic	1,043	144	498	69	375	52
	Mobile International			186	26	630	87
	Fixed	228	32	328	45	262	36
	International	1,337	185	667	92	490	68
	Total	2,608	361	1,679	233	1,757	243
Interconnection Expenses	Mobile network operators	4,847	671	3,704	513	3,218	446
	Fixed	273	38	404	56	306	42
	International network operators	2,323	322	792	110	1,029	143
	Total	7,563	1,048	5,193	719	4,839	670
Interconnection Loss Total		-4,955	-686	-3,514	-487	-3,082	-427
Interconnection Loss Mobile only		-3,804	-527	-3,206	-444	-2,843	-394

Source: Telkom 2011, Telkom 2012
Exchange rate based on average exchange rate for 2011 from Oanda.com

Strangely, the incumbent fixed line operator Telkom, who has been at the wrong end of asymmetrical termination rates for nearly two decades, also complained about the loss in termination rate revenue[5], yet their net interconnection revenues increased in 2012.[6] As one would expect with over 60 million active SIM cards (Subscriber Identity module) across South Africa's mobile networks, as Table 2 shows Telkom is a net termination rate payer and its net payments decreased due to the termination rate reductions from ZAR5 billion in 2010 to ZAR3.1 billion in 2012 (USD693 million to USD427 million).This makes the reason for their complaints unclear, other than if they were asking for greater rate symmetry, which they have not explicitly.

Table 3: MTN - Impact of mobile termination rates in South Africa in ZAR million

	FY ending December 2010		FY ending December 2011		change	
	ZAR million	USD million	ZAR million	USD million	ZAR million	USD million
Interconnection Revenue	6,568	910	5,924	821	-644	-89
Interconnection and roaming expenses	5,483	759	5,183	718	-300	-42
Net Interconnect Profit	1,085	150	741	103	-344	-48

source: MTN (2012)
exchange rate based on average exchange rate for 2011 from Oanda.com

A further frequently overlooked fact is that termination rate payments are payments between two operators. Lower termination rates mean that net-payers pay less and

net-receivers receive less. No money is taken from the sector, it is a zero sum game. MTN South Africa is a net-receiver, for example. Its net profit from call termination (revenues - expenses) for South Africa decreased from ZAR 1,085 million in 2010 to ZAR 741 million in 2011. However MTN is still a net-receiver.[7] Vodacom too is a net-receiver, and managed to increase its net-profit from termination after the termination rates cuts. Its net-profit from call termination was ZAR1,139 million in the financial year ending 31 March 2012, compared to ZAR1,073 million for the financial year ending March 2011 (see Table 1).

As unlisted companies and non dominant players, no public information is available for Neotel and CellC on this matter as they are not required and are unwilling to divulge it. With Vodacom and MTN being net-receivers and Vodacom even receiving more in 2012 than in 2011 and Telkom being a net-payer but paying less in 2011 than in 2010, one can assume that Neotel is a net-payer.[8]

It is clear therefore that there cannot be any uni-directional link between termination rate cuts and retail rates as often claimed by those defending the status quo of arbitrarily high termination rates. Ironically, the new CEO of CellC and former CEO of Vodacom Alan Knott-Craig, having just slashed the price of pre-paid mobile calls by 32% following the latest termination rate reduction, recently appeared to lapse into dominant operator mode when he reiterated this claim. He stated, speaking in an interview on Radio 702, that "lower mobile termination rates typically results in higher retail rates, and not lower mobile call rates like the Department of Communications (DoC) and the Independent Communications Authority of South Africa (ICASA) envisaged."

Vodacom interconnection revenues increased, Telkom had to pay less net, while MTN received less net, after the first termination rates cuts. Following the revenue replacement argument above, Vodacom and Telkom should have dropped their retail prices while MTN should have increased retail rates to make up for the lower interconnection profit compared the previous financial year. This demonstrates very clearly that operators are affected differently and one would expect them therefore to react differently. Telkom for example has passed the mobile termination rate (MTR) savings completely on to its customers, lowering fixed-line to mobile calls (Telkom 2012) as did Neotel.[9] This partly explains the higher termination rate profit of Vodacom. Vodacom received 230 million more minutes from fixed-lines in the 2012 financial year compared to the 2011 financial year. (Vodacom, 2012). An example how an operator net termination profit can increase due to other operators decision to pass on the savings.

LINK BETWEEN WHOLESALE AND RETAIL PRICES

In an ordinary market retail prices are a function of wholesale prices, where lowering wholesale prices allows the lowering of retail prices. The same holds for off-net retail prices and mobile termination rates and for mobile to fixed-line calls and fixed termination rates. Lower call termination allows operators to reduce off-net and fixed-line retail call prices.

However dominant operators across the globe have argued that this is not the case in the telecommunications industry.[10] They have argued that on the contrary a reduction in mobile termination rates (MTRs) will produce an increase in end user (retail) prices. Drawing on a body of literature (for example Genakos and Valletti 2007, 2009; Sandbach and Hooft 2009) that has now become the conventional wisdom of the sector they have argued that this is because the telecommunications market is two-sided and an adjustments to pricing in one market automatically creates pricing effects in another[11].

However, the two fundamental principles for price setting in two-sided markets, identified by Evans (2007), do no not apply to the relationship between termination rates and retail prices:

- Interdependent prices: Price are determined interdependently, i.e. changing the price for the one side will change the price of the other side.
- No cost causation: No direct link between incremental cost for a good or service and the price.

First, cost causation exists since mobile termination rates (MTRs) set a floor for off-net call prices and prices for calls from fixed-lines to mobiles. Off-net prices below MTR would result in a loss for every off-net minute dialled, for example. The level of MTRs are a cost factor for out-going calls (off-net calls). The key reasons why MTRs and retail prices are not interdependent are:

- Termination rates are not prices that are set to maximise profits; they are contractual arrangements that are unlikely to change unless regulators intervene or it is in the interests of all parties involved to change them.
- An operator cannot increase MTRs because its market share has increased, something that would be suggested in a two-sided market. Termination rates are mostly symmetrical between mobile operators, and as such contradict the two-sided market argument. Both networks gets the same nominal value for terminating calls irrespective of their customer base. If rates are asymmetrical due to regulatory intervention, then the smaller network is allowed to charge more.
- MTRs are wholesale costs and wholesale revenue at the same time. Reductions in termination revenues are accompanied in reductions in termination expenditure.
- MTR reductions can be passed on to subscribers, which leads to a decrease in off-net prices. Should it not be passed on, then the operator makes more money for each outgoing minute, compensating for the loss in the termination revenue through the MTR reduction. These are concrete choices an operator can make depending on what it thinks will maximise profits. There are, thus, no automatic response in retail prices to changes in termination rate.
- Retail prices are complex and diverse and pricing strategies are driven by user profiles and market niches, not by revenue replacement.
- Operators can set only their own retail prices and not those of other operators. Yet, the others' off-net prices will influence how many calls are being received from other operators and, hence, the level of termination rate revenue.
- If termination rates and retail rates were interdependent, then one would also be able to observe increases in termination rates while retail prices decrease. Interdependence of prices has to work in both directions.
- Termination rate payments are payments between operators. The industry consists of net-payers and net-receivers of termination rate payments. Termination could not be a two-sided market for net-receivers and an ordinary market for net-payers. Net payers will benefit directly from lower termination rates and may set their prices in response differently to net-receivers.

Waterbed effect theorists argue against lowering the arbitrarily set termination rates to the cost of an efficient operator, without providing and alternative basis for determining termination rates. Also, no one has proposed to increase termination rates in order to lower retail rates, which would be the logical consequence if it were a two-sided market.

From this discussion and the examples given for South Africa in the introduction it is clear that termination rates and retail rates do not constitute a two-sided market and that there is not a unified response from operators as a result of termination rate reduction - certainly not one of raising retail prices. New operators or smaller operators are likely to be the first to reduce their off-net prices so as to compete with the on-net prices of dominant operators. How far retail prices are lowered following termination rate cuts depends on many factors, in particular the competitive pressure within the sector.

In contrast to the cases of Kenya and Namibia, this paper discusses the case of South Africa. It demonstrates that minor reductions in termination rates alone may not be enough to get operators to compete on price.

MOBILE TERMINATION RATES IN AFRICA

African countries have embarked on regulatory interventions to reduce MTRs towards the cost of an efficient operator. While Botswana, Tanzania, Uganda, Kenya and Zambia conducted cost studies, Namibia used a benchmarking approach. Table 4 displays mobile termination rates in the currency specified by regulation and in US cents.

The cases of Namibia and Kenya are briefly outline below before contrasting their outcomes with those of South Africa. In Namibia and Kenya, termination rates were reduced towards the cost of an efficient operator, and retail price data have been tracked for the period of regulatory intervention. South Africa also reduced termination rates but more sluggishly than Namibia and Kenya and current rates are still nowhere close to the cost of an efficient operator.

Table 4: Mobile termination rates in RIA Countries - January 2012 update

	Mobile termination rate				Comments	Sources
	Currency specified by regulation		US $ FX average 2011	US cents		
Kenya	1	Kenya Shilling	87.54	1.6	1 July 2012: 1.15 and 1 July 2013: 0.99	CCK (2010)
Ghana	0	Cedi	1.53	3.3	NCA set glide path to 4.50 Ghana pesewa in 2013 and 4 pesewa for 2014 SMS on all mobile networks 0.7 from 2012, then 0.6 and 0.5 in 2013 and 2014	www.nca.org.gh/73/34/News.html?item=233
Namibia	0	NAD	7.22	4.2	Since January 2011	NCC (2009a)
Zambia	0	US$	1.00	5.0		ZICTA (2010)
Nigeria	8	NGA	154.16	5.3	for existing operators	NCC (2009b)
Uganda	131	Uganda Shilling	2,494.36	5.3		http://www.independent.co.ug/ugandatalks/2011/11/ucc-to-review-interconnection-rates/
Rwanda	35	Rwanda Franc	590.28	5.9	RWF 35 to RWF 33 in January 2012, RWF 28 in January 2013 and RWF 22 in January 2014	RURA (http://www.telecompaper.com/news/rwanda-to-cut-interconnection-rates-further)
Botswana	0	Pula	6.72	6.0	glide path to 0.3 Pula by 2014	BTA 2011
Tanzania	7	US cents	1.00	7.2		www.tcra.go.tz/publications/determination2_of_07.pdf
South Africa	1	ZAR	7.22	7.5	March 2013: 40 cents	ICASA (2010)
exchange rate based on average exchange rate for 2011 from Oanda.com						

CASE OF KENYA

The Communications Commission of Kenya (CCK) issued the Interconnection Determination No. 1 of 2007 following a telecommunications network cost study done in 2006 by Analysys Mason in accordance with the Communications Act of

1998. The determination prescribed a glide path to bring down the termination rates towards the cost of an efficient operator, with the final reduction in March 2009 (CCK, 2007). The cost of termination is sensitive to traffic and technology, and falls with increasing volume and new technologies. A second cost study was subsequently commissioned by CCK and conducted by Analysys Mason in the first half of 2010. This second cost study and sector-wide consultations led to Interconnection Determination No 2 of 2010 (CCK, 2010). This determination addressed several issues that hampered fair competition in the sector, including off-net to on-net price ratios, cross-network money transfers and number portability.

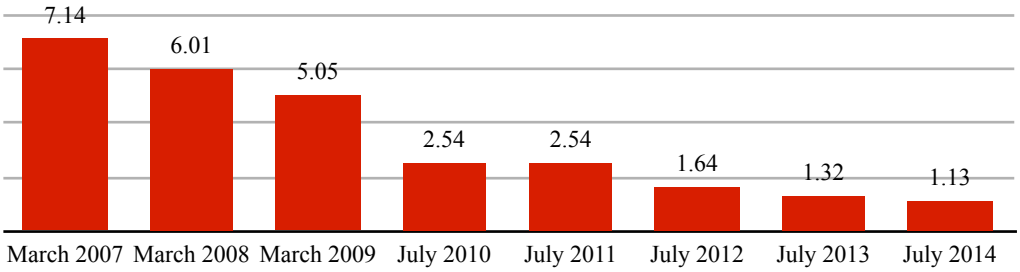

Figure 1: Kenya's Termination rate reductions in US cents based on average Foreign Exchange Rate for 2011 (Source CKK 2007 and CCK 2012)

Despite there being four players in the mobile market, the market is dominated by Safaricom (voice minutes traffic share of 94% in quarter July-September 2010, see Figure 4). The cost study conducted by Analysys Mason revealed "instances of market failures where the on-net to off-net price spread is perpetuating a 'club effect' which arises when consumers tend to have a preference for a network with a large pool of subscribers so as to benefit from the possibility to call and be called at a lesser calling rate by the largest possible number of subscribers." (CCK, 2010)

Determination No. 2 of 2010 was ground breaking in several ways. Kenya was the first country to apply the European Union's recommendation of 2009 by enforcing cost-based termination rate caps based on pure long-run incremental cost (LRIC) (EU, 2009). Kenya, thus, has the lowest mobile termination rates in Africa of Ksh[12]2.21 (2.54 US cents) that was publicly available at the time. The CCK announced that it would monitor market developments in SMS termination, broadband interconnection, money-transfer interconnection and infrastructure sharing, and that it would intervene if commercial negotiations did not lead to competitive outcomes. This creates regulatory transparency and certainty, two very desirable regulatory attributes.

Following pressure from Safaricom, CCK decided to freeze mobile and fixed termination at a meeting held on 20th May 2011 for 2011 and issued Addendum No.2 to the Determination No.2 of 2010 (CCK 2012).

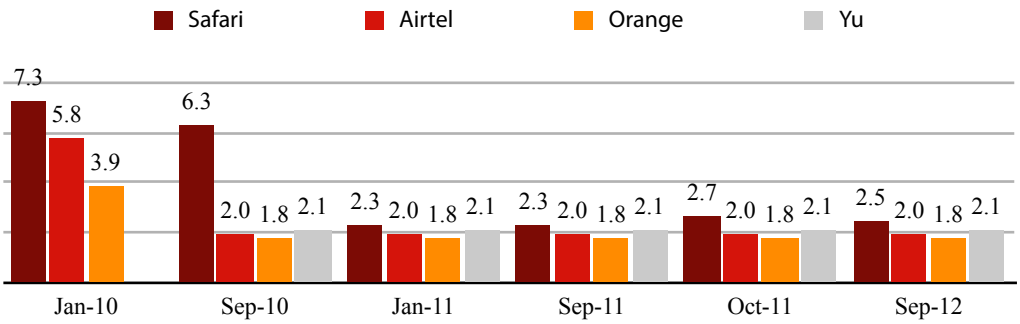

Figure 2: Monthly cost of OECD Low User basket in US cents, based average exchange rate for 2011 based on OECD 2006 Definition (source: own calculations)

The impact on retail prices has been dramatic. Airtel, Orange and Yu immediately cut their prices after the announcement of the new termination rates in August 2010. Airtel's cheapest product for the OECD low-usage basket fell by 65% of the pre termination rate cut price. Safaricom resisted reducing prices initially, but had to give in to competitive pressure towards the end of 2010, and cut its prices by 69%. The consequence of lower prices has been an expansion of the market, with a subscriber base growth of 9.5% in the quarter July–September 2010 (CCK, 2011).

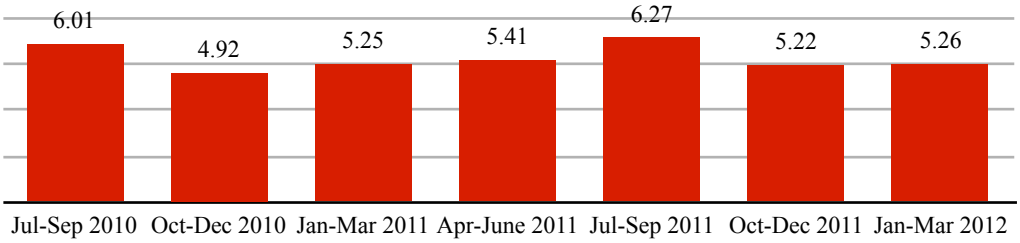

Figure 3: Safaricom's voice traffic in billion minutes (source CCK quarterly reports)

Generally, subscriber numbers react more slowly to price changes than traffic as SIM cards are regarded as active for three to six months despite not being used. An abandoned SIM card will only be taken off the system after several months. Another important factor for Safaricom is that a user switching to any other operator may still maintain his Safaricom SIM card to be able to use Mpesa. However, new subscribers with other networks would cause Safaricom's subscriber share to shrink. For these reasons it is important to look at Safaricom's market share in terms of subscribers and traffic.

Safaricom's resistance to cut prices in late 2010 led to a 6% reduction in its share of subscribers, while the total number of subscribers was increasing. That means Airtel, Yu and Organge gained many new customers in that period. More importantly however, Safaricom lost 8.4% of its voice traffic share (Figure 4). Safaricom's voice traffic dropped between the quarter of Jul-Sep 2010 to Oct-Dec 2010 by more than one billion minutes, a 18% drop (Figure 3).

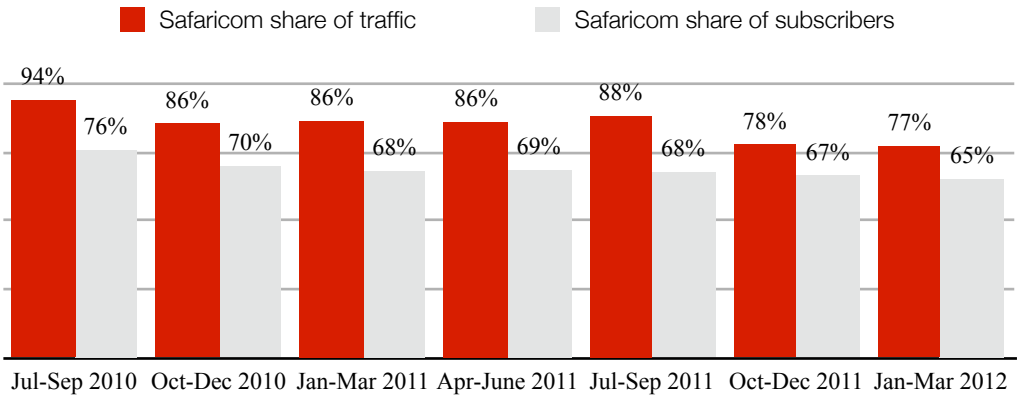

Figure 4: Safaricom's traffic and subscriber market shares (sources: CCK quarterly sector statistics)

Despite its vociferous objections to the termination rate reductions the dominant operator, Safricom, managed to increased its revenues and its subscriber base following the cuts. After tax profit and EBITDA margin are slightly down while the average user got 50% more minutes of use for less. The voice ARPU declined from Ksh356 in 2010 to Ksh303 in 2012 as a result of the dilution from new subscribers and a tariff reduction. Minutes of use per subscriber increased however from 60.6 minutes to 116 minutes.[13] The implied effective average price per minute therefore decreased from Ksh5.87 to Ksh2.61 per minute.

Table 5: Safaricom's key performance indicators for financial years ending in March							
		2007	2008	2009	2010	2011	2012
Revenue	Ksh billion	47.45	61.37	70.48	83.96	94.83	107.00
	USD million	542.02	701.02	805.09	959.07	1,083.24	1,222.25
After-tax profit	Ksh billion	12	13.85	10.54	15.15	13.16	12.63
	USD million	137.08	158.21	120.40	173.06	150.33	144.27
Dividend paid	Ksh billion	3	2	4	8	8	8.8
	USD million	34.27	22.85	45.69	91.38	91.38	100.52
Subscribers in million		6.10	10.23	13.36	15.79	17.18	19.10
EBITDA Margin		51.7%	45.9%	39.6%	43.6%	37.7%	35%
Base stations			1558	1899	2162	2501	2690
Voice Average Revenue per User (ARPU) in Ksh					356	294	303
Voice Average Revenue per User (ARPU) in USD					4.07	3.36	3.46
Average minutes of use (MoU)					60.6	96	116
Average implied price per minute in Ksh (ARPU /Average MoU)					5.87	3.06	2.61
Average implied price per minute in US cents					6.71	3.50	2.98
		Source: Safaricom annual reports Average exchange rate for 2011 used for conversion					

Kenya provides a good example of how cost-based termination rates increase competition in the industry and bring down prices. Often, falling equipment prices and increasing traffic volumes are cited as masking waterbed effects. In the Kenyan case, the reaction to the termination rate reduction was immediate, leaving no doubt about the causal relationship. Safaricom is also a good example for what happens if a dominant operator does not respond to competitive pressure or tries to increase price after cutting them. In both instance Safaricom lost market share and traffic to other operators.

CASE OF NAMIBIA

The Namibian Communications Commission (NCC) has undertaken three major interventions in the mobile market between 2006 and 2010:[14]

- Liberalisation by awarding a second mobile licence in 2006 to Leo.
- Resolving a termination rate dispute between operators by enforcing the licence conditions of MTC and Leo relating to cost-based termination rates in July 2009. The cost of an efficient operator was established through benchmarking.
- Resolving a dispute regarding high off-net and fixed-line calling tariffs in March 2011 by enforcing a price cap on off-net and fixed-line call prices to the level of on-net prices.

The dispute resolutions of the NCC involved intense consultations with all parties involved, hearings and consultative workshops. Decisions and supporting studies were made public in the spirit of fair and transparent regulation.

The termination rates dropped in January 2011 to 4.16 US cents (N$0.3) from 14.68 US cents (N$1.06) in January 2009 (see Figure 5).

The dominant operator, MTC, had initially argued that a drop in termination rates would lead to lower EBITDA margins, less subscribers and less investment. MTC's EBIDTA[15] margin instead rose from 50.9% in 2008 to 53.2% in 2011 (see Table 6). MTC paid record dividends in 2009, 2010 and 2011 and increased its investment and subscriber base in the light of falling retail prices.

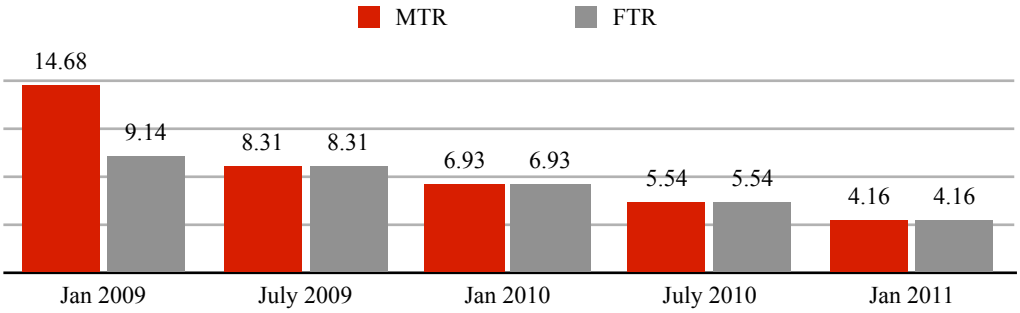

Figure 5: Termination rate reduction towards cost of efficient operator in US cents, average exchange rate of 2011 (Source NCC 2009)

Prices of MTC have not increased as would be predicted by two-sided market and waterbed-effect models, but instead have decreased or remained the same. Figure 6 shows the cost of OECD usage bundles for the cheapest post-paid or prepaid MTC product. The prices for Tango Prepaid per second were slashed by more than half in December 2009 following the initial MTR (N$1.06 to N$0.60) reduction in July 2009. A new, substantially cheaper post-paid product was introduced in early 2010, effectively reducing MTC prices for the Medium and High OECD user baskets. In April 2011 MTC introduced T49, offering substantially lower prices and up to 100 free SMS per day for recharging N$100 per month. In 2012 the cost of OECD usage baskets is less than 20% of what it was in 2005 in real terms.

Table 6: MTC key performance indicators (source MTC annual reports)

		2005	2006	2007	2008	2009	2010	2011
Active SIM cards in 1000		404	556	744	1,009	1,284	1,535	1,855
EBITDA Margin		61%	60.2%	52.2%	50.9%	53.8%	55.8%	53.2%
Net profit after tax N$ million	N$ million	293	337	340	358	388	397	319
	US$ million	41	47	47	50	54	55	44
Dividend	N$ million	110	80	245	221	370	384	364
	US$ million	15	11	34	31	51	53	50
Dividend as % of after tax profit		37.5%	23.7%	72.1%	61.7%	95.4%	96.7%	114.2%

MTC's subscriber numbers increased further to 1.86 million subscribers in 2011.

All of the NCC's interventions have been win-win. The second mobile licence (May 2006) brought competition to Namibia's mobile telecommunications sector. The reduction of termination rates from July 2009 to January 2011 led to fairer competition and with it lower prices, better services, more jobs, more investment, an expansion of the market and resulted in record earnings for MTC. Enforcing a price cap that prevents operators from discriminating against other networks in terms of retail prices removed another obstacle to fair competition in March 2011.

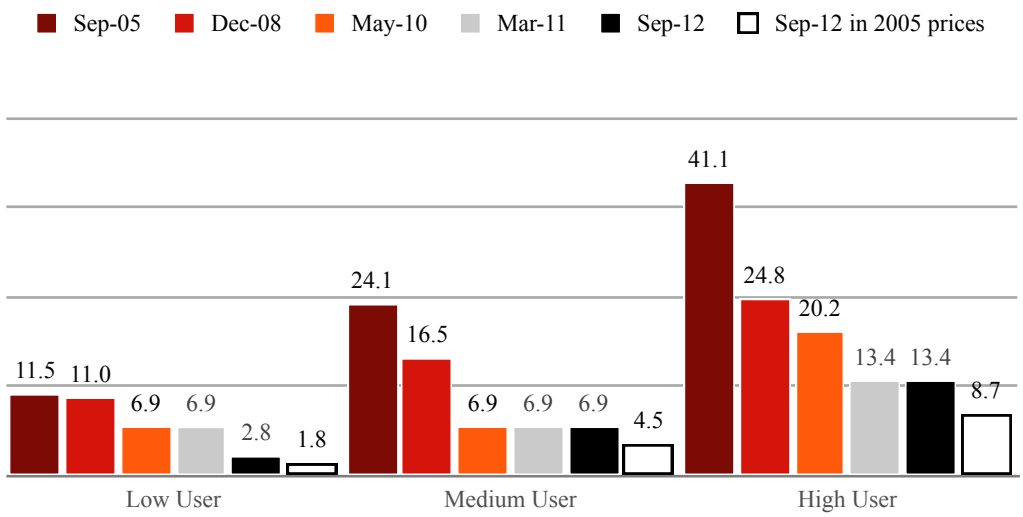

Figure 6: MTC cheapest product (prepaid and post paid) for OECD usage baskets, based on OECD 2006 definition, in US cents converted using average exchange rate for 2011 (source: own calculations)

Having shared termination rates and retails prices similar to South Africa only three years earlier, in a 46 country pre-paid mobile pricing index developed by Research ICT Africa[16] in May 2012, Namibia came second in terms of cheapest prepaid product available from dominant operators, while South Africa came only 30th (see Table 9).

TERMINATION RATE DEBATE IN SOUTH AFRICA

South Africa, with a population of 50 million and a GDP of US$ 357 billion[17], is one of the largest and most advanced telecommunications market on the continent, with two national fixed operators, Telkom an Neotel; five mobile operators: CellC, MTN, Vodacom, 8ta and virtual network operator, Virgin Mobile and hundreds of Internet service providers and value added service providers. While South African led reform initiatives on the continent from the early-90s with the introduction of mobile competition to the subsequently partially privatised incumbent in the mid-nineties, followed by further liberalisation of the fixed an mobile markets in the turn of century, these early reform efforts were undermined by lack of policy implementation and subsequent policy failures. These have created an uncompetitive market structure and weak institutional arrangements that have compromised regulatory effectiveness and have resulted in South Africa plummeting down international indicator indices[18] (See Gillwald 2005, 2010).

Critical regulatory interventions to support market entry and competitor viability, such as cost-based interconnection, regulation of essential facilities and allocating spectrum have been stalled as a result of this. The 2005 Electronic Communications Act requires the regulator, the Independent Communications Authority of South Africa (ICASA), to re-licence the entire sector on horizontal lines to reflect convergence in the sector, besides a range of other obligations including interconnection. Devoid of any supporting policy document, the poorly drafted Act together with a ICASA's lack of capacity and expertise to respond swiftly to the demands made on it has created a key regulatory bottleneck in the creation of fair competitive environment in South Africa (See Esselaar et al, 2010).

Historically, prices have been exceptionally high as a result of unregulated pricing in an effectively duopoly market. In the five years prior to the impending entry of the third mobile operator in 2001 Vodacom and MTN increased their mobile termination rates by 500% - from 20 cents to ZAR1.25 while the fixed termination rate was set at

27 cents– where they remained until 2009, despite pricing globally dropping to a fraction of this over the last few years. The unchecked nature of this action reflected the preoccupation by both the Department of Communication (DoC) and ICASA with the monitoring and compliance of the fixed-line operator at the expense of the mobile market. Historically the mobile market has been perceived as an elite service for the corporate sector and rich, although it was already evident early on that its reach had extended way beyond these segments of the population. For example, the mobile market experienced exponential growth levels following the introduction of pre-paid services by the then duopoly of MTN and Vodacom in 1999 in response to the stated intention of new entrant bidders for the third mobile licence to do so as a way of addressing access and pricing issues.

In 2006, in line with its mandate to safeguard consumer welfare and increasing evidence of the high cost of mobile calls, ICASA announced its intention to regulate mobile termination rates and began a public enquiry into mobile termination rates with the gazetting of a discussion paper on mobile termination rates in 2007. The dominant mobile operators, MTN and Vodacom, argued in the hearings that although mobile termination was by definition a monopoly service, the Electronic Communications Act, required that the market definition and significant market power tests in the competition chapter be completed before a rate could be set. On the basis of legal opinions received ICASA concurred with this view, but failed to proceed with the market definition process. Their submission to operator pressure and potential legal action was reflected in their findings document on call termination published by ICASA in November 2007, which cautiously concluded that the competition framework envisaged in the Act would require implementation before any meaningful intervention could follow on call termination.

In 2009, following a ruling by the courts[19] enabling a plethora of former valued added networks (VANS) to operate under the Electronic Communications Network Services licences, the issue of securing interconnection and the cost at which mobile operators were terminating calls became a serious barrier to entry into the market. This had been acknowledged as a problem in many liberalising markets, with the European Union setting a global trend on moving towards crossbreed Long Run Incremental Cost pricing (EU 2009), followed by a number of Africa countries, including Botswana, Kenya, Namibia, Nigeria, Tanzania and Uganda.

Barely months before, following elections in April 2009 and the death of the former Minister of Communications, a new African National Congress administration came into power vowing to slash South Africa's high communication costs. Immediately upon coming into office the new Minister of Communications committed himself to addressing the high cost of communications. The Ministry brought pressure to bear on the operators, proposing that they reach an agreement with ICASA on a voluntary cut. Opposition members also identified South Africa's high mobile charges as an issue for popular mobilisation. In July 2009, the Parliamentary Portfolio Committee on Communication, brought the matter of interconnection pricing before the committee. The committee held hearings on their proposal that the termination rate be reduced from the existing ZAR1.25 to 60 cents immediately along a glide path down to 15 cents by the end of 2012.[20] The Committee wanted to know from ICASA why Namibia had been able to slash their interconnection rates to less than half of what South Africa's were within 9 months (ZAR0.6 in July 2009). This was further taken up by many of the former VANS struggling to sell on value added services with such high interconnection rates and the asymmetry between Telkom and the mobile operators.[21]

Frustrated by the lack of progress the Ministry issued a directive to ICASA the day before the parliamentary public hearings were to begin, to reduce termination charges to no more than 50% above cost by the end of November 2009. The directive, however, did not say when and how this would be done. ICASA retained its position that it would be required to proceed with a formal process. However, attempts by ICASA to ride on the political coat tails of the Minister and bring the mobile

operators to book failed when the dominant mobile operators, MTN and Vodacom, proposed to the ICASA and industry a blended rate of ZAR 0.78. The regulator refused to entertain the offer and subsequently appeared before Parliament to explain that it would face legal review if it did not follow due process, which would result in a reduction of the termination rates more in line with those that had been proposed by March 2009.

At the parliamentary hearings both MTN and Vodacom argued that the reduction being proposed by parliament would undermine their business and inhibit the extension of services to the poor and remote parts of the country. CellC, a net-receiver of mobile payments, argued however that the rates were extraordinarily high and should come down significantly, though they argued that this be done over a longer period of time to give business time to adjust their network gearing. They also argued that, as the smallest player and last entrant into the market they should enjoy an asymmetrical mobile termination rate. CellC proposed that MTN and Vodacom's MTR is ZAR 0.65, while CellC's is ZAR 0.75.

In January 2010, the operators again proposed a cut from the ZAR 1.25 to ZAR 0.89 on peak and to ZAR 0.77 off-peak, with a glide path to ZAR 0.85 peak in October 2011 and ZAR 0.80 peak by 2012, but the offer was conditional on ICASA not regulating the price further for three years. ICASA therefore refused to accept the offer but subsequently accepted an offer of a ZAR 0.36c reduction from ZAR 1.25 to ZAR 0.89 on peak termination rate, while the off-peak remained ZAR 0.77, but without any conditionality. The reduction took take effect on the 1st of March 2010.

In October 2010 ICASA gazetted its call termination regulations effective from March 2011. With a peak rate of ZAR 0.73 it introduces a glide path toward a termination rate in March 2013 of ZAR 0.40, but by then this will still remain above what is globally considered to be the cost of an efficient operator.

In Namibia mobile termination rates have been cut from ZAR1.06 to ZAR0.30 (US cents 14.68 to 4.16)in less than two years, effective from 1 January 2011.

Table 7 Mobile Termination glide Path	Peak		Off Peak	
	ZAR	US cents	ZAR	US cents
March 2011	0.73	10.11	0.65	9.00
March 2012	0.56	7.76	0.52	7.20
March 2013	0.40	5.54	0.40	5.54
Source: Government Gazette No. 33698, 29 October 2010. Call Termination Regulations Exchange rate based on average exchange rate for 2011				

MONITORING THE IMPACT ON RETAIL PRICES

The OECD basket methodology used in this paper is based on the 2006 definitions (OECD 2006). The OECD released new basket definitions in April 2010 (OECD 2010). One key difference between the 2006 and the 2010 mobile basket definition is the range of operators to include. The 2006 definition included dominant operators that together have 50% market share. The 2010 definition includes the two largest operators. Those countries with just two licensed operators would automatically include all operators.

Generally, the basket methodology has strength and weaknesses. Strengths include the ability to compare products of an operator, comparing cheapest products of operators and comparing cheapest products available in a county. This allows benchmarking of countries, operators and products. The basket methodology applied consistently allows consumers to compare products of an operator and between operators. The weaknesses include:

- The OECD methodology of 2006 only includes dominant operators, the 2010 baskets only the two largest operators. Price changes following regulatory

interventions would mainly be expected from small operators that attempt to gain market share through lower prices. On the other hand, dominant operators reflect what people actually pay better than comparing the cheapest product available in a country.

- OECD baskets do not take into account the number of people on each package and actual minutes of use for each package. No one is average and actual consumption patterns of an individual might only poorly be reflected. An alternative would be web-based tariff calculators that all users to input their actual consumption patterns.
- The same basket is used for all operators while subscribers of smaller operators are likely to have a different off-net/on-net ratio compared to larger operators.

Compensating for some of the weaknesses this paper applies the basket methodology of the 2006 definitions to all operators from 46 African countries including all prepaid products. The data comprises 335 mobile prepaid products from 184 operators from 46 countries collected by Research ICT Africa from Jan 2010 to June 2011[22]. Table 8 displays the results for 30 countries. It allows comparison of the cheapest prepaid product available from dominant operators to the cheapest prepaid product available in a country. The difference between these methodologies represents the price pressure of competition within the countries.

Table 8: January 2012 OECD Low User Basket costs in USD (FX= average 2010)

Country Name	Cheapest product from Dominant Operator		Cheapest product in country		% cheaper than dominant
	Rank	US$	Rank	US$	
Mauritius	1	2.39	5	2.39	Dominant is cheapest
Ethiopia	2	2.61	7	2.61	na
Namibia	3	2.74	8	2.74	Dominant is cheapest
Kenya	4	2.85	1	1.90	33.4%
Egypt	5	2.91	9	2.91	Dominant is cheapest
Sudan	6	3.53	6	2.46	30.5%
Ghana	7	3.87	11	3.28	15.1%
Libya	8	3.90	14	3.90	Dominant is cheapest
Rwanda	9	4.28	3	2.16	49.4%
Guinea	10	4.62	2	1.93	58.1%
Sierra Leone	11	5.04	13	3.88	23.1%
Uganda	12	5.51	10	2.94	46.6%
Congo Brazzaville	13	5.63	17	5.63	Dominant is cheapest
Tanzania	14	5.82	12	3.75	35.7%
Algeria	15	6.21	4	2.28	63.3%
Tunisia	16	7.24	18	6.46	10.9%
Senegal	17	8.11	24	8.11	Dominant is cheapest
Botswana	18	8.16	20	7.66	6.0%
Sao Tome &Principe	19	8.21	25	8.21	Dominant is cheapest
Nigeria	20	8.40	16	5.22	37.8%
Madagascar	21	8.45	27	8.45	Dominant is cheapest
Mali	22	8.78	29	8.78	Dominant is cheapest
Burkina Faso	23	8.88	28	8.53	4.0%
Benin	24	9.10	22	7.92	13.0%
Mozambique	25	10.00	33	10.00	Dominant is cheapest
Chad	26	10.14	34	10.14	Dominant is cheapest
D.R. Congo	27	10.37	19	7.62	26.5%
Côte d'Ivoire	28	10.41	36	10.41	Dominant is cheapest
Cameroon	29	10.44	35	10.28	1.5%
South Africa	**30**	11.07	**32**	9.83	11.2%

Source: Research ICT Africa
Note: Table cut off at South Africa to allow display on one page

South Africa performed poorly in this price comparison, ranking only the 30th in terms prepaid mobile products from dominant operators in January 2012. The cheapest product from MTN and Vodacom (dominant operators) for the OECD low user basket costed USD11 in January 2012, compared to only USD2.4 in Mauritius. With regard to the cheapest prepaid product in the country, including not only dominant but all operators, South Africa only ranked 32 (Table 8).

The termination rate cut of March 2011 had not the intended outcome of creating a fairer competitive environment and a reduction in retail prices for mobile subscribers. Cell C, who together with 8ta enjoyed asymmetrical terminates rates, undercut these prices in September 2011 and becoming the cheapest in the market by lowering on-net prices to ZAR0.99 (99c). However the other operators have withstood this pricing pressure and retained their prices.

After the second termination rate cuts of March 2012, however, CellC slashed its prepaid off-net and fixed-line rates by 32% to 99c, now offering 99c across all networks while retaining per second billing. Vodacom immediately followed suit with a promotion offering the same price of 99c across networks as one of its prepaid products, a cautionary step to presumably test price elasticity of own subscribers.

As a result South Africa's ranking improved (Table 9), from 30 to 24 for dominant operators and 32 to 27 for cheapest prepaid product in the country.

Having presumably staved off the loss of potential and actual subscribers to CellC in the hype that surrounded CellC dramatic price reduction to 99c, by end of July 2012 Vodacom quietly withdrew the promotional product (Freedom 99).[23]

Table 9: May 2012 OECD Low User Basket costs in USD (average exchange for 2010)

Country Name	Cheapest product from Dominant Operator		Cheapest product in country		% cheaper than dominant
	Rank	US$	Rank	US$	
Mauritius	1	2.39	5	2.39	Dominant is cheapest
Namibia	2	2.74	6	2.74	Dominant is cheapest
Kenya	3	2.85	2	1.90	33.4%
Egypt	4	2.85	7	2.85	Dominant is cheapest
Ethiopia	5	2.99	8	2.99	Monopoly
Ghana	6	3.38	9	3.28	2.9%
Sudan	7	3.53	1	1.17	66.9%
Libya	8	3.90	12	3.90	Dominant is cheapest
Rwanda	9	4.28	14	4.28	Dominant is cheapest
Tunisia	10	4.30	13	4.18	2.7%
Guinea	11	4.62	3	1.93	58.1%
Sierra Leone	12	5.04	11	3.88	23.1%
Benin	13	5.21	16	5.21	Dominant is cheapest
Tanzania	14	5.40	10	3.75	30.7%
Uganda	15	5.51	15	4.51	18.2%
Congo Brazzaville	16	5.63	18	5.63	Dominant is cheapest
Algeria	17	6.21	4	2.28	63.3%
Liberia	18	7.50	19	7.50	Dominant is cheapest
Mozambique	19	7.52	20	7.52	Dominant is cheapest
Botswana	20	7.93	22	7.66	3.3%
Mauritania	21	8.02	23	7.77	3.2%
Sao Tome and Principe	22	8.21	24	8.21	Dominant is cheapest
Madagascar	23	8.46	26	8.46	Dominant is cheapest
South Africa	24	8.50	27	8.50	Dominant is cheapest

Source: Research ICT Africa
Note: Table cut off at South Africa to allow display on one page

Figure 7 shows that the dominant operators MTN and Vodacom kept their prices high and unchanged in 2011. 8ta the latest entrant into the market in October 2010 was the cheapest operator in the country until August 2011, when Cell C, which only has managed to acquire 10% market share since it became operational in 2001, introduced the '99c' tariff.[24]

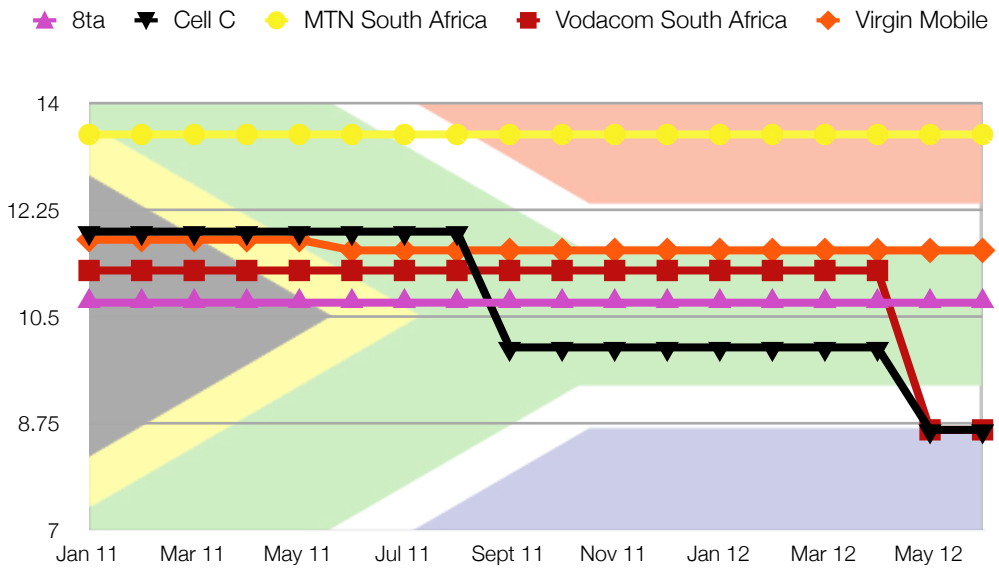

Figure 7: South Africa, Low User basket in US cents based on average exchange rates in 2011 (source: own calculations)

Table 10 On-net / Off-net differential (source: own calculations)

Operator	Product	Jan-12	May 2012	Change
8ta	Prepaid Voice	0%	0%	0%
Cell C	99 for real	NA	0%	NA
	Easychat 99c	51%	51%	0%
	Easychat allday	0%	0%	0%
	Easychat per second	0%	0%	0%
	Easychat standard	0%	0%	0%
MTN	Call Per Second	17%	17%	0%
	Call Per Second Peak	0%	0%	0%
	Muziq	50%	50%	0%
	One Rate	0%	0%	0%
	Zone	35%	35%	0%
Virgin Mobile	Prepay	74%	74%	0%
Vodacom	Freedom 99	NA	0%	NA
	4U Prepaid	18%	18%	0%
	Big Bonus Voucher	26%	26%	0%
	Prepaid All Day per minute	0%	0%	0%
	Prepaid All Day per second	10%	10%	0%
	Vodacom 4 less	29%	29%	0%
	Day saver	33%	33%	0%

The reduction in termination rates in South Africa in March 2011 and March 2012 represented a real reduction in total cost of off-net calls, and as such should have resulted in reduction of off-net call prices for all operators. Cost based termination rates would imply that operators would no longer need to discriminate between on-net and off-net calls. Table 10 displays the average difference between off-net and on-net

rates and shows that retail prices for the dominant operator still discriminate between off-net and on-net, while 8ta and CellC do not (except for Easychat 99c).

Mobile prepaid prices demonstrate that the dominant mobile operators, MTN and Vodacom, are sufficiently entrenched in the market not to be affected by price cutting efforts by late entrants CellC, and now 8ta. However, and more importantly, none of the prepaid mobile prices have increased despite two termination rate cuts during the period covered.

CONCLUSION

The belated and insubstantial termination rate reductions in South Africa, initially through political pressure rather than cost based pricing regulation, have failed to produce the positive competitive outcomes witnessed in other countries. Dominant operators have been able to withstand short term pricing pressure, as marginal late entrants have been unable to leverage the small increments by which termination rates have been reduced.

While the cases of Namibia and Kenya, where significant termination rate reduction have occurred, demonstrate the positive effect on retail prices as a resulting of pricing pressure on dominant operators, the case of South Africa is different. The South African case demonstrates that the pass through to consumers is not automatic, and relatively small reductions in termination rates do not provide new entrants with room to compete with their off-net prices with the on-net prices of dominant operators in order to attract subscribers to their (smaller) networks. Only termination rates set at the costs of an efficient operator can lead to the dynamic competition with all its benefits for the consumers and the economy as witnessed in Namibia and Kenya.

Retail prices have certainly not gone up to compensate for losses in termination rate revenues as has been contended by those offering two-sided market and waterbed effect analyses of the negative impact of reduced termination rates.

The cases of South Africa, Namibia and Kenya demonstrated that there is no uni-directional link between termination rates and retail prices, as often claimed by those defending the status quo of arbitrarily high termination rates. Clearly setting retail prices is not a question of revenue replacement but rather one of profit maximisation in a competitive environment where the choices of one operator influence the revenues and profits of another. The erroneous argument that has been sold to regulators that termination rates and retail prices are linked through a two-sided market, and that reductions in termination rates will result in an increase in retail, is not supported by the evidence presented in the three jurisdiction examined in this paper.

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[2] Mobile Telecommunications Limited (MTC) is Namibia's dominant operator with about 85% market share.

[3] See, for example, Stork (2012) for OECD countries.

[4] This is often linked to the waterbed effect and the two-sided market argument. Examples include: http://www.vodafone.com/content/dam/vodafone/about/public_policy/policy_papers/public_policy_series_7.pdf, http://www.accc.gov.au/content/item.phtml?itemId=700366&nodeId=5cdb00ba048a0dd1a4df111721e754e1&fn=Letter%20re%20Frontier%20report%20on%20waterbed%20effect%20—%20July%202005.pdf and http://stakeholders.ofcom.org.uk/binaries/consultations/wholesale/responses/vodafone.pdf.

[5] https://secure1.telkom.co.za/apps_static/ir/pdf/financial/pdf/Annual_Results_Presentation_2011.pdf, page 6, accessed 19 June 2012

[6] https://secure1.telkom.co.za/apps_static/ir/pdf/financial/pdf/Annual_Results_Presentation_2012.pdf, page 30, accessed 19 June 2012. At this time Telkom had sold in lucrative shareholding in Vodacom which had enjoyed significant revenues from years from some of the highest (asymmetrical) termination rates in the world, but was not planning the entry of a new mobile service 8ta, into this highly entrenched market. They did manage to secure from the regulator in the determination on terminates rates in 2010 an asymmetrical rates, together with Cell C, from the dominant operators, Vodacom and MTN.

[7] http://www.mtn.com/Investors/Financials/Documents/ar_integrated_report2011.pdf, page 38, accessed 19 June 2012

[8] This highlights the need for ICASA to collect actual figures for all interconnection revenues and payments from operators for standardised time periods in order to determine exactly the impact of termination rate cuts.

[9] www.techcentral.co.za/neotel-cuts-call-prices/21409 published 25 February 2011 last viewed 26 April 2012.

[10] his is often linked to the "waterbed effect" and two-sided market argument. Examples include: http://www.vodafone.com/content/dam/vodafone/about/public_policy/policy_papers/public_policy_series_7.pdf; http://www.accc.gov.au/content/item.phtml?itemId=700366&nodeId=5cdb00ba048a0dd1a4df111721e754e1&fn=Letter%20re%20Frontier%20report%20on%20waterbed%20effect%20—%20July%202005.pdf; and http://stakeholders.ofcom.org.uk/binaries/consultations/wholesale/responses/vodafone.pdf.

[11] For more detailed account see Stork (2012). He argues that the waterbed effect has not been documented empirically, nor has there been any convincing evidence that call termination is one side of a two-sided market. Neither access nor usage prices increased in response to MTR reductions in the his examination of over 20 EU or Africa countries. It is argued by some that the waterbed effect exists but is masked by other developments, such as increased competition and decreasing unit costs and, hence, cannot be observed by a casual examination of the data (see, for example, Genakos and Valletti, 2007, 2009). One of the reasons he provides for this significant disjuncture in findings is that the use of a panel studies of a number of countries to examine evidence for the waterbed effect are unsuitable for investigating the consequences of termination rate cuts. He provides several reasons for this including the difficulties of constructing data sets with enough data points to account for complexities of telecommunication markets; and the use of OECD price-basket methodology that does not reflect price changes of smaller operators and other omitted variables .

[12] Ksh=Kenya shilling

[13] http://safaricom.co.ke/fileadmin/About_Us/Documents/Full_Year_2010-2011_Results_Presentation.pdf

[14] It was replaced by the Communications Regulatory Authority of Namibia (CRAN) in May 2010.

[15] EBITDA = Earnings before interest, taxes, depreciation and amortisation

16 See www.researchICTafrica.net Mobile Pricing Index.

[17] http://en.wikipedia.org/wiki/List_of_African_countries_by_GDP_(nominal)

[18] Since 2004 South Africa has fallen from 34 of 138 countries measured in the World Economic Forum e-readiness Report to 61 in 2009 and was ranked 95 in terms of ICT usage component of the multi-dimensional study. The International Telecommunications Development Index which also measures multiple factors contributing to the development of an information-society, include infrastructure and access; the intensity of ICT use and ICT capability or skills, South Africa has slipped from 77 in 2002 to 91st position in 2007.

[19] These regulatory delays identified above were further compounded by the delays in issuing EC Act compliant licences as a result of Ministerial intervention in who was eligible for licences and which of them could provide their own facilities resulting in. ICASA announcing its decision to licence only a select group of the existing VANS licensees. Reneging on its earlier policy interpretation that these licensees would be permitted to self-provide, ICASA indicated that only those selected VANS who received the new licences from the regulator following the 2007 Ministerial policy direction but with no clear criteria for their award, would be entitled to self provide. This resulted in legal action by Altech, a VANS provider denied a new electronic network services, challenging the decision to limit the number of converted ECNS licences against ICASA and the Minister of Communications on whose directive ICASA had acted. It also sought relief from the contested prohibition on VANS being able to provide their own network facilities without having to obtain these from incumbent licensed telecom network operators such as Telkom or Neotel. The court, in granting the relief sought by Altech, declared that the prohibition on self-provisioning was in direct conflict with the enabling legislation and ordered that all VANS operators licensed before the start of the conversion process, be allowed to 'self-provide', in accordance with the initial policy direction and the initial interpretation offered by ICASA in 2005 (See Gillwald, 2007 for fuller account).

[20] . Resolution of the Parliamentary Portfolio Committee on Communications on measure to reduce interconnections rates in South Africa, 15 September 2009. Published in ATC of the National Assembly.

[21] See for example: http://www.nashua-ecn.com/index.php/press/legal-challenge-to-high-interconnect-fees/

[22] See www.reseachICTafrica.net

[23] http://mybroadband.co.za/news/cellular/57265-vodacom-99c-promo-ended-quietly.html

[24] MTN zone dynamically priced products were priced as 70% of advertised rates. The actual average price that consumers pay is not stated by MTN and may change from call to call based on cell traffic.