Administered Prices

TELECOMMUNICATIONS

A report for National Treasury

JAMES HODGE

Preface

This report was prepared for National Treasury to support its assessment of administered prices in South Africa. The objective of the study was to assess the processes involved in setting prices in regulated industries. By evaluating the efficiency, effectiveness and analytical rigour of the regulatory processes involved in setting prices for the services involved, an assessment can be made of the likelihood that the resultant tariffs approach efficient levels. Volume I of the report sets out the main findings and recommendations with supporting information relating to the individual sectors included within the scope of the study provided in a summarised form. Volume II contains more detailed sectoral reports, covering individual review of the water, electricity, telecommunications, transport, health and education sectors.

The report does not offer a detailed quantitative assessment of the performance of the regulatory regime, and is largely based on in-depth interviews and documentary analysis. The authors would like to thank the interviewees for their cooperation and valuable insights. Although much care was taken to provide a correct reflection of the opinions expressed, the authors remain entirely responsible for any inaccuracies.

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LIST OF ACRONYMS

CAM	Cost Allocation Manual
COA	Chart of Accounts
ICASA	Independent Communications Authority of South Africa
IPO	Initial Public Offering
ISDN	Integrated Services Digital Network
LRIC	Long-run Incremental Costs
OECD	Organisation for Economic Co-operation and Development
PABX	Private Automatic Branch Exchange
POI	Point of Interconnection
PSTN	Public Switched Telecommunications Network
SA	South Africa
SATRA	South African Telecommunications Regulatory Authority
SNO	Second National Operator
USAL	Under-Serviced Area Licence
VANS	Value-Added Network Services
VoIP	Voice over Internet Protocol

EXECUTIVE SUMMARY

This report focuses on price regulation in the South African (SA) telecommunications sector against the background of deep sector-level and institutional restructuring.

The SA telecommunications market was operated as a government monopoly until the beginning of the 1990s when the sector was subject to reform, which initially saw two mobile phone operators licensed and competition introduced for value-added network services and customer premises equipment. The public telecoms monopoly Telkom also became a partially private monopoly, with a five-year exclusivity period.

Phase two of the reform process introduced gradual 'managed liberalisation' and not an immediate opening to competition in all quarters. During this time a third mobile operator was licensed and the licensing process for a second national operator (SNO) initiated. 2005 was proposed as the start of the next phase in the reform process when additional entrants and the resale of capacity would be examined.

Given the limitations of competition to drive pricing closer to cost levels under these circumstances, price regulation by a government agency was necessary to ensure consumers are not exploited in the reform process. However, the effectiveness of price regulation would depend on the powers and capacity of the regulator that was established.

This report examines: a) how retail and wholesale prices in the telecoms sector in South Africa have been regulated since the reforms began, and b) how effective this regulation has been in constraining the incumbent firms to price at efficient levels.

It finds, in the main, that little price administration in telecommunications occurs in practice, despite what may exist in the legislation. This is particularly true of mobile cellular and interconnection rates where regulation has not imposed any constraints on pricing. For the fixed-line network operator, the price cap has had some constraining influence, but its generous productivity factor means the constraint has been minimal.

The weakness of price regulation is a direct result of an ineffective regulator who has inadequate resources and a lack of enforcement power. This has resulted in the regulator sidelining many important issues as it is forced to prioritise work, and then performing a less than adequate job on those issues it does focus on. A lack of enforcement power has primarily been the result of Ministerial power to approve every regulation passed; information asymmetries; and some examples of poor legislation. This reduces the importance of the regulator and scientific price administration methods, elevating the importance of ministerial lobbying and legal strategy in shaping regulatory outcomes.

INTRODUCTION

The SA telecommunications market was operated as a government monopoly until the beginning of the 1990s when the sector was subject to a number of phases of reform. In the first phase of reform in 1993/94, two mobile phone operators were licensed and competition was introduced for value-added network services[1] (VANS), such as Internet services, and customer premises equipment, such as phones. Major reform of the landline or public switched telecommunications network[2] (PSTN) was postponed until the new democratic government could initiate a more consultative process. In 1995 a green/white paper process was initiated, which led to the Telecommunications Act of 1996.

Whilst network expansion into areas not serviced during *apartheid* was the over-riding priority that shaped the policy, the choice of strategy was a pragmatic compromise between the competing interest groups. To achieve network expansion via privatisation[3] (opposed by the unions) and exclusivity (opposed by business), the exclusivity period was limited to the period required to achieve network growth targets, whereafter competition was introduced (reflecting business and foreign diplomatic pressure). Privatisation was limited to a minority shareholding, albeit with management control.

The Telecommunications Act of 1996 thus provided a five-year exclusivity period to the incumbent monopoly, including the necessary fixed-line infrastructure for mobile, VANS and private networks, in return for specified network rollout to previously under-serviced areas. Further decisions regarding the shape and extent of competition were to be made before this exclusivity period expired. A 30% stake in the public monopoly was sold to an international consortium in 1997, and the so-called strategic equity partner was simultaneously granted management control. In addition to these reforms, the Act also created an independent regulator – the SA Telecommunications Regulatory Authority (Satra) – which was later combined with the broadcasting regulator to form the Independent Communications Authority of SA (Icasa).

Phase two of the reform process, which began in 2000/01, was aimed at determining the required changes to follow the end of the exclusivity period in May 2002[4] and deciding whether competition should be extended in the mobile sector. The policy direction that emerged was one of gradual 'managed liberalisation' and not an immediate opening to competition in all quarters. The primary components of the policy included: the introduction of a third mobile operator; the initiation of a licensing process for a second national operator (SNO); a wholesale licence[5] for Sentech; and the start of a licensing process for 19 under-serviced area licences (USALs). It also established 2005 as the start of the next phase in the reform process when additional entrants and the resale of capacity would be examined.

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[1] Services that add value to the telecoms facility for the customers, such as Internet service providers, managed data networks for corporates, or any content, format or protocol alteration.

[2] A PSTN offers services to the public on a subscription basis. Services usually include local access, national and international long-distance calling and public payphones. It does not include mobile services.

[3] Horwitz (2001) also argues that the ANC government could not allocate more public funds to Telkom for network rollout because of the dismal state of public finances and the need to constrain fiscal deficits to get foreign investor approval.

[4] RSA 2001.

[5] Known as a Carrier of Carriers licence, which provides wholesale international services to existing operators only and not to retail customers.

This report focuses on price regulation in the SA telecommunications sector against the background of deep sector-level and institutional restructuring.

In these early phases of telecommunications reform, the public telecoms monopoly became a partially private monopoly which obviously seeks to maximise profit. Given the limitations of competition to drive pricing closer to cost levels under these circumstances, price regulation by a government agency is necessary to ensure that consumers are not exploited in the reform process. However, the effectiveness of price regulation depends on the powers and capacity of the regulator and the information at its disposal.

This report examines: a) how retail and wholesale prices in the telecoms sector in SA have been regulated since the reforms began, and b) how effective this regulation has been in constraining the incumbent firms to price at efficient levels.

Section one examines the retail prices in the landline sector. It covers the price regulation in place, the price administration in practice and an assessment of the price administration process. All statistical tables for this section can be found in Appendix one. Section two follows the same approach but for mobile cellular retail prices. All statistical tables for this section are included in Appendix two. Section three examines wholesale prices (interconnection and facilities leasing) and again follows the same approach of looking at regulation, the practice and an assessment of the practice. Appendix three contains the statistical tables for this section. The last section looks briefly at the impact of administration-imposed costs on prices. It focuses on licence, spectrum and universal service fees, in addition to licence obligations. All statistical tables for this section are found in Appendix four.

1. FIXED-LINE RETAIL PRICES

1.1. The Regulation

Tariff determination

The first rate regime was set by the Minister of Communications (hereafter 'the Minister') for a period of three years, ending in May 2000, and was supposed to be followed by a regime determined by the independent regulator Icasa.[6] However, the legislation gives the Minister final approval of any regulation passed by Icasa[7]. This ministerial discretion is clearly of some concern because it allows for political intervention in what should essentially be a technical matter. It also provides an incentive for some players to spend resources lobbying the Minister to get the rate regime changed to enable higher profits. This incentive is particularly problematic given both the size and resources of the companies involved and the large state shareholding in these companies.

In fact, this power was used openly in the first and only review by Icasa to overturn its initial recommendation. Due to ambiguous wording in the relevant section of the Act, which left a regulatory vacuum from 7 May 2000 when the first rate regime ended, Icasa's rate regime was not approved until November 2001, [8] When it had finally been approved by the Minister, Telkom argued that the regulations were invalid and was taken to court by Icasa, leading to extensive delays. The danger of future intervention may be somewhat reduced after the further sale of shares by government, but it is likely that lobbying from Telkom will remain as intense as ever. The PSTN operator's licence stipulates that it must conform to the rate regime in place at the time and file its tariffs with the regulator in a prescribed manner[9].

Tariff filings

All operators who are subject to regulated retail prices are required to file their tariffs with the regulator annually. The purpose is to determine whether the proposed price increases conform to the rate regime in force at the time. This is a mechanical process of checking all calculations made by the operators in their filing. The Telkom licence[10] only permits the regulator to disapprove the proposed rates if: "(a) the calculations contain mathematical errors; or (b) the terms and conditions violate applicable laws, including without limitation, policy directions, regulations and the Rate Regime, in material respect". The regulator has 15

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[6] The procedure for determining and amending the rate regime is contained in Sections 45 and 96 of the Telecommunications Act of 1996 (hereafter 'the Act') and in Condition 7 of the Telkom licence.

[7] Section 96 (6) of the Act

[8] Section 45 (2) of the Act. This section was amended in 2001 [addition of Section 45 (2) (b)] because its initial wording left a regulatory vacuum for the rate regime from 7 May 2000 (the third anniversary of the licence), which Telkom exploited by pushing through a tariff increase above the initial price cap level in its 2001 tariff filing (a CPI-0% increase).

[9] Condition 7 of the Telkom licence. However, it also gave Telkom the right to call for a rate review after three years if it felt that the existing or future rate regime was "reasonably likely to have a materially adverse impact on the Licensee or the Licensee's ability to fulfil its obligations under this license" (Condition 7.1). Telkom never invoked this right during the exclusivity period.

[10] Condition 7.1 of the Telkom licence.

business days to disapprove of the rates in writing, or "the rates shall be deemed approved".

The 15 business days may seem like a short period to undertake this exercise, especially if the regulator is resource-constrained like Icasa. However, because this is merely a mechanical checking of whether the price increases conform to the rate regime, it seems adequate.

Regulatory accounts

The regulatory accounts constitute the most important information the regulator requires to set wholesale and retail prices. They provide the detailed cost information of operations that makes effective price regulation feasible. Regulation theory argues that the larger the information asymmetry between the operator and the regulator, the greater is the scope for the operator to earn abnormal profits[11].

The content of and format in which the licence holders must submit their regulatory accounts to the regulator[12] are defined by the Chart of Accounts and Cost Allocation Manual (COA/CAM)[13]. These are to be developed by the regulator in consultation with the licensees. Icasa has exempted the new entrants to the mobile cellular and landline sectors (Cell C, Sentech and the SNO), as well as the USAL holders and the VANS providers[14] from this requirement, as these firms – either late entrants or universal service providers – are less likely to be able to make monopoly profits. Although Telkom should provide such regulatory accounts according to its licence requirements, [15], the licence conditions provide enormous leeway for Telkom not to produce this information, even though the accounts are crucial for retail price regulation, as well as regulation of interconnection and facilities leasing prices. Licence condition 8.4 states that Telkom "shall not be required to prepare Regulatory Accounts… until it has put in place the necessary accounting and management information systems which will enable it to do so". Telkom was required to put these in place by the fifth year of the licence (7 May 2002), but only if it does not "impose an undue burden on the Licensee having regard to its obligations under the remaining conditions of this License". Failure to reach agreement on a COA/CAM with the regulator that determines the requirements for these systems is another reason Telkom used to delay the implementation of the necessary accounting and management information systems on time.

The May 2002 deadline for implementing regulatory accounts –in itself a weak deadline – was obviously of no use to Icasa's initial rate regime review in 2000/01, limiting the extent to which a detailed technical review was possible. This deadline also meant that Icasa did not rush to put the COA/CAM manuals in place earlier. It only issued the tender to develop the COA/CAM manual for the PSTN

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[11] It is often referred to as informational rents because it stems from information asymmetries.
[12] Section 46 of the Act
[13] Three different sets of COA/CAM are envisaged. Volume 1 sets out guidelines on regulatory accounting, Volume 2 contains requirements for mobile cellular telecommunications services licensees, and Volume 3 the requirements for public switched telecommunication services licensees.
[14] Icasa 2002a
[15] Section 8 of the Telkom licence covers the preparation of regulatory accounts. Telkom is required to establish "regulatory accounts in accordance with the Chart of Accounts and the Cost Allocation Manual (COA/CAM)" (Condition 8.2). Until the initial COA/CAM are agreed by Telkom and the regulator, "audited annual financial statements shall be prepared in accordance with generally accepted accounting principles" (Condition 8.7).

sector in 2001, while Volume 1 of the COA/CAM manual was finalised only in June 2002.

The COA/CAM regulation states that operators must submit the first regulatory accounts within six months of the first financial year-end after the COA/CAM manual has been regulated (end-September 2003 for Telkom). However, since Icasa is aware that the Telkom licence gives Telkom scope to argue that it is not capable of complying as yet, the COA/CAM regulation stated that the implementation will be a phased process "taking account of Operator circumstances" (section 1.3). Telkom has indicated to Icasa that it can at best expect to have the regulatory accounts completed by the end of 2004[16], but the licence condition provides scope for even more delays in delivering these accounts. In fact, there is an enormous incentive for Telkom to delay as long as possible, as the next tariff review is only scheduled once the regulatory accounts are complete[17] – Icasa acknowledges that reasonable price regulation of Telkom is not technically feasible until this time.

1.2. Price Administration to Date

Initial tariffs

The initial rate regime used a classic price cap mechanism[18], with the productivity factor (X) set at 1.5% for Telkom and a maximum single price movement in the basket of tariffs of 20% in real terms. The basket of services covered all retail services offered by Telkom under conditions of limited or no competition. The basket therefore excluded wholesale services (interconnection) and services where Telkom faced competition (customer premises equipment, VANS). Mobile cellular services offered through its 50% shareholding in Vodacom were regulated separately and excluded from the basket, along with emergency services that are regulated to be offered free of charge. A detailed breakdown of the price cap mechanism and the basket of services appears in Appendix 1.

Using a price cap methodology was considered sensible at the time because: a) it was considered regulatory best practice, especially in sectors like telecoms where there was considerable scope for efficiency gains; and b) the regulator did not have adequate cost information or expertise to conduct cost-of-service regulation. However, a properly derived price cap requires equal amounts of, if not more, data on the operations of the regulated entity. It is therefore difficult to trace what information exactly went into the calculation of the initial productivity factor, but one can assume that it was a matter of negotiation between the Ministry and the operators. There are many reasons why a relatively conservative productivity factor was chosen (and is still chosen in many countries undergoing a similar process):

- Telkom's considerable debt at the time and the need to place it on a better financial footing.
- The need to attract a strategic equity partner.

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[16] Mandla Msimang, Icasa

[17] Peter Hlapolosa, Icasa. Further, Section 3 (2) of the current rate regulations (GG 23986) states that "the level of X shall be set at 1.5% until reviewed by the Authority. This review shall commence after the promulgation in the gazette of the Chart of Accounts and Cost Allocation Manual regulations".

[18] Minister of Posts, Telecommunications and Broadcasting, 1997b

- The onerous rollout targets and network upgrade obligations imposed on Telkom.
- A lack of regulatory accounts for Telkom at the time would have limited the ability to set the cap accurately.

The initial rate regime was intended to last until the end of the exclusivity period when Telkom was expected to have its regulatory accounts completed. As Telkom did not call for a rate review midway through the exclusivity period, it can be assumed that the rate regime was not having a "materially adverse impact" on the company, reinforcing the perception that the initial productivity factor was not constraining. This fact and the end of rollout obligations should have suggested that the productivity factor be increased significantly after the exclusivity period.

The 2001 Telkom rate review

Icasa began a review of the rate regime in December 2000[19], of which the findings were published in April 2001[20]. The review apparently covered all aspects of the rate regime, including the use of a price cap and public submissions that provided different interest groups' perspectives on each aspect of the price cap[21]. The review process was useful and largely succeeded in getting public feedback on the rate regime. It emerged that there was broad support for a price cap mechanism. Major areas of concern were that the initial productivity factor was too low and that residential customers were extremely vulnerable to rate rebalancing and had to be protected. To remedy the – potential - abuse of the Consumer Price Index (CPI) measure, Icasa proposed using the September-to-September increase in CPI – where information would be available from Statistics SA – instead of the January-to-forecasted-January CPI approach used by Telkom. The latter tended to serve Telkom's interests, overestimating the CPI increase by 1.0% in the 1997 filing and 0.9% in the 1999 filing, but only underestimating the increase by 0.1% in the 1998 and 0.2% in the 2000 filing.

Providing better protection for residential customers could partially be achieved through changing the rate regime rules to introduce a residential sub-cap and limit the maximum real price increase for any single service. Icasa subsequently introduced this sub-cap. However, the essence of the review – determining what the productivity factor should be or whether tariffs had already been rebalanced too far (and left residential customers subsidising Telkom's competitive business services) – could not be answered through a public review mechanism without regulatory accounts. All that the different interest groups could do was voice their opinion on prices without any statistical evidence. Against this, Telkom argued that the productivity factor should be 0% because "it had already achieved virtually all efficiency improvements possible" (Section 7 (2) of Icasa 2001a) and that its profitability has been reduced by the costs of providing and maintaining the rollout targets in its licence[22]. It also argued that the only way to determine if the rebalancing was correct was to compare the ratio of local to long-distance prices

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[19] The review began with a notice of intent to conduct an enquiry (Icasa, 2000). Icasa used the initial notice of intent to review the regime, explain the current regime, provide some analysis of prices over the previous period, and identify issues and questions that it wished to answer through the review.

[20] The review's findings were gazetted on 23 April 2001 (Icasa, 2001a), along with a notice of intent to draw up regulations on the new rate regime and giving three months for comment (Icasa, 2001b).

[21] The regulator held hearings for two days in February 2001 to receive public input.

[22] Section 9 (2) of Icasa 2001a

in SA to those of liberalised markets. It provided such a comparison to 12 Western European countries and produced the ratio of 1:2.7 for local to long distance.

The regulator – deeming a more stringent productivity factor was needed but lacking the accounting data to determine a reasonable factor – was in a difficult position. In the end, Icasa recommended a productivity factor of 5% [23], based entirely on the productivity factors used at the time in the UK and Canadian regulatory regimes (5% and 5.5% respectively)[24]. There is no doubt that the regulator could have made greater use of the information in Telkom's annual reports to provide a more sound empirical basis for its decision. As demonstrated recently by William Melody's (2002) assessment of the 2003 Telkom price increase, the regulator could have built a stronger case through determining: a) the soundness of Telkom's financial status at the time of the review, b) Telkom's productivity improvements over the previous years, and c) the real cost increase of telecommunications equipment (as opposed to CPI). At the very least, such a calculation would have been based on actual Telkom data and the SA market and not on the situation in other countries where telecoms operators might be facing very different challenges – especially in terms of efficiency levels and scope for future improvements. In fact, had Icasa done so, it might have concluded that 5% was relatively low, considering that labour productivity improved by an average annual rate of 14.1% from 1997 until 2000 when the review was initiated. Notwithstanding, Icasa's case for a particular figure would have remained weak, exposing the regulator to Telkom contesting its figure in court or – as happened – through lobbying the Minister directly.

After the period of feedback on the proposed new regulations, Icasa adjusted the proposed productivity factor down to 3%[25]. As revealed in interviews with the regulator, the reduction was motivated by the realisation that the 5% X factor had no basis in the SA context. Consequently Icasa decided to bring the figure down, in part to avoid litigation from Telkom that would delay the process further or rejection of the proposed rate by the Minister, whom they expected Telkom to lobby[26]. Publicly it was argued that the weakening of the world economy had influenced Icasa's decision[27]. As the regulator was intended to reconvene a rate regime review within two years of completion of the regulatory accounts, this was not seen as such a problematic compromise – even though the regulator knew the proposed X factor was probably on the low side.

In reality, however, the self-imposed downward adjustment only weakened Icasa's bargaining position when the proposed regulation came before the Minister for approval, who sent it back to Icasa to reconsider. The basis for this rejection was allegedly the greater downturn in the world economy after the September 11 attacks in New York and a weakening of the Rand[28]. However, the Minister went much further and actually suggested the rate should be 1.5% – exactly midway between Icasa's and Telkom's positions. This effectively tied Icasa's hands, as failure to adjust to this rate would probably see its proposal rejected again.

Worse was to come for Icasa and its attempt to regulate Telkom's prices. Telkom used the impasse between the regulator and the Minister to file its tariffs for 2002

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[23] Icasa 2001b
[24] Peter Hlapolosa, Icasa
[25] Business Day September 14 2001.
[26] Peter Hlapolosa, ICASA.
[27] Business Day November 6 2001.
[28] Business Day November 6 2001.

early and, as such, in a regulatory vacuum. The initial Act stipulated that the original rate regime was to be replaced by one determined by Icasa after three years. The regulatory vacuum saw Telkom put through a tariff increase of CPI-0%. Telkom argued that huge increases in interconnection costs meant that the cost of fixed-mobile calls had increased beyond its control, so it wished those to be excluded from the basket of services[29]. Yet it also used the predicted CPI for January 2002 of 5.5% instead of the actual September 2001 figure (as proposed in the new regulations), because the CPI was expected to increase dramatically with the weakening of the Rand and rising oil prices. According to Statistics SA, the actual CPI to September was 4.4% and to January 2002 only 5%. Therefore, instead of a nominal increase of 2.9%, Telkom put through an increase of 5.5% – 2.6% higher than if the regulations had been passed on time. Telkom's final ploy was to remove the 50-100 km band from its call structure, making all such calls long distance. This decision primarily impacted on Johannesburg-Pretoria traffic and significantly raised the price of what were deemed local calls. Telkom implemented a similar strategy in the 1999 tariff filing when it dropped the 100-200 km call category.

The Minister finally approved the new regulations on 28 November 2001, but Telkom defied the regulator and the Minister, persisting with its new tariffs and contending that the new regulations were invalid. The initial judgement in Icasa's court case against Telkom allowed Telkom to impose the new tariffs pending the outcome of the case, which was eventually settled out of court in June 2002. It was publicly acknowledged that the Minister had intervened to force a settlement because of concerns about how this would impact the licensing of the SNO and the upcoming initial public offering (IPO) for Telkom.

The settlement forces Telkom to 'repay' consumers R320-million over the next two years by imposing increases below the maximum permissible by the price cap[30]. This is not necessarily a good deal for consumers because: a) the net present value of R320m paid a year later at 10.1% inflation is only R291m, and b) there was no accounting for the difference in inflation figures used (another 1.1% or R238m) and the removal of the 50-100km call band. A further insult was the announcement in Telkom's 2002 annual report that it had delivered labour productivity improvements of 11% (after announcing the end of efficiency improvements a year earlier), and having the financial results described as "robust" by Telkom CEO Sizwe Nxasana and the business as "never been stronger" by chairperson Eric Molobi. Profit and operating revenue increased 8%, earnings per share by 17% and cash flow from operations 16%.

1.3. Assessment of Price Administration

Forces influencing prices

A PSTN provider faces three potential forces that could restrain them from imposing inefficient prices –competition, countervailing power from customers and price regulation (which is only imposed when the other forces are weak). The strength of these forces on influencing price setting is summarised in Figure 1.

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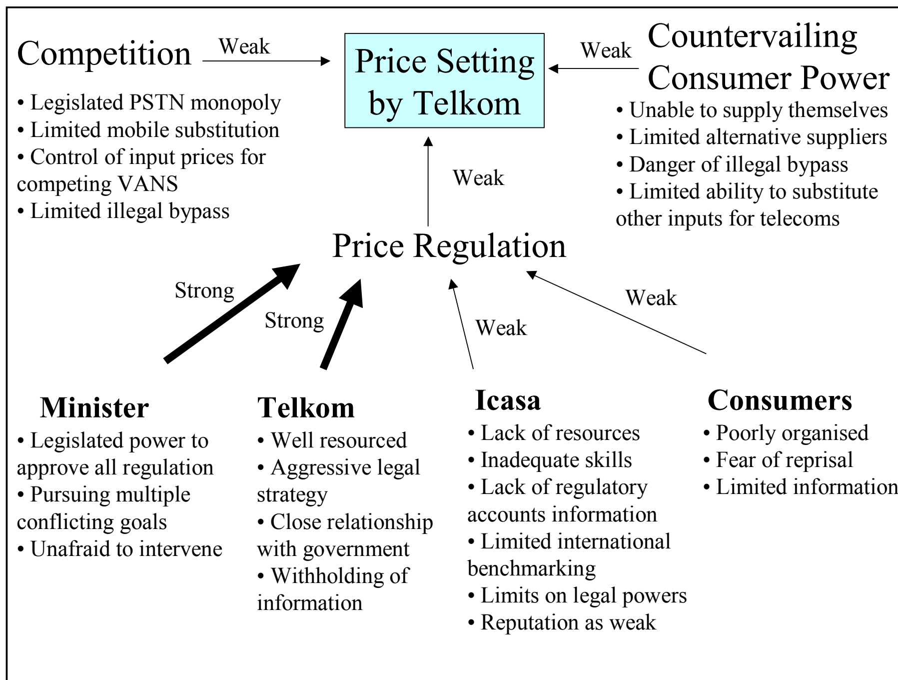
[29] In its tariff filing it shows a CPI-1.5% increase plus an increase of 1.5% (R320m) to cover the increased interconnection fee.

[30] *Business Day*, 7 June 2002

Figure 1: Forces constraining price setting in the PSTN sector



Telkom currently faces only limited competitive pressure due to its legislated PSTN monopoly:

- *Competition in VANS* which is blunted by the fact that VANS providers other than Telkom must make use of the monopoly's leased lines, enabling Telkom to determine a large portion of their costs and hence their prices.
- *Competition from mobile network operators*. –Mobile services is only a substitute for voice traffic, and its much higher call prices limit the extent to which it can compete with fixed line. However, it is a good substitute for fixed line for low-income consumers whose total monthly outlay is small (see Hodge 2003), and calls to cellular phones (i.e. cellular-to-cellular rates are often cheaper than fixed-line to cellular phones[31]).
- Illegal bypass: Transtel has been accused of illegally providing national and international services on a limited basis to some large communications users[32]. However, such alleged services must remain limited to avoid detection and sanction.

The constraints on competition and the inability to produce communications services themselves or substitute such services for other input result in weak countervailing power from consumers. Voice over Internet Protocol (VoIP) offers one means of bypassing Telkom for long-distance calling. The fact that it is difficult for Telkom to prevent other service providers from carrying voice as well as data over their networks on behalf of clients using VoIP has provided consumers with some bargaining power. But Telkom's ability to punish offenders it

[31] Telkom is currently engaged in a legal battle to have routing software for Private Automatic Branch Exchanges (PABXs) outlawed that direct outgoing calls through different networks and so minimise the tariff on each call.
[32] This too is the focus of a current complaint by Telkom.

does catch (for example, by suspending its services to such consumers) makes many large firms hesitant to the take the risk.

Strong price regulation was intended to compensate for the weakness of competitive and consumer forces during the period of managed liberalisation. However, as has been noted from the discussion above, price administration itself has been weak. (However, since Telkom has imposed increases to the limit of the price cap, price regulation offers at least some constraint to monopoly pricing.) Price regulation has been inadequate because the two parties involved in the rate determination process that seek to constrain prices to efficient levels – Icasa and the consumer – are ineffective, whilst one of the stronger players – the Ministry – has conflicting goals that make it appear ambivalent about efficient prices. An aggressive Telkom is able to exploit Icasa's weakness and the Ministry's ambivalence to limit the constraint of price regulation.

Because it has limited resources, inadequate skills, a lack of regulatory accounts information, limited international benchmarking and inadequate legal powers to act independently, Icasa is seen to be ineffective, which make regulated firms more likely to adopt aggressive strategies. The public submission process allows Icasa to draw on the resources of interested parties who use this process to supply information and make known their own preferences for telecoms services and service providers. However, consumers and industry association groups are not strongly mobilised and cannot provide the relevant information that is necessary for effective price regulation.

For instance, in the last price review the VANS Association submitted a complaint about Telkom's prices and market power, but failed to present any data (such as international price comparisons) to support its case and assist the regulator in deciding in its favour. But there are other reasons why consumers that have the capacity are not as active in the public consultation process, including fear of reprisal from Telkom that has established a reputation for aggressive protection of its markets[33], or merely a lack of faith in the ability of the regulator to impose its will over Telkom and the Ministry. The result is that consumers make less effort to engage in costly information gathering because of the low expected returns.

Telkom is powerful because it has been able to withhold information necessary for a more scientific approach to price setting, and has a reputation for aggressive protection of its markets through litigation. So Icasa avoids challenging Telkom unless it has a strong case (evidenced by the regulator tempering its productivity factor in anticipation of opposition). Telkom has also nurtured its relationship with government by highlighting its role as universal service provider and source of finance through equity sales. This enables the monopoly to influence the Minister who has the final say in all matters of regulation. The regulator has now come to expect Telkom to lobby at Ministerial level and so adjusts its recommendations in anticipation of a Telkom veto. Because of its legislative powers, but also its willingness to use these powers to pursue its own agenda, the Ministry has a strong influence on price setting. It has to balance a number of goals in the telecommunications sector and clearly does not entrust the realisation of this fine balance to the regulator. However, if the Ministry does not carry out the necessary

[33] From its submission, Vodacom was asked what it suggested the price cap should be. The cellular operator replied that it would be inappropriate for it to speculate on the price cap, given Telkom's 50% ownership of the operator.

analytical work to determine reasonable productivity factors for price caps, its influence cannot bring prices towards an efficient level.

Are current prices socially inefficient?

At the moment Telkom only faces weak constraints from the three forces detailed above, enabling it to raise prices above efficiency levels and closer to monopoly prices. Its large private shareholding and management control give it even more incentive to do so. Therefore one must conclude that prices are not efficient and that a degree of monopoly pricing probably still exists. But there are further indications that the incumbent may be making abnormal profits.

First, the only measure of fixed-line productivity available is lines per employee, which has increased from 75 to 125 from 1997 to 2002 – an average annual increase of 10.8% compared to the productivity factor of 1.5%. One can only speculate on capital productivity, but for instance, modernisation initiatives at Telkom, such as a move to IP routing on long-distance networks[34], can bring about 60% to 70% cost savings, according to industry analysts[35]. Secondly, Telkom has used favourable CPI forecasts in the past to bring about greater price increases and even defied the regulations in its 2002 filing (although it had to make some repayment). Thirdly, productivity factors typical of regulatory regimes in other parts of the world range between 5% and 10% (Melody 2002). In the fourth place, the comparison used to determine the ratio of tariffs between local and long-distance calls might be flawed. The only evidence presented so far is the Telkom survey of ratios of prices. However, serious questions can be raised about the applicability to SA of the ratios taken from 12 western European countries. Local networks are in all likelihood more labour intensive than long-distance networks, and so significant differences in wage rates relative to capital costs between countries could cause differences in local to long-distance tariff ratios. A lower wage country like SA should expect to have a higher ratio in this scenario, which suggests that the use of European ratios will result in overpricing residential services.

Steps to bring prices closer to efficient levels

For a number of reasons, the current price administration process does not promise efficient prices in the near future. First, until the next rate regime review, Icasa can only verify Telkom's mathematical calculation in applying the current CPI-1.5% regime to its tariffs. If Telkom is making abnormal profits now, it will continue to do so. Secondly, a rate review where regulatory accounts will be available for use is still a few years off. Telkom is expected to delay producing such regulatory accounts as long as possible – in fact it recently warned Icasa of a further 18-month, or possibly longer, delay. In the third place, even when Telkom's COA/CAM is finally filed, it may take Icasa a considerable period to conduct the detailed review of the accounts – not only because the regulator is under-resourced (two staff members, an economist and a public-policy graduate, determine the rate regimes for all operators, with no managerial support), but also since it lacks the accountants and engineers necessary to trawl through the COA/CAM. Based on past behaviour, Telkom can also be expected to contest the outcome strongly, both in court and by lobbying the Minister. While one might expect less interest from the Minister in protecting Telkom given the smaller government share in the operator, some delays in the process should still be

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[34] Telkom Annual Report 2002
[35] Andries Mathyssen, Icasa

expected. This could indicate that the 2001 review, which took place under exceptional circumstances (the run on the Rand and the September 11 attacks) and was meant to continue for only two years until the introduction of the COA/CAM, may continue for at least another two years.

The introduction of the SNO should strengthen the competition constraint on prices to some extent. However, the winning consortium's only viable entry strategy would be to focus on developing a client base of business customers in the metropoles over the first five years to provide a revenue stream for network rollout to the rest of the country. The regulator has accepted such a strategy and the SNO licence reflects this, as its rollout obligations only require metropole rollout in the first five years[36]. As such, the SNO will be an important force in the business but not in the residential sector in future. Increased competition will also strengthen the countervailing power of large business consumers, contributing to the constraints on business communications pricing. However, first-mover advantages (such as sunk costs and customer switching costs) will still ensure Telkom of a suitable margin above efficient prices. The under-serviced area licences are unlikely to put significant competitive pressure on Telkom's residential services because they target customers Telkom has not tried to service. Therefore, strong price regulation will still be needed in the near future, as the current policy initiatives will not increase competition and consumer power sufficiently.

To improve the price regulation of Telkom in the near future, Icasa's and consumers' influence should be strengthened, while that of the Ministry is reduced. Such a strategy necessitates the following steps:

- Imperative at this stage is an agreement between Telkom and the regulator on a COA/CAM, and Telkom's speedy submission of its operations cost information in the form of regulatory accounts. Withholding information enhances the monopoly's position, but weakens that of Icasa. If possible, Telkom's delivery of such information must be accelerated so that a rate regime review can take place as soon as possible, especially in the light of excess profit allegations against the PSTN operator. Even if the accounts are not fully complete, a reasonably accurate price cap could still be set – at the moment the information asymmetry is so great that the regulator is unable to determine whether the productivity factor should be 1% or 10%.
- Secondly, the regulator must be better resourced. While the annual tariff filing checks are not particularly onerous, rate regime reviews are considerably more so, and Icasa would need at least significant temporary assistance. Obviously, the availability of internal resources is a greater advantage, especially considering the potential for protracted legal wrangling. The regulator must also be advised as to the type of information it needs to strengthen its case, and must draw on the resources of other regulators where possible. In particular, Icasa should develop a mechanism for gathering useful international data that can form the basis for both price comparisons and expected productivity improvements. The COA/CAM provides a basis for assessing excess profits but not for predicting future productivity improvements.
- In the third place, the actual price regulation mechanism should be reviewed. In the light of Telkom allegedly enjoying excess profits, it might be necessary

[36] Personal interview with Siyabonga Madyibi, SNO project director: Icasa., ,

in the next review to consider a significant once-off price decrease in the first year to reduce profits to normal levels before applying a productivity factor[37]. More importantly, a strong case can be made for changing the price regulation mechanism to an earnings-sharing formula. There are strong demands for distributional fairness in SA, as demonstrated by the public outrage at Telkom during the rate review and subsequent tariff filings. An earnings-sharing formula provides greater distributional fairness without losing entirely the significant incentives of the price cap. Since the regulator might be less effective than desired for the foreseeable future, the incumbent is an aggressive litigator, and there is broad scope for interference by the Minister, this measure provides consumers with a means to recover at least some of the surplus profits the incumbent gained because of a flawed process. It might also diminish Telkom's desire to litigate or lobby as it lowers the gains from such actions.

- Fourthly, the Ministry should show greater restraint in interfering in the rate review process. Rather than dictating a productivity factor to the regulator, the Ministry should focus its energy on determining whether Icasa followed a fair and scientific review process. Although legislative changes would provide the commitment device to ensure the Ministry do not interfere unduly, it is unlikely to relinquish its current powers.
- In the fifth place, the regulator is always likely to have resource constraints. Therefore the ability of consumers or organisations with consumer interests (including the National Treasury with its concerns over inflation or the Trade and Industry Department with its business-user concerns) to provide relevant input to the process must be strengthened.

[37] Such a step is not without precedent. See for example electricity regulation in the UK.

2. MOBILE CELLULAR RETAIL PRICES

2.1. The Regulation

Tariff determination

The initial rate regime for mobile cellular operators was stipulated in the operator licences[38], since licensing took place before the appropriate legislation came into effect. The rate regime for mobile operators was also based on a price cap methodology, and was initially set at CPI-0%. However, this price cap differs from the fixed-line operator's in that it applies to each tariff plan (the equivalent of a sup-cap on each service)[39]. As a result, there are no minimum or maximum movements imposed on the components of each tariff plan. But there is also no control over the mobile operator's 'basket' of tariff plans, which makes it technically feasible for a mobile operator to alter this basket over time (discontinuing cheaper and introducing more expensive packages) and so bring about price increases above the stipulated price cap.

The Community Service Phones operated by the mobile networks as part of their universal service obligations are regulated separately. Any tariff increase for these phones must be lodged with and approved by the regulator, even if the increase is below CPI. Licence conditions include the possibility that the Community Service Phone tariff could decrease if interconnection fees decreased[40]. As with the PSTN, Icasa conducts all rate reviews[41] but final approval of any recommended changes lies with the Minister.

Tariff filings

Mobile cellular operators must lodge each tariff plan and any changes to such tariff plans – including discontinuance, even of a prepaid card – with the regulator. Icasa has to examine the tariffs (new plans or increases in existing plans) and reject them within seven (week, not business) days, after which period the operator is entitled to take approval as given and implement the tariffs. As they only need to notify the regulator of tariff changes to a tariff plan, mobile operators can file their tariffs more randomly than Telkom, which is required to file its tariffs on an annual basis.

Regulatory accounts

As in the case of the fixed-line operator, mobile cellular operators are also required to produce regulatory accounts according to a COA/CAM[42]. However, Icasa has admitted that the cost allocation manual in its current format does not adequately describe the mobile cellular business and is therefore of limited use to

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[38] Condition 13

[39] Condition 13.5 of licences

[40] "…if the interconnect fees and other charges payable by the Licensee to Telkom are less than those provided for in the Invitation to Apply or at any point in the future" (Condition 13.10).

[41] The procedure for amending the rate regime is contained in Sections 45 and 96 of the Telecommunications Act of 1996.

[42] Condition 12 of the licence. Until the COA/CAM was in place, mobile operators were required to present a breakdown of costs for each business unit (Condition 12A). However, an initial COA/CAM manual was available in 1995, according to which mobile operators started to produce their regulatory accounts.

the regulator [43]. As a result, Icasa issued a tender to review the COA/CAM for mobile operators in August 2002[44], which was due for completion and regulation early in 2003. But since the revised manual's implementation clause is similar to that of the initial manual, the first regulatory accounts based on the new manual would only be ready – at the earliest – by end-September 2004. Until then, Icasa will be unable to conduct reasonable price regulation of mobile operators, although it has much more information at its disposal than for Telkom.

2.2. Price Administration to Date

Initial tariffs

The establishment of an initial rate regime for mobile cellular networks faced even worse problems in terms of available information than was the case with Telkom. Since this was a new market, no cost or operational history was available in SA. The initial price cap of CPI-0% again seems relatively lenient, but it was not unreasonable for the initial period during which the mobile operators had to roll out an entire network covering at least 70% of the population within four years. The rollout of a new digital network also meant a highly efficient network (with some limited scope for productivity improvements through learning) would be established from the start, which would lower the need to bring about a convergence to efficiency forcefully through a stringent price cap. There was further less concern over implementing a correct mobile cellular price cap, since at least some competition existed in the sector and – because mobile cellular was initially viewed as a product for the luxury goods market – it posed few distributional problems.

Of course, without an initial set of prices as reference point for the price cap, mobile firms are able to set their initial prices in such a way that would relax the constraint of the price cap from the outset –This could be achieved by setting prices higher than would have been done under a less stringent price cap.

Mobile rate reviews

There has never been a formal rate review for the mobile cellular sector in the nine years that it has been operational. Icasa has offered a number of reasons for this[45]. In the first place, the regulator is of the opinion that the existence of competition in the sector limits the potential for operators to raise prices. It finds support for this hypothesis in the fact that price increases that have occurred were some percentage points below the CPI level for the past four to five years. When Icasa took responsibility for the mobile cellular rate regime in 2000, it was in the process of licensing a third national mobile operator The regulator therefore argued that the increased competitive pressure such a step would introduce for the first two national mobile operators meant there was less need for a rate review.

Secondly, while Icasa felt there might be a case for further reductions in the productivity factor for MTN and Vodacom, the regulator was wary of imposing more stringent terms on new entrant Cell C, which still had to build its network in a difficult competitive environment. One way to resolve this issue was to exempt Cell C from the rate regime until t had managed to build up a significant market

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[43] Peter Hlapolosa, Icasa
[44] Icasa 2002f
[45] Peter Hlapolosa, Icasa

share. However, the state law advisors rejected Icasa's drafted regulation to this effect, it, failing to understand the case for asymmetrical regulation.

Thirdly, Icasa's resource constraints have forced the regulator to prioritise its actions. And since real prices have declined, a rate review did not feature high on the regulator's list. Quality of service in the mobile cellular sector and other consumer issues appears to be of greater concern to Icasa, especially with what appears to be the growing political pressure to act following a parliamentary committee hearing into the matter on 5 November 2002. At this point, a rate review seems unlikely – at least until the new COA/CAM manual is completed and regulatory accounts are submitted accordingly, at the earliest in September 2004). However, since a fourth competitor might be introduced into the mobile cellular market in 2005, it is likely that Icasa will again leave prices to the market.

Icasa's position is understandable if resource constraints were the primary reason for delaying a rate review. But it is naïve to believe two firms that hold the major share (90%) of the market would introduce sufficient competition to bring prices down to cost. New entrants to the mobile cellular sector face high entry barriers, of which the most significant are regulatory – obtaining a licence and spectrum to operate. Studies of other markets have in many cases suggested that collusion is more likely than cut-throat competition. For instance, Parker's and Roller's (1997) analysis of the US cellular market where duopolies were established in 305 non-overlapping areas. Using a structural model of competition to determine the degree of competition, they concluded that:

> *"We find a need for public concern, as the duopolistic market structure generally appears to be significantly more collusive than a non-cooperative duopoly. The evidence suggests that cellular prices are significantly above competitive levels." (Parker & Roller, 1997: 321)*

Analyses of both the UK and German cellular markets (Valletti and Cave, 1998; and Stoetzer and Tewes, 1996 respectively) also suggest that collusion is probable in the duopoly period. Valletti and Cave (1997) point out that collusion is more likely in an infinitely repeated game setting and is possible without any anti-competitive behaviour through the use of implicit threats. For the UK they conclude that "there is evidence to support the hypothesis of collusive behaviour between incumbents in the first phase, with stable (high) prices targeted at heavy business users only". Two new operators' entry into the market caused dramatic price changes (both reductions and increasing price discrimination) that the authors argue "would take some time and effort for the defence to justify" in an antitrust proceeding. Stoetzer and Tewes also note the stability of high prices in Germany until new entrants were licensed and argue that "the two operators DeTeMobil and Mannesmann Mobilfunk used to compete on quality and not on prices".

While the finding of collusive behaviour in other countries does not necessarily indicate collusion in the SA market, it does establish that there is a high risk of collusion in this market even where strong regulatory oversight exists. It is also not necessarily the case that the entry of Cell C with a possible market share of 5% to 10% has changed this risk significantly, especially as Cell C's prices for the initial period have largely been determined by Vodacom through its facilities-sharing arrangement with the operator[46]. Any attempt to prove collusive behaviour and pricing above competitive levels would be a significant task, and one that is

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[46] As Bauer notes, such facility-sharing arrangements can contribute to collusive outcomes.

beyond the scope of this project. However, MTN's recent submission to the parliamentary sub-committee hearing on consumer issues in the mobile cellular sector did contain evidence to suggest an investigation might be useful[47]:

- *Stable prices*: nominal prices have increased by about 3% per annum for the past four years (a real decline of around 2% per annum).
- *Price decreases lower than other markets*: MTN's presentation shows that the mobile operator's average tariffs have dropped by about 2% per annum in real terms and prepaid tariffs by about 6% per annum for the past four years. In contrast, the presentation shows that in the UK, average real tariffs have declined by roughly 15% per annum and prepaid by 22% per annum during 1999/2000. OECD[48] trends over the longer seven-year period from1992 to 1999 still show an average real decline of around 4.5% per annum.
- Costs decreasing even more rapidly: MTN figures reveal that the cost index for prepaid users dropped by 70% from 1997 to 2001 – an average annual decline of 26% – revealing a large wedge between costs and tariffs, which only decreased at an annual rate of 6% per annum.

To this evidence supplied by the mobile cellular industry, the author could add the following:

- Prepaid call rates across all three mobile operators closely correspond and have been maintained over a long period (though a more thorough analysis should look at contract packages as well).
- The sudden introduction of per-second billing with Cell C's entry into the market.
- Price stability that occurred after Cell-C's entry.

An investigation into potential collusion and excess profits in this sector need not only focus on the mobile cellular retail sector. As discussed in Section three on wholesale prices, there is also the possibility that mobile cellular companies may be making monopoly profits on the wholesale market, whilst still pricing at cost in the retail market. In the UK, both the Monopolies and Mergers Commission and Oftel[49] found that cellular companies were guilty of excessive termination charges in 1998 (Crocioni and Veljanovski, 1999).

There appears to be enough evidence pointing to collusion in the mobile sector, which suggests that an investigation would be a useful exercise. Of course, at this point the concern is not that collusion happened in the past, but rather that it continues to occur. Again, the fact that continued stability of prices and Cell-C's costing is influenced by the operator's facilities –sharing agreement with Vodacom suggest this might still be the case. It is also an issue that could involve the Competition Commission (with whom Icasa has a memorandum of understanding) if Icasa currently lacks the resources to carry out thorough investigation. Should the Competition Commission take up the case, the two regulators could decide jointly which remedies would be appropriate.

[47] Available at http://www.m-cell.co.za/comm_presentations.asp
[48] Organisation for Economic Co-operation and Development
[49] The UK telecommunications industry regulator

2.3. Assessment of Price Administration

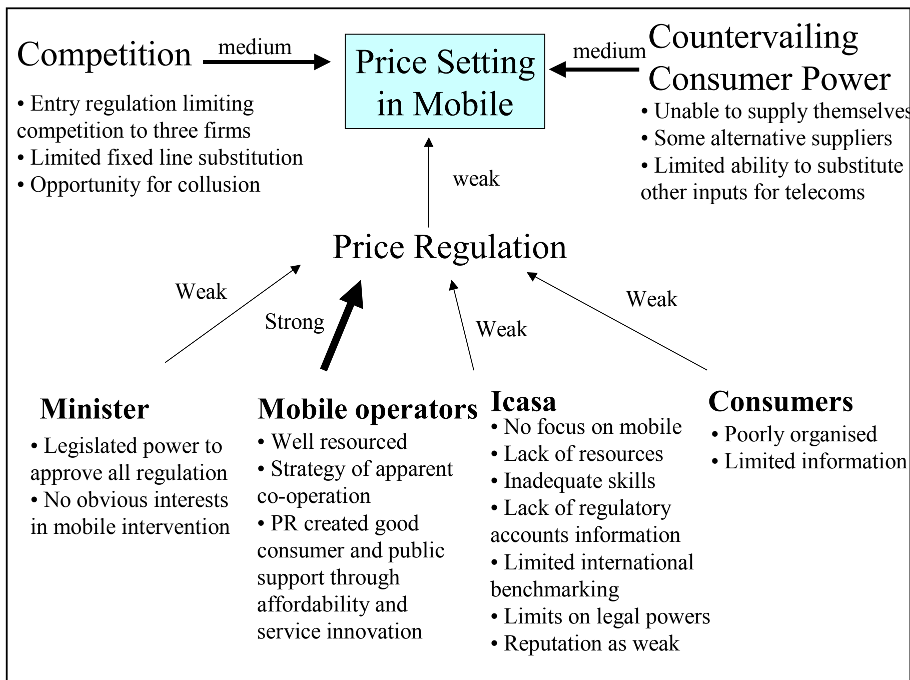
Forces influencing prices

As with players in the fixed-line market, mobile operators also face constraints to price setting from competition, consumers and price regulation. Figure 2 below describes the influence of these forces on the mobile sector. In contrast to the fixed-line sector, competition offers a greater constraining force to price setting in the mobile sector but the incentive and ability to collude, as demonstrated above, limit the impact of this force. The partial substitution with fixed line is not a strong competitive constraint because of the limited areas of services (mainly voice services) in which they might compete and the possibly near-monopoly pricing in the fixed-line sector.

Such weak competitive pressures suggest that price regulation should remain an important constraining factor on price setting if efficient prices are to be established in the mobile sector. However, as noted above, no price administration of cellular operators occurs at the moment, since Icasa has not attached priority to a price regulation review and because price increases are below that of the generous price cap. Icasa must therefore be seen as having only a weak impact on actual price regulation.

Consumer power has been equally ineffective. Successful network rollouts and moderate price increases by the mobile operators have limited public pressure on the regulator or the Ministry to increase price control. Moreover, the mobile networks' willingness to exceed the community service obligations their licences stipulate have established them as important providers of universal service, increasing the likelihood that price regulation in the sector might be enforced leniently.

Figure 2: Forces constraining price setting by mobile operators



Are current prices efficient?

The evidence presented above, along with evidence from other countries, suggest that Icasa is optimistic if it expects unfettered competition in a mobile cellular market with three operators and where two of those operators hold a combined 90% of market share. If competition is weak and regulation weaker, one should expect prices to be above the efficient level.

Steps to bring prices closer to efficient levels

Current policy changes and the existing price administration regime are unlikely to promote significant changes in the forces constraining price- setting in the mobile sector. There is talk of a fourth mobile cellular licence, but spectrum limitations will always keep the number of competitors low, making collusion an ever-present danger. The under-serviced area licences will most likely use fixed-mobile technology which could offer a minor competitive constraint amongst low-income households. However, the ability to price discriminate through different tariff packages means that mobile operators can still respond to such competition without jeopardising the more lucrative contract market. Further, cellular mobile operators offer true mobility whilst fixed-mobile does not.

Where price regulation is concerned, Icasa still has no plans to conduct a rate review – in fact, the parliamentary enquiry into consumer service levels in the mobile sector has distracted the regulator, now under pressure to use its limited resources to investigate this matter, from the price issue. An assessment should be carried out of whether the regulator's optimism about the impact of competition on pricing is justified or not. There is sufficient doubt that unfettered competition exists to warrant such an enquiry. Moreover, Icasa is not obliged to conduct such an investigation – the Competition Commission could take a lead role in investigating collusive conduct. After all, the Competition Commission has received complaints in the past about operators in this sector. Such an investigation would at least determine whether there is a need for more stringent price control in the sector. If so, Icasa should consider setting a more stringent price cap or look at alternative structural remedies. The updates to the COA/CAM manual should assist this process, but the initial COA/CAM may well offer sufficient data to at least start investigations.

3. WHOLESALE PRICES

3.1. The Regulation

Interconnection[50]

As was the case with the PSTN tariff regime, the Communications Minister initially established the interconnection guidelines for Telkom until May 2000, whereafter Icasa was to determine the interconnection fees and charges. The original Ministerial determination[51] stated that "Telkom's interconnection charges shall as soon as practicable be based on its long-run incremental costs (LRIC)"[52]. It also noted that this guideline does not apply to VANS, who are nonetheless able to receive volume discounts below retail prices but not at interconnection price levels[53].

However, this determination did not prescribe what Telkom would do until LRIC pricing was feasible, leaving a regulatory vacuum. It also did not establish interconnection rates for mobile cellular operators, creating a further regulatory vacuum. Whilst interconnection agreements had to be lodged with Icasa, who would resolve any disputes, the regulator had no guidelines for enforcing any particular interconnection charge. Of course, determining LRIC pricing requires Telkom's completion of the COA/CAM, which, as detailed in earlier sections, has not been done in 2003 and is unlikely to occur until 2005.

Icasa drew up the interconnection guidelines in 1999, which were approved and gazetted by the Minister in March 2000[54]. This was a more detailed regulatory guideline, and set out the following principles for interconnection pricing:

- *Non-discriminatory treatment*[55]: this means interconnection rates and treatment have to be the same for each interconnection seeker.
- *Charging structure to match cost structure*[56]: the interconnection provider must separately fix once-off charges, periodic rental charges and variable charges for services.
- *Maximum charges*[57]: charges must not exceed retail charges for the provision of equivalent services.
- *Charges by major operators of essential services*[58]: such operators must provide interconnection at LRIC to public operators (i.e. mobile operators, and the SNO and USALs in future), at no more than the best retail price less avoidable costs and no less than LRIC for service providers[59], and at no more

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[50] Interconnection is covered by Section 43 of the Telecommunications Act of 1996.
[51] Minister for Posts, Telecommunications and Broadcasting, 1997a (Section 5a).
[52] LRIC is considered to be the most appropriate pricing technique because it sets the price based on an efficient cost benchmark rather than an operator's actual costs, which might be inefficiently high (Laffont & Tirole, 2000).
[53] Section 5 (b).
[54] Minister of Communications 2000.
[55] Section 8 (1).
[56] Section 10 (1).
[57] Section 10 (3).
[58] Section 11 (1)
[59] In addition, the y may charge no more than fully allocated costs for establishing a point of interconnection (POI).

than the retail charge for the provision of an equivalent service to private operators.

A major problem of Icasa's interconnection guidelines was that they still did not close the regulatory loopholes created by the original Ministerial determination. First, the guidelines offered no alternative to LRIC pricing until LRIC pricing was possible when the COA/CAM manuals were issued. In the second place, Icasa could only act to enforce price regulations when two parties went into dispute[60]. Further, if those parties agreed to interconnection charges that were above LRIC or the other caps, the regulator could not step in. Of course, if a dispute did actually arise, Icasa had no cost information on which to base its decision and enforce the price regulations. These impediments make it highly likely that those seeking interconnection would prefer to negotiate an agreement with Telkom rather than risk a clash with the monopoly, in which case Icasa would probably not be able to determine a better rate.

A further issue was how major operators, who face more stringent regulation, would be defined. According to the interconnection regulations definition, a major operator is one that has at least 35% of the telecoms market in which it operates (unless it can show it has no market power) or that has the ability to affect the terms of participation in the telecoms market for basic telecoms service through control over essential facilities or its market position. This definition might suggest that Telkom, MTN and Vodacom are major operators. In fact only Telkom has been defined as a Major Operator of Essential Services. This means the mobile operators are currently only constrained to pricing interconnection with Telkom below retail charges for the provision of an equivalent service.

Telkom has not disputed its status as a major operator of essential services yet. However, one should emphasise the "yet", since the monopoly has expressed concern about being called a major operator in a number of hearings, most recently at the assessment of interconnection guidelines for USALs. At this hearing, Telkom contested whether it was a major operator, arguing that the market should be more broadly defined and that the firm was competing with the mobile operators. It might be that Telkom has not formally contested this status because it has not made a material difference to the monopoly yet. Since no COA/CAM has been drawn up for Telkom, no LRIC pricing can be instituted. One might expect Telkom to contest its status as soon as the regulation does become binding, unless it feels its case is too weak.

In a more recent development, Cell C has applied to Icasa for MTN and Vodacom to be included as major operators. Such an application is likely to be contested, especially by MTN, which claims to have only 40% of the mobile market and is therefore closer to the major operator threshold.

Since the publication of the interconnection regulations in 2000, there has been an amendment to the Act that included an amendment of Section 43 on interconnection. Supplementary interconnection guidelines were issued in December 2002. In terms of interconnection price regulation, these amendments and supplementary regulations were important in that they stopped the loopholes that prevented Icasa from setting and enforcing interconnection price regulation until LRIC pricing was feasible. First, the supplementary guidelines stipulate that in the transition to LRIC pricing (specified as occurring in the next two years but leaving room for extension), major operators of essential facilities must use cost-

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[60] Section 20 of the regulations

based charges for interconnection. It also provides a description of how to treat certain common costs. Secondly, it stipulates that a major operator must provide Icasa with a cost study and supporting documentation to allow the regulator to determine whether the rates applied did not exceed the costs. If the regulator is of the opinion that the cost study does not support the rates applied, it can impose rates considered international best practice until a complete review of the cost study has been carried out and new rates have been determined.

Facilities leasing

The content and history of facilities leasing regulations mirror that of interconnection. The facilities leasing regulations determined by Icasa when it assumed responsibility in 2000 are almost exactly the same as the interconnection regulations [61]. The two sets of regulations' pricing principles of non-discrimination, charging structure, the maximum charge and charges for major operators are similar (with the exception that facilities are not leased to private operators). Unfortunately this meant that the same flaws concerning the ability to enforce the price regulation and the need for an interim arrangement for LRIC pricing also occurred in the facilities leasing regulations. As with interconnection, changes to improve the regulations were brought about in the amendment to the Act in 2001 and the supplementary facilities leasing guidelines gazetted in August 2002. These guidelines are important to the SNO licensing process since the SNO would be leasing facilities from the only major operator, Telkom.

3.2. Price Administration to Date

To date, Icasa has not carried out any assessment of prices in interconnection agreements. The 2000 guidelines only required Icasa to act in the case of a dispute, and none arose. The supplementary interconnection regulation allowed Icasa to do a cost assessment of any interconnection agreement lodged with the regulator. However, since this regulation was passed, no interconnection agreements have been lodged, giving the regulator no opportunity to implement its new powers. The same situation has occurred in facilities leasing.

The lack of price regulation in interconnection until the recent granting of powers to Icasa has caused some concerns. Probably most important is the sizeable increase in mobile interconnection fees from 1999 onwards. The initial interconnection fees were set at R0.20 for peak and R0.10 for off-peak times between MTN and Vodacom. In a new interconnection agreement in 1999 (less than a year before Icasa's interconnection regulations were due), the two operators proposed (and had approved) a six-fold increase in the peak rate (to R1.19) and a six-and-a-half fold increase in the off-peak rate (to R0.65)[62]. The mobile operators also built in annual increases up to a maximum of either the CPI or R0.02 after the new interconnection fee was phased in – arguing in support of such increases that:

> "…when the current rates were negotiated in 1994, the Parties anticipated that the volumes of traffic passing between the networks would be minimal and that similar volumes of traffic would pass in each direction. The actual interconnect rate was therefore not material as the net settlement would be close to zero. However, the intention right from the

[61] Department of Communications 2000

[62] Details are available in Appendix three.

start was that these "token" amounts would be reviewed and brought into line with costs when traffic volumes or unbalanced traffic proportions necessitated a more scientific approach" (Vodacom 1999).

They continue to argue that this point had been reached, that the new rates are cost-based and in line with the regulator's intent for interconnection regulation. However, while MTN and Vodacom provided some evidence of growing call volumes and imbalance between the networks, they supplied no proof of the cost basis for these increases. The regulatory had to – and did – accept this argument in good faith. While the mobile cellular operators' argument may be valid and the new rates cost-reflective, there is no basis for verification, and no assessment was carried out.

The inability to assess these charges is particularly problematic because there is a clear incentive for mobile operators to over-price these wholesale services. Laffont, Rey and Tirole (1998a+b) demonstrate that the networks have an incentive to set interconnection charges above marginal cost, as it enables them to mutually raise their rivals' cost, generating higher profit without having to collude in the retail market[63]. It is significant that MTN's and Vodacom's interconnection agreement amendments were pushed through a year before: a) Icasa finalised the interconnection regulation, b) competition was due to be introduced in the mobile cellular sector and c) Icasa took over responsibility for the determination of the rate regime for retail prices.

A similar tale emerges for interconnection rates between Telkom and the mobile operators. In 2000, Telkom became dissatisfied with its original interconnection agreement with the mobile operators and argued that it was based on unrealistic expectations of the mobile market in 1993[64]. This prepared the ground for a new agreement that substantially changed termination charges for both Telkom and the mobile operators in 2001[65]. Termination charges on Telkom's network immediately increased by 12.5%, but with a built-in allowance for an annual increase of the maximum of the CPI or R0.02[66]. The actual rates for peak and off-peak times did not change (R0.21/R0.10), but the 12.5% discount on volumes over R40m (which the mobile companies always exceeded) fell away. The intermediate rate (R0.14) also fell away, with the time zone being split between peak and off-peak times[67].

The interconnection price for mobile networks was originally more complex. To prevent Telkom from imposing excessive fixed-to-mobile price increases due to its monopoly status, the agreement set the mobile termination fee at the higher of either the Telkom tariff less the Telkom termination fee (R0.21/R0.14/R0.10) or the weighted average tariff of the mobile operator less Telkom's termination fee. This arrangement limited Telkom's share of any fixed-to-mobile call to its termination fee – and displeased the monopoly. So Telkom negotiated a new agreement which stipulated that it pay the standard mobile interconnection fee

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[63] The analysis is a little more subtle than this, suggesting that there might be cases where the above cost-access pricing does not occur.

[64] This most likely refers to the 12.5% discount for volumes over R40m or more, which were easily achieved early on.

[65] Details are available in Appendix three.

[66] The previous agreement had no scope for increases.

[67] Peak absorbed the 18:00-20:00 midweek intermediate time zone while off-peak absorbed the Saturday morning intermediate slot.

mobile operators charged one another (R1.23/R0.73)[68], and is permitted to price fixed-to-mobile calls at the maximum price of this fee and a retention fee of R0.33 in peak and R0.20 in off-peak times. In essence, Telkom's income from fixed-to-mobile calls doubled for off-peak (R0.10 to R0.20) and increased by 57% for peak times (R0.21 to R0.33). As for the actual termination fee for the mobile operators, a lack of weighting data for mobile tariffs in 2001 means their fee in the original agreement in 2001 can only be estimated as the Telkom fixed-to-mobile tariff less the Telkom termination fee. This would give us termination fees of R1.19 in peak and R0.65 in off-peak - the same as they received from each other that year. The new Telkom agreement moved this to the new higher rate for 2002 and also built-in an annual increase up to the maximum of the CPI, or R0.02.

Significantly, this agreement was reached the year before supplementary interconnection regulations were passed that permitted Icasa to demand cost studies to substantiate lodged agreements. Therefore, as with the mobile interconnection agreement, the fixed-to-mobile interconnection agreement was lodged with Icasa without being substantiated by costs.

3.3. Assessment of Price Administration

Forces influencing price setting

Monopoly over access to each mobile network by the network operator and no alternatives for accessing local exchange customers indicate that competition is not a strong force in constraining interconnection price setting. It is only likely to be such for those parts of the network that can be duplicated, such as long-distance networks. However, at the wholesale level, each mobile cellular operator has market power as a purchaser of interconnection from the other mobile operators. Such an operator is also able to negotiate better rates from other network operators by offering better interconnection rates itself. Another important bargaining tool is the mobile operator’s ability to call a dispute and have the interconnection rate settled through arbitration by the regulator. Yet if the regulator is weak, as is the case in SA, this option does not improve an operator’s bargaining position.

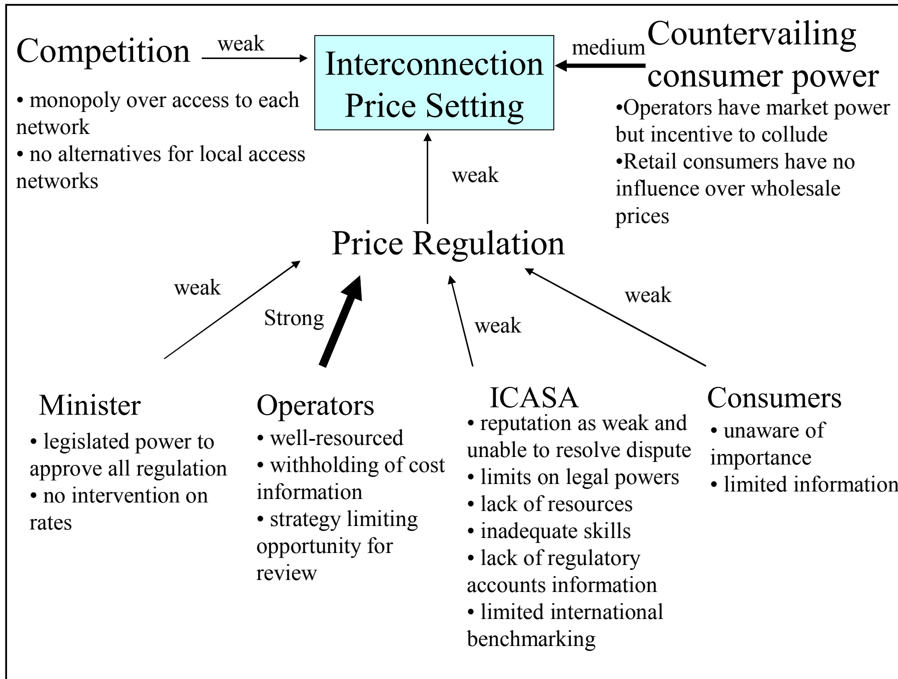
Although some countervailing power exists, there is also much incentive to collude in setting interconnection rates, so that each operator is able to enjoy monopoly profits on its own network whilst apparently competing fiercely at the retail level. High reciprocal interconnection charges are also favoured by market leaders or first-movers anticipating entry by other operators at a later stage. It enables them to increase the on-net/off-net tariff differential, offer a greater incentive for consumers to choose the market leader/first-mover as preferred service provider (as a greater proportion of their calls will be at the lower on-net price), and so entrench their leadership position[69]. The common interconnection rates for all operators, with high increases built into their interconnection agreements, suggests that collusion may possibly occur.

The regulation of interconnection rates is extremely weak at present. As noted above, no review of interconnection rates has taken place due to poor legislation and a strategy of avoiding review by the operators – primarily by pre-empting regulation with new agreements amongst themselves, with built-in increases.

[68] Telkom originally lodged a price-discrimination complaint with Icasa concerning the difference in interconnection charging to force the change.
[69] Laffont, Rey and Tirole (1998a+b)

Therefore the mobile network operators have been the strongest influence on the interconnection price regulation regime. Icasa has been unable to act, and in any case lacks the necessary data to act, even if it was empowered to do so. Not showing a definite interest, the Communications Ministry has not been an influence in setting the interconnection rate regime. Finally, retail consumers are not involved in the process and so have no impact on the setting of such rates.

Figure 3: Forces influencing setting of interconnection charges



Are current prices efficient?

Given the weakness of all forces that might constrain interconnection pricing, it is unlikely that such prices are currently efficient.

Steps to bring prices closer to efficient levels

Regulatory changes have largely managed to correct what was a considerably flawed interconnection regime. There are, however, some outstanding problems. First, in terms of the interconnection regulations definition, the large mobile networks are not considered major operators yet, which allows them to continue setting interconnection prices equivalent to retail pricing. Secondly, Icasa still does not have the power to revisit interconnection agreements lodged in the past to assess whether these are cost-based, and so can only consider new agreements once they are lodged. Given the built-in increases contained in the current agreements, it is likely that operators would not have to lodge any changes to their agreements for some time to come, especially if the proposed changes run the risk of being scrutinised by Icasa. However, if MTN and Vodacom are given major operator status in future, new interconnection agreements would have to be lodged amongst themselves, Cell C and Telkom, with LRIC pricing, if applicable at that stage, or else cost-based pricing only. This scenario will give Icasa the opportunity to establish the actual cost basis for interconnection tariffs.

Although new interconnection regulations are in place, there has been a clear incentive to over-price interconnection and no regulatory constraint on doing so. It

is therefore essential to determine whether current interconnection charges are in line with costs, and if they are not, to bring them in line speedily. Achieving this may require legislative changes to allow Icasa to review existing interconnection agreements. Once this has been achieved, the regulator must ensure that lower interconnection fees feed through directly to lower retail prices.

However, although Icasa now has the power to act, the supplementary and primary interconnection and facilities-leasing regulations will not necessarily be easy to implement. For both cost-based and LRIC pricing, the allocation of common costs to interconnection or facilities leasing is bound to head for considerable dispute with the operators. Icasa further does not have a methodology according to which it could benchmark international interconnection or facilities-leasing charges in the event of it disputing the network operators' cost studies. As the regulator learnt from the Telkom rate review, international benchmarking can be a hazardous process, and its findings successfully contested by the network operator in court. Once LRIC pricing is implemented, the onus is on the regulator to conclude that the network configuration used to determine the LRIC price is non-optimal. Icasa has no experience in doing so – the regulator does not even have a suitably qualified engineer on its price regulation team. Some regulators in other countries have gone so far as developing network optimisation software to provide guidance for this type of regulation[70] – Icasa clearly does not have this kind of support.

It is evident that an important component of improving interconnection regulation has to be the strengthening of Icasa's capacity and capability by providing it with additional resources and new team members with the appropriate skills. Temporary consultancy assistance would also be necessary while Icasa builds these skills internally.

[70] For instance, the Federal Communications Commission in the US has developed the Local Exchange Cost Optimization Model (LECOM) in 1991.

4. ADMINISTRATION-IMPOSED COSTS

Government's impact on the price of services in the telecommunications sector is felt not only through its price regulation efforts, but also through the costs it imposes on the sector's network operators. Telecoms network operators pay a licence fee (once-off and annual), spectrum fees (if they use the spectrum), universal service fees, and fees for the human resource fund, in addition to corporate taxes. These fees impact operators' cost base and therefore influence the price at which they offer services. Costing determined through price regulation will also include such fees.

And they are not insignificant[71]. For instance, the mobile operators paid a once-off licence fee of R100m and continue to pay an annual licence fee of 5% of turnover. To this would be added spectrum fees of R6.1m for each operator per annum (basic fee of R5m plus R20,000 per 200 kHz paired frequency channel), a universal service fund fee of 0.2% of turnover and a contribution to the human resource development fund.

While these administration-imposed costs may increase prices, they also provide a huge benefit in the form of revenue to the fiscus. Government should consider this trade-off: lower telecoms prices versus lower fiscal revenue.

The licence fees are established through a process of negotiation between Icasa / the Department of Communications and the network operators. Icasa and the Department initially propose a figure of how much a particular licence is worth based on some economic analysis. Since the network operators will generally argue that this figure is too high, negotiations are entered into to determine an accurate fee. For example, in the current SNO process, Icasa internally calculated a licence fee of R150m. The Department of Communications then doubled this figure (to R300m) before adding it into the draft SNO licence which was gazetted[72]. Icasa's SNO project director Siyabonga Madyibi expects the final price to be much lower once a winning bidder starts to negotiate with Icasa and the Department[73].

There are some concerns over this approach. First, it appears that Icasa and the Department try to set the highest possible licence/spectrum fee. But the highest fee might obviously not be the best, if there is a preference for lower prices. Of course, whilst the regulator is unable to regulate prices effectively, this could be a good strategy. In the second place, the process itself is unlikely to determine the true commercial value of a particular licence or portion of spectrum. Assuming that firms have better information available on the market and its conditions than the regulator and the Department, such information asymmetry with government is likely to yield a negotiated price below its true commercial value. For instance, most telecoms analysts would agree that the licence fees for mobile operators in SA were well below what the true market value turned out to be. Auctions may be a means of achieving this true commercial value, but the risk of both collusion and over-bidding (the 'winner's curse') exists.

Once licence fees have been set for a specific operator in a specific market, it becomes the maximum benchmark for new entrants, to maintain a so-called 'level playing field'. However, the regulator may decide to favour the new entrant and

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[71] Appendix 4 provides details of licence fees.
[72] Icasa 2002d
[73] Personal interview, 2003

help it to overcome other disadvantages (e.g. switching costs for consumers). For instance, whilst MTN and Vodacom pay an annual licence fee of 5% of net operating income, the late entrant Cell C only pays 1%.

The regulator and the Department of Communications must also take into account the cost impact of any rollout/universal service/community service licence obligations they impose on the network operators[74]. Icasa's approach is to determine the cost of the specific licence obligations it wants to implement, and then deduct such cost from the licence fees[75]. The costing is apparently calculated by using an international benchmark figure for the cost of each obligation (a payphone or internet lab). In certain cases Icasa and the Department may decide to impose no licence or spectrum fees. For instance, the current draft document for under-serviced area licences has no initial licence fee, a token R1 fee for the radio spectrum allocation and an annual licence fee of only 0.5% of annual turnover[76].

There are some concerns over licence obligations that impact on the price-cost trade-off that government must make. First, the regulator may not be costing the obligation correctly, and is likely to over-estimate the cost to err on the side of caution. For instance, the mobile cellular companies well exceeded their geographical coverage obligations because they had clear competitive incentive to do so. That obligation was not binding and so had no cost implications. This implies that the licence fee may be lower than necessary.

Secondly, an obligation may be fulfilled in such a way that it provides far less social value than intended, as was the case with Telkom's rollout obligation where 1.7-million of the 2.7-million lines rolled out were disconnected. In this instance, the revenue foregone in terms of a higher licence fee has not been to the government's benefit. Despite this, the regulator and the Department of Communications continue to impose such conditions on operators.

Thirdly, there is no attempt to determine whether these obligations define the best use of government funds in terms of broader social goals (as an obligation is foregone revenue that could be used for another purpose). For instance, network operator licences continue to impose requirements to erect ever more public payphones although the Universal Service Agency has failed to determine the existing level of need and where best to establish such phones. There are clear bureaucratic incentives to keep as much funds as possible in the telecoms sector, rather than to permit the political process to determine the best use of these and similar funds. A member of Icasa even went so far as to admit that because the fees the regulator raised were allocated to the National Treasury, the regulator had an incentive to impose licence conditions, because such conditions ensured that money remained in the sector.

In terms of radio spectrum fees, prices were set out in the Radio Regulations and have not been revised since before 1997[77]. These prices in all likelihood do not reflect the true commercial value of this spectrum to telecommunications companies, given the subsequent growth of the mobile sector and the increasing application of fixed wireless local loops. Icasa is planning to revise these fees in the future with outside assistance.

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[74] See Appendix four for a detailed list.
[75] Siyabonga Madyibi, ICASA, 2003, personal interview
[76] Icasa 2003a
[77] Mortimer Hope, Icasa, 2003, personal correspondence

CONCLUSIONS

Fixed-line retail prices

The current administration process for fixed-line retail prices does not promise efficient prices in the near future. First, until the next rate regime review, Icasa can only verify Telkom's mathematical calculation in applying the current CPI-1.5% regime to its tariffs. If Telkom is making abnormal profits now, it will continue to do so. Secondly, a rate review where regulatory accounts will be available for use is still a few years off. Telkom is expected to delay producing such regulatory accounts as long as possible. In the third place, even when Telkom's COA/CAM is finally filed, it may take Icasa a considerable period to conduct the detailed review of the accounts – not only because the regulator is under-resourced, but also since it lacks the accountants and engineers necessary to trawl through the COA/CAM. Based on past behaviour, Telkom can also be expected to contest the outcome strongly, both in court and by lobbying the Minister. While one might expect less interest from the Minister in protecting Telkom given the smaller government share in the operator, some delays in the process should still be expected. This could indicate that the 2001 review, which took place under exceptional circumstances (the run on the Rand and the September 11 attacks) and was meant to continue for only two years until the introduction of the COA/CAM, may continue for at least another two years.

The introduction of the SNO should strengthen the competition constraint on prices to some extent. However, the winning consortium's only viable entry strategy would be to focus on developing a client base of business customers in the metropoles over the first five years to provide a revenue stream for network rollout to the rest of the country. The regulator has accepted such a strategy and the SNO licence reflects this, as its rollout obligations only require metropole rollout in the first five years[78]. As such, the SNO will be an important force in the business but not in the residential sector in future. Increased competition will also strengthen the countervailing power of large business consumers, contributing to the constraints on business communications pricing. However, first-mover advantages (such as sunk costs and customer switching costs) will still ensure Telkom of a suitable margin above efficient prices. The under-serviced area licences are unlikely to put significant competitive pressure on Telkom's residential services because they target customers Telkom has not tried to service. Therefore, strong price regulation will still be needed in the near future, as the current policy initiatives will not increase competition and consumer power sufficiently.

To improve the price regulation of Telkom in the near future, Icasa's and consumers' influence should be strengthened, while that of the Ministry is reduced. Such a strategy necessitates the following steps:

- An agreement between Telkom and the regulator on a COA/CAM, and Telkom's speedy submission of its regulatory accounts so that a rate regime review can take place as soon as possible, especially in the light of excess profit allegations against the PSTN operator. Even if the accounts are not fully complete, a reasonably accurate price cap could still be set – at the moment the information asymmetry is so great that the regulator is completely unable to determine an accurate productivity factor.

[78] Personal interview with Siyabonga Madyibi, SNO project director: Icasa., ,

- The regulator must be better resourced. The availability of internal resources would also be a great advantage considering the potential for protracted legal wrangling. The regulator must further be advised as to the type of information it needs to strengthen its case, and must draw on the resources of other regulators where possible. In particular, Icasa should develop a mechanism for gathering useful international data that can form the basis for both price comparisons and expected productivity improvements. The COA/CAM provides a basis for assessing excess profits but not for predicting future productivity improvements.
- The actual price regulation mechanism should be reviewed. In the light of Telkom allegedly enjoying excess profits, it might be necessary in the next review to consider a significant once-off price decrease in the first year to reduce profits to normal levels before applying a productivity factor. More importantly, a strong case can be made for changing the price regulation mechanism to an earnings-sharing formula, which provides greater distributional fairness without losing entirely the significant incentives of the price cap. Since the regulator might be less effective than desired for the foreseeable future, the incumbent is an aggressive litigator, and there is broad scope for interference by the Minister, this measure provides consumers with a means to recover at least some of the surplus profits the incumbent gained because of a flawed process. It might also diminish Telkom's desire to litigate or lobby as it lowers the gains from such actions.
- The Ministry should show greater restraint in interfering in the rate review process. Rather than dictating a productivity factor to the regulator, the Ministry should focus its energy on determining whether Icasa followed a fair and scientific review process. Although legislative changes would provide the commitment device to ensure the Ministry do not interfere unduly, it is unlikely to relinquish its current powers.
- Since the regulator is always likely to have resource constraints, the ability of consumers or organisations with consumer interests to provide relevant input to the process must be strengthened.

Mobile cellular retail prices

Icasa is optimistic if it expects unfettered competition in a mobile cellular market with three operators and where two of those operators hold a combined 90% of market share. If competition is weak and regulation weaker, one should expect prices to be above the efficient level.

Current policy changes and the existing price administration regime are unlikely to promote significant changes in the forces constraining price setting in the mobile sector. There is talk of a fourth mobile cellular licence, but spectrum limitations will always keep the number of competitors low, making collusion an ever-present danger. The under-serviced area licences will most likely use fixed-mobile technology which could offer a minor competitive constraint amongst low-income households. However, the ability to price discriminate through different tariff packages means that mobile operators can still respond to such competition without jeopardising the more lucrative contract market. Further, cellular mobile operators offer true mobility whilst fixed-mobile does not.

Where price regulation is concerned, Icasa still has no plans to conduct a rate review – in fact, the parliamentary enquiry into consumer service levels in the mobile sector has distracted the regulator, now under pressure to use its limited

resources to investigate this matter, from the price issue. An assessment should be carried out of whether the regulator's optimism about the impact of competition on pricing is justified or not..

There appears to be enough evidence pointing to collusion in the mobile sector, which suggests that an investigation would be a useful exercise. Of course, the concern is not that collusion happened in the past, but rather that it continues to occur. The fact that continued stability of prices and Cell-C's costing is influenced by the operator's facilities-sharing agreement with Vodacom suggest this might still be the case. It is also an issue that could involve the Competition Commission if Icasa currently lacks the resources to carry out thorough investigation. After all, the Competition Commission has received complaints in the past about operators in this sector. Such an investigation would at least determine whether there is a need for more stringent price control in the sector. If so, Icasa should consider setting a more stringent price cap or look at alternative structural remedies. The updates to the COA/CAM manual should assist this process, but the initial COA/CAM may well offer sufficient data to at least start investigations.

Wholesale prices

Regulatory changes have largely managed to correct what was a considerably flawed interconnection regime. But there are still some outstanding problems. In terms of the interconnection regulations definition, the large mobile networks are not considered major operators yet, which allows them to continue setting interconnection prices equivalent to retail pricing. Secondly, Icasa still does not have the power to revisit interconnection agreements lodged in the past to assess whether these are cost-based, and so can only consider new agreements once they are lodged. Given the built-in increases contained in the current agreements, it is likely that operators would not have to lodge any changes to their agreements for some time to come, especially if the proposed changes run the risk of being scrutinised by Icasa. However, if MTN and Vodacom are given major operator status in future, new interconnection agreements would have to be lodged amongst themselves, Cell C and Telkom, with LRIC pricing, if applicable at that stage, or else cost-based pricing only. This scenario will give Icasa the opportunity to establish the actual cost basis for interconnection tariffs.

Although new interconnection regulations are in place, there has been a clear incentive to over-price interconnection and no regulatory constraint on doing so. It is therefore essential to determine whether current interconnection charges are in line with costs, and if they are not, to bring them in line speedily. Achieving this may require legislative changes to allow Icasa to review existing interconnection agreements. Once this has been achieved, the regulator must ensure that lower interconnection fees feed through directly to lower retail prices.

However, although Icasa now has the power to act, the supplementary and primary interconnection and facilities-leasing regulations will not necessarily be easy to implement. For both cost-based and LRIC pricing, the allocation of common costs to interconnection or facilities leasing is bound to head for considerable dispute with the operators. Icasa further does not have a methodology according to which it could benchmark international interconnection or facilities-leasing charges in the event of it disputing the network operators' cost studies. As the regulator learnt from the Telkom rate review, international benchmarking can be a hazardous process, and its findings successfully contested by the network operator in court. Once LRIC pricing is implemented, the

onus is on the regulator to conclude that the network configuration used to determine the LRIC price is non-optimal. Icasa has no experience in doing so.

It is evident that an important component of improving interconnection regulation has to be the strengthening of Icasa's capacity and capability by providing it with additional resources and new team members with the appropriate skills. Temporary consultancy assistance would also be necessary while Icasa builds these skills internally.

Administration-imposed costs

While administration-imposed costs on network operators may increase the prices of the services they offer, they also provide a huge benefit in the form of revenue to the fiscus. Government should consider this trade-off: lower telecoms prices versus lower fiscal revenue.

Government should also attempt to determine whether the rollout / universal service obligations define the best use of government funds in terms of its broader social goals. On the one hand, the regulator may not be costing the obligation correctly, and is likely to over-estimate the cost to err on the side of caution. On the other, an obligation may be fulfilled in such a way that it provides far less social value than intended.

And an attempt should be made to limit bureaucratic incentives to keep as much funds as possible in the telecoms sector, rather than to permit the political process to determine the best use of these and similar funds.

General conclusions

The only reasonable conclusion that can be drawn from this review of price administration in telecommunications is that there is none in practice despite what may exist in the legislation. This is particularly true of mobile and interconnection rates where regulation has not imposed any constraints on pricing. For the fixed-line network operator, the price cap has clearly had some constraining influence, but its generous productivity factor means that the constraint has been minimal.

The weakness of price regulation is a direct result of an ineffective regulator. Icasa's weakness is due to inadequate resources and a lack of enforcement power. Inadequate resources limit its ability to hire suitably skilled and sufficient staff or substitute consultants for internal staff. This results in the regulator sidelining many important issues as it is forced to prioritise work, and then performing a less than adequate job on those issues it does focus on. A lack of enforcement power is primarily the result of ministerial power to approve every regulation passed, but has also been affected by some poor legislation (such as the inability to get access to the regulatory accounts, and interconnection regulation). This reduces the importance of the regulator and scientific price administration methods, elevating the importance of ministerial lobbying and legal strategy in shaping regulatory outcomes.

Addressing the weakness of price regulation is important, because the other forces that might constrain price setting by firms in this sector – competition and countervailing consumer power – are currently weak and there is no immediate prospect that they will become stronger. This implies that prices are not currently efficient within the telecommunications sector and firms are most likely earning considerable monopoly rents. Addressing the weakness of price regulation must involve strengthening the regulator and trying to reduce the influence of the Ministry in what should essentially be technical decisions. The Ministry can still

influence the fulfilment of various competing goals through control over the structural reforms and licence criteria, but it should not need to control pricing too. Whilst consumers can play a potentially important role in strengthening the regulatory process, they are always likely to be a marginal influence and should not be seen as a substitute for good regulatory capacity.

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APPENDIX 1: THE RATE REGIME

The current price cap formula, as regulated in the Government Gazette No. 23986, Notice no. 1333, Regulation 7490, 24 October 2002, is set out below. The initial price cap formula from 1997 to 2002 differed from the current formulation in three respects: a) it did not permit a carry-over, b) it enabled a 20% real movement in the price of any single service, and c) it did not have a residential sub-cap.

A1.1 The Current Price Cap Formula

General Price Control Formula

$$\left(\sum_{i=1}^{n} RR_{(i,t-1)} \Delta P_{(i,t)} \Big/ \sum_{i=1}^{n} RR_{(i,t-1)} \right) 100 = \Delta CPI_{(t-1)} - X_{(t)} + CO_{(t-1)}$$

Where:

(t): is the current year

(t-1): is the preceding year

$RR_{(i,t-1)}$: is reported revenue for service i in the preceding year

$\Delta P_{(i,t)}$: is the average percentage change in the unit tariff of the i-th service from the preceding year

$\Delta CPI_{(t-1)}$: is the average percentage change in the consumer price index over the past year (defined as September to September)

$X_{(t)}$: is the productivity factor set at 1.5%

$CO_{(t-1)}$: is the percentage of the unused part (if any) of the allowed revenue increase in year (t-1) carried over to year (t)

Residential sub-basket

A residential sub-basket consists of residential line rental and residential/payphone calls (local, national and international). The same formula and productivity factor will apply to this sub-basket.

Maximum Prices

No price within the basket of regulated services may increase by more than 5% per annum in real terms.

A1.2 The Basket of PSTN Services

1. Installation Services
    - 1.1 Residential customers
    - 1.2 Business customers
    - 1.3 Direct dialling inward/outward exchange lines (business customers)
    - 1.4 Integrated Services Digital Network (ISDN) lines
    - 1.5 Switched telematic services
2. Rental Services (provision and maintenance of exchange lines)
    - 2.1 Residential customers

2.2 Business customers

2.3 Direct dialling inward/outward exchange lines (business customers)

2.4 ISDN lines

2.5 Switched telematic services

2.6 Point-to-point telecommunication circuits leased to customers (excl. interconnection services for other operators)

3. Call Services (from customer premises equipment or payphone)

3.1 Local calls

3.2 Fixed to mobile calls

3.3 Long-distance calls

3.4 International calls

3.5 Calls made by means of networks providing switched telematic services

3.6 Directory information services

3.7 Telephone operator services

4. Excluded Services

4.1 Interconnection services

4.2 Value-added network services

4.3 Mobile cellular telecommunication services

4.4 Emergency numbers

4.5 Customer premises equipment

4.6 Services that are eliminated by the Authority from the basket from time to time

APPENDIX 2: SELECTED TELKOM TARIFF CHANGES 1997-2003

Table A2.1: Percentage price increases for Telkom (1998-2003)

	1997	1998	1999	2000	2001	2002	2003
Inflation rate used in tariff filing		6.6%	8.8%	3.5%	6.9%	5.5%	12.5%
Rate regime productivity factor		1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Actual price increase		5.1%	7.3%	2%	5.4%	5.5%	9.5%

* Note that the inflation rate used in a tariff filing is that of the year before the price increase takes effect.

Table A2.2: Tariff changes for installation and rental of Telkom telephony service (Rands)

		1997	Conventional 2003		PrepaidFone 2003	
		Rate	Avg. real p.a. % change	Real change	Rate	Avg. real p.a. % change
Installation	**Residential**	171.00	268.98	0.4%	155.27	-9.1%
	Business	171.00	268.98	0.4%	na	
Monthly rental	**Residential**	44.69	76.20	1.8%	47.23	-6.5%
	Business	55.86	101.23	2.9%	Na	

* The inflation rate was taken from January 1997 to January 2003, yielding an average per annum inflation rate of 7.5%

** All values are inclusive of VAT

Table A2.3: Tariff changes for Telkom's call services (Rands)

		Residential/business phone					Payphone		
		1997	Conventional 2003		PrepaidFone 2003		1997	2003	
		Rate	**Rate**	**Avg. real p.a. % change**	**Rate**	**Avg. real p.a. % change**	**Rate**	**Rate**	**Avg. real p.a. % change**
3 minute call (<50km)	**Peak**	0.31	1.29	19.5%	1.40	21.1%	0.40	1.08	10.6%
	Off-peak	0.12	0.83	31.4%	0.87	32.5%	0.15	0.35	7.6%
3 minute call (50-100km)	**Peak**	1.47	2.97	4.9%	3.34	7.2%	1.90	4.43	7.6%
	Off-peak	0.74	1.98	10.4%	2.16	12.1%	0.96	2.22	7.5%
3 minute call (100-200 km)	**Peak**	2.96	2.97	-7.4%	3.34	-5.4%	3.83	4.43	-5.0%
	Off-peak	1.23	1.98	0.8%	2.16	2.4%	1.59	2.22	-1.8%
3 minute long-distance call (200 km +)	**Peak**	4.09	2.97	-12.7%	3.34	-10.8%	5.29	4.43	-10.4%
	Off-peak	1.93	1.98	-7.1%	2.16	-5.6%	2.50	2.22	-9.5%
Call to Mobile	**Peak**	4.09	5.64	-2.0%	5.64	-2.0%	5.29	7.01	-2.7%
	Off-peak	1.88	3.35	2.6%	3.35	2.6%	2.43	4.38	2.8%

* The inflation rate was taken from January 1997 to January 2003, yielding an average per annum inflation rate of 7.5%

** All values are inclusive of VAT

Table A2.4: Tariff changes for Telkom's Non-voice Services: Diginet-Plus 1920 kb/s line (Rands)

		1997	2003	Avg. real p.a. % change
Network access circuit rental (2 Mbit system)		2044.02	2508.00	-4.0%
Port rental (1920 kb/s)		1743.06	2093.04	-4.4%
Line rental (1920 kb/s)				
0-50km	**Fixed**	3251.28	3300.30	-7.2%
	Per km	286.25	250.34	-9.7%
51-200km	**Fixed**	11202.78	8899.98	-11.2%
	Per km	127.22	138.35	-6.1%
201-400km	**Fixed**	24914.70	25501.80	-7.1%
	Per km	58.66	55.34	-8.4%
401km+	**Fixed**	36082.14	39003.96	-6.2%
	Per km	30.75	21.58	-13.2%

* The inflation rate was taken from January 1997 to January 2003, yielding an average per annum inflation rate of 7.5%

** All values are inclusive of VAT

APPENDIX 3: INTERCONNECTION RATES AMONGST MOBILE CELLULAR AND TELKOM

Table A3.1: Per-minute interconnection rates between Vodacom and MTN (later including Cell C)

	1994-98	1999	2000	2001	2002
All calls other than community service calls					
Peak (Mon-Fri 07:00-20:00)	R0.20	R0.50	R0.80	R1.19	R1.23
Off-Peak (all other hours)	R0.10	R0.30	R0.45	R0.65	R0.73
Community service calls					
Peak (Mon-Fri 07:00-20:00)			R0.0	R0.04	R0.16
Off-Peak (all other hours)			R0.0	R0.04	R0.08

Note: Interconnection agreement currently permits an annual increase of a maximum of the higher of CPI or R0.02

Table A3.2: Per-minute interconnection charges between Telkom and mobile operators for national calls

Old Interconnection Agreement	1994-2001	New interconnection agreement	Oct 2001
Calls originating on mobile (i.e. mobile pays Telkom)			
Peak (M-F 07:00-18:00)	R0.21	*Peak (Mon-Fri 07:00-20:00)*	R0.21
Intermediate (M-F 18:00-20:00, Sat 07:00-13:00)	R0.14	*Off-Peak (all other hours)*	R0.10
Off-peak (all other hours)	R0.10		
Community service calls	25% discount	*Community service calls*	25% discount
Volume discounts	12.5% on R40m+	*Volume discounts*	None
Annual increase permitted	None	*Annual increase permitted*	Max of CPI or R0.02
Calls originating on Telkom (i.e. Telkom pays mobile)			
Higher of:		*Peak (Mon-Fri 07:00-20:00)*	R1.23
Telkom retail mobile call tariff less R0.21/R0.14/R0.10		*Off-Peak (all other hours)*	R0.73
Mobile weighted average fixed line call tariff less R0.21/R0.14/R0.10		*Telkom retention fee**	R0.33/R0.20 (peak/off-peak)
Annual increase permitted	None	*Annual increase permitted*	Max of CPI or R0.02

*The agreement includes a cap on the price Telkom can charge for fixed-to-mobile calls that is the sum of the interconnection fee payable to the mobile operators and the retention fee for Telkom. The previous formulation tried to achieve a similar constraint on Telkom from excessive fixed-to-mobile pricing.

** All values are exclusive of VAT

APPENDIX 4: LICENCE AND OTHER FEES

Table A4.1: Licence and universal service fees paid by telecoms operators

	Initial licence fee	Annual licence fee (% of net operating income)	Annual Radio Spectrum Fees	Universal service fee (% of net operating income)
Telkom	None	0.1%	R24m	0.2%
MTN	R100m	5%	R6.1m	0.2%
Vodacom	R100m	5%	R6.1m	0.2%
Cell C	R100m	1%	R6.1m	0.2%
Sentech (carrier of carriers)	R25m	0.5%		0.2%
Sentech (multimedia)	R25m	0.5%		0.2%
SNO (proposed)	R300m	1%	Yet to determine requirements	0.2%
USAL (proposed)	None	0.1%	R1	0.2%

Table A4.2: Licence obligations for operators

	Rollout Obligations	Community Service Obligations
Telkom	2.69m lines brought into service of which: ▪ 1.676m in under-serviced areas ▪ 20,246 for priority customers ▪ 3,204 villages	▪ 120,000 payphones
MTN	▪ 60% population coverage in 2 years ▪ 70% population coverage in 4 years	▪ 7,500 community service telephones in under-serviced areas over 5 years ▪ Low community service tariff
Vodacom	▪ 60% population coverage in 2 years ▪ 70% population coverage in 4 years	▪ 22,000 community service telephones in under-serviced areas over 5 years ▪ Low community service tariff
Cell C	▪ 8% geographic coverage in 5 years, 40% with roaming ▪ 60% population coverage in 5 years; 80% through roaming agreements in 1 year	▪ 52,000 community service telephones in under-serviced areas over 7 years ▪ Low community service tariff
Sentech (carrier of carriers)	None	None
Sentech (multimedia)	None	▪ 500 internet labs in rural schools over 5 years
SNO (proposed)	▪ Coverage of all metropoles in 5 years; ▪ 80% of territory in 10 years	▪ 30,000 community service telephones in rural areas over 10 years ▪ 2500 internet labs in rural schools over 10 years