

ECONOMIC REGULATION AND REGULATORY PERFORMANCE IN THE ELECTRONIC COMMUNICATIONS SECTOR: KEY THEMES FOR AFRICAN REGULATORS

Ryan Hawthorne

Senior Researcher, Centre for Competition Regulation and Economic Development, University of Johannesburg, South Africa

The central theme of Issue 14 of *The African Journal of Information and Communication* is competition and economic regulation, with a range of articles addressing the need for reforms in these areas within the electronic communications sector. A key theme that runs across the articles deals with the role of state ownership of regulated entities and how this affects regulatory action (or inaction). The structural conflicts of interest inherent in state ownership of licensees and operators are seen as a key impediment, which results in under-funded regulators and government interference in regulatory activities. Another emerging theme is the important role played in regulating access, including in respect of call termination rates and infrastructure sharing. Call termination rate reductions in Namibia and South Africa, for example, have led to considerable reductions in retail prices and increases in usage, which have resulted in considerable benefits for consumers. Attempts to implement infrastructure sharing rules, however, have been less successful. The articles present a set of themes for the attention of African regulators.

REGULATORY EFFECTIVENESS

The first article, *Regulatory effectiveness: Stakeholder perceptions of Namibia's communications regulatory framework*, concerns a review of regulatory effectiveness in Namibia. It considers the effectiveness of the Communications Regulatory Authority of Namibia (CRAN) in the context of the institutional framework in Namibia and the government's shareholding in Telecom Namibia (TN). In terms of market outcomes, Namibia has relatively low retail voice prices, but the penetration of data services is also relatively low. Low retail voice prices have arisen at least in part from CRAN's intervention to reduce call termination rates. CRAN has been less successful, however, in implementing infrastructure sharing rules.

CRAN has sought to resolve state ownership in the telecoms operators, all of which are either part-owned or wholly owned by the state by, for example, requiring the partial privatisation of TN as a condition for the approval of its merger with Leo. However, this decision was overturned by the courts.

CRAN experiences interference from government in its decisions, including in the licensing of spectrum. Government is responsible for approving CRAN's budget and strategic plan, and government appoints CRAN's board members, which further reduces the Authority's independence. Dispute resolution in Namibia often takes place informally, which means that the regulator plays less of a role in adjudicating on these disputes. Dispute resolution in the telecommunications sector in Namibia is perceived as weak by stakeholders, as reported from a stakeholder perception survey.

While CRAN's call termination rate intervention has successfully resulted in reduced retail prices, it has yet to issue interconnection guidelines. Furthermore, rules regarding access to infrastructure are not practically implemented by CRAN. Spectrum assignment and rights of way are also not considered well regulated in Namibia by stakeholders. The universal service fund has not yet been established.

The article concludes by recommending a range of reforms to address each of these identified problems, starting with reducing government's shareholding in operators. Additional reforms include making the regulator more independent from government and ensuring that processes to assign rights of way are put in place. Another proposal is to conduct additional research to assess whether call termination rates should be further reduced. These reforms are remarkably similar to those suggested for the regulatory system in South Africa, discussed next.

The second article, *Economic regulation of the telecommunications sector in South Africa 2009-2014*, considers regulatory effectiveness in South Africa. Extracted from a wider body of work on the telecommunications sector in South Africa (reviewed later in this edition of AJIC), this article assesses the performance of the Independent Communications Authority of South Africa (ICASA) by analysing its two economic regulation interventions: the first in respect of setting call termination rates; the second in the implementation of local loop unbundling (LLU).

The formal regulatory governance framework is first evaluated. The framework is characterised by a lack of independence for the regulator, ICASA, who must, for example, wait for policy directions from the responsible line ministry prior to conducting certain of its activities. Furthermore, ICASA's budget must be approved by parliament rather than being raised by an industry levy.

Similar to the case of CRAN in Namibia, ICASA has been relatively successful in regulating call termination rates, prompting retail voice prices to fall. Also similar to the case in Namibia, ICASA has been less successful in regulating access to infrastructure, particularly as regards implementing LLU. It has also failed to assign radio frequency spectrum for broadband. The consequence of ICASA's call termination rate reductions has been retail voice price reductions of more than 30%, and prepaid prices that now fall into the lowest prices available in Southern African Development Community countries. At the same time, however, South Africa's broadband prices remain high, quality (speeds) are low relative to those in other developing countries, and access to broadband is limited.

This is at least partly due to the different informal institutional arrangements in the fixed and mobile sectors in South Africa, analysed through the lens of the “settlements” literature (following Khan, 2010, cited in the article). Political “settlements” are arrived at by different competing interests according to their “holding power” when entering into disputes and subject to a minimum viability constraint, so that the distribution of benefits does not cause revolt against the settlement. The viability of pro-growth reforms depends on this settlement, and on the entrepreneurial capabilities of the firms concerned: the weaker the entrepreneurial capabilities of the firms, the more likely they are to resist reform and seek protection against competition from the government.

In the telecommunications sector in South Africa, the fixed line incumbent, Telkom, has considerable “holding power”, partly arising from the state’s significant shareholding in it. Furthermore, it has weak entrepreneurial capabilities, and therefore has strong incentives to seek government protection from competition. This is in contrast to the mobile sector in South Africa, where there are two incumbents with low (or no) government shareholdings, and which have significant entrepreneurial capabilities (both MTN and Vodacom are internationally competitive businesses). This means that growth-enhancing reforms (reductions in call termination rates) are more consistent with the informal institutional framework for the mobile sector.

In order to bring about better access regulation of the fixed line incumbent and set South Africa on a higher growth path, the State needs to reduce or eliminate its shareholding in Telkom, preferably by selling this stake to a firm with strong entrepreneurial capabilities. Furthermore, ICASA’s independence needs to be consolidated, by further limiting the line ministry’s influence and funding being sourced through an industry levy rather than through a parliamentary appropriation.

Finally, ICASA’s reforms in markets for voice services should be further extended, and consideration should be given to introducing a bill and keeping (zero call termination rate) regime, in order to further foster competition and reduce retail voice prices. And it should assign as much spectrum as quickly as possible for the use of broadband services.

FOCUS ON APPROACHES TO LICENSING AS A FORM OF REGULATION

The third article, *Licensing of communications networks and services: Case study of market liberalisation in South Africa and the United Kingdom*, relates to reforming the licensing regime in South Africa to make it more open. The article contrasts the licensing regimes in the United Kingdom (UK) and South Africa (SA), both with similar telecomms reform histories. The UK and SA both, for example, started the reform process in the 1990s by separating out their telecommunications businesses from the government, and allowing limited competition. Both countries licensed two mobile operators initially, and left the licensing regime open for Internet Service Providers (ISPs). More recently, the two countries’ formal policy approaches have diverged: the UK has opened up its licensing framework considerably, while South Africa has taken a more sceptical approach to the markets’ ability to deliver telecommunications services. As a result, SA’s licensing regime as set out in law remains comparatively closed to competition. In practice, there is relatively greater openness to competition, but not under South African law. In terms of the relevant law, the Minister has to issue an invitation to apply (ITA), even though new entrants can and do simply buy a licence from an existing licence holder. For the purposes of effective policy and regulation that relates to the reality of electronic communications markets, the law needs to catch up with the push towards heightened competition.

Two frameworks for authorisation of telecommunications services are relevant to this discussion: licensing and concessionary frameworks. Concession frameworks usually involve a contract between the government and operator concerned, and were used extensively in South America, for example. The licensing framework provides for the authorisation by a relevant authority to an operator. Licensing frameworks in turn comprise three classes: individual licences granted on an individual basis by the regulator, class licences that do not require the granting of a licence but that do have terms and conditions attached to them, and licence exemption where no licence is required at all. Individual licensing is the most complex and costly system to administer, class licences are less so and licence exemptions have the least complexity and cost.

An important consideration is ensuring that licensing frameworks are not discriminatory. State aid laws in the European Union (EU), for example, prohibit states from providing aid to firms in a way that would distort competition. In South Africa, by contrast, the State does discriminate in favour of certain licensees. Sentech, for example, was able to bypass the onerous licensing regime that existed in the 1990s. Licence exemption, at least in respect of spectrum licensing, has more recently found favour in South Africa, allowing for the unlicensed use of the Industrial, Scientific and Medical (ISM) band for WiFi services.

The EU licensing framework provides for authorisation of class licences to communications providers (CPs), which precludes any individual licence authorisation system. Indeed, in the EU, national regulatory authorities (NRAs) are not required to acknowledge receipt of the licence notification from CPs, for the licence to be valid. The licensing framework in the EU bears no relation to service type (such as local or international) or technology (such as fixed or mobile). It allows for two licence types: networks and services. Conditions may nonetheless be imposed on CP licensees, including obligations relating to significant market power, universal access and universal service.

When the UK adopted the EU licensing framework in 2003 and converted existing licences under the new framework, it sought undertakings from incumbent operators, including British Telecom, the fixed line incumbent. This led to

a number of behavioural and structural undertakings made by BT within the frame of competition law in 2005; for example, organisational separation of upstream and downstream divisions of BT and publication of a Code of Practice. This regulatory approach was a missed opportunity in South Africa when ICASA converted licences under the Electronic Communications Act in 2009: ICASA did not seek undertakings from licensees undergoing the licence conversion process. BT's undertakings also saved the regulator, Ofcom, considerable time and expense by avoiding a market enquiry.

In South Africa, the policy environment does not clearly encourage new entry by private sector participants, and indeed periodically favours the State, such as when Broadband Infraco was created instead of incorporating the assets owned by this entity into the new fixed line entrant, Neotel. This conflicting policy environment has led to less private sector investment and ultimately less competition: the fixed line sector continues to be dominated by Telkom and the mobile sector by MTN and Vodacom.

The history of telecommunications sector reform in South Africa starts with separating Telkom from the Department of Posts and Telecommunications in the early 1990s. Initially, regulatory functions such as licensing were transferred to Telkom. This structure gave way to the Telecommunications Act in 1996, which resulted in regulatory powers being transferred away from Telkom and to an independent regulatory agency, which later became ICASA. However, this regulatory authority's decisions could be reversed by the Minister of Communications, who was responsible for the State's considerable (approximately 40%) shareholding in Telkom. The Electronic Communications Act was introduced in 2005 with the aim of introducing a technology neutral licensing framework (replacing, for example, separate licences for using fixed and mobile technologies), consolidating the powers of the regulator, ICASA, and harmonising broadcasting legislation (which was duplicated in a number of areas).

Two licensing categories were created in South Africa (similar to the EU): electronic communications services (ECS) for services, and electronic communications network services (ECNS) for infrastructure. "Class" licences are provided for and they require only notification by the operator or firm, not approval by ICASA, which makes them dissimilar to individual licences. However, the ECA creates barriers to the use of these class licences: for example, a class licensee may provide an ECNS, but only if it is municipal in scope: a national or provincial scope operator must apply for an individual licence. Furthermore, if an operator wishes to use numbers from the national numbering plan, it needs an individual ECNS licence. Individual ECNS licences may be issued by ICASA, but only after receiving a policy directive from the Minister, and then only after a lengthy notice and comment procedure. The ECA also provides for licence exempt services but still requires that operators notify ICASA before providing such a service.

During the course of the licence conversion process under the ECA, ICASA was put under pressure from the Minister of Communications to limit the number of Value Added Network Services (VANS) licensees that received individual ECNS licences. The licence conversion process required that ICASA issue licences no less favourable than the licences already in licensees' possession under the Telecommunications Act. Since VANS licensees were, from February 2005, allowed to build or buy their own network infrastructure (despite a last minute attempt by the Minister to retract this), this meant that all VANS licensees were entitled to be issued with individual ECNS as well as ECS licences. As a result of the Ministerial pressure to limit the number of iECNS licences, ICASA published a limited list of operators that would receive these licences, which excluded Altech, a VANS licensee. Altech sued ICASA on the basis that this flouted the requirements of the ECA, and won.

ICASA subsequently granted and issued 288 iECNS licences, and granted (but did not issue) a further 288 licences. This liberalised the market considerably. Nonetheless, South Africa still does not have a class licensing framework for national networks, and therefore regulatory barriers to entry continue to exist. These remaining regulatory barriers to entry ought to be removed.

THE VALUE OF COMPARING REGULATORY APPROACHES ACROSS SECTORS

The fourth article, *The impact of regulation on competition in telecommunications and piped gas*, concerns the exercise of regulatory powers by the Independent Communications Authority of South Africa (ICASA) and the National Energy Regulator of South Africa (NERSA) in setting prices for call termination rates and piped gas prices respectively. ICASA's intervention, first put in place in October 2010, was intended to remedy the network effects generated by high call termination rates, low on-net prices and the incumbency advantages of the two dominant operators in South Africa, namely MTN and Vodacom. The combination of high call termination rates, low on-net prices by the incumbents and their considerable scale relative to the new entrants, Cell C and Telkom Mobile, may have resulted in the failure of the new entrants without this regulatory intervention. ICASA awarded Cell C and Telkom Mobile asymmetrically high call termination rates, using market share as the key metric to determine whether an operator could benefit from asymmetry. This was akin to Vodacom and MTN being awarded an asymmetrically high call termination rate in the mid-1990s relative to Telkom, who was the incumbent at the time. Asymmetry, according to ICASA, would result in "a more efficient and effective access regime; a more dynamic retail pricing environment; and, continued access and investment in electronic communications networks in SA".

ICASA followed a lengthy public inquiry process in order to achieve lower call termination rates, starting in 2006/2007 with the publication of a "Notice of intention to define relevant wholesale call termination markets". This was followed in November 2007 with a findings document, which explained that a series of regulations were required prior to implementing regulations in terms of section 67(4) of the Electronic Communications Act (ECA).

In October 2009, ICASA published a request for information regarding call termination, and in March 2010 published market review “guidelines” (rather than a full set of regulations). The call termination regulations were finally published in October 2010.

The call termination rate reductions facilitated competition and allowed Cell C, for example, to reduce prices. Asymmetry did not, however, result in Cell C and Telkom Mobile becoming fully competitive. In July 2013, ICASA began the process of reviewing its 2010 call termination regulations. Final regulations were published in February 2014. The incumbent operators, MTN and Vodacom, took ICASA’s decision on review to the High Court. The latter found that ICASA’s decision was arbitrary, since it was not based on the operators’ actual costs, and set ICASA’s decision aside. This decision was suspended for six months in order to give ICASA time to remedy its failure to use costs and to publish new regulations. These were published in September 2014. ICASA’s call termination rate intervention remains today its only intervention in respect of the market enquiry provisions set out in Section 67(4) of the ECA.

The approach of the National Energy Regulator of SA (NERSA) was quite different to that of ICASA. NERSA regulates the market for piped gas in terms of sections 21 and 22 of the Gas Act, No. 48 of 2001. The piped gas provisions of the Gas Act were not implemented for the first 10 years of the Mozambique Gas Pipeline Agreement (MGPA), entered into between the Minister of Minerals and Energy, the Minister of Trade and Industry and Sasol Limited. The latter allowed Sasol to price discriminate between customers in terms of the Market Value Pricing (MVP) formula.

NERSA published a consultation document on the regulation of piped gas in October 2010, a draft methodology document in June 2011 and a final methodology document in October 2011. Before regulating prices for piped gas, NERSA must determine that there is “inadequate competition” in this market. Accordingly, in September 2011 NERSA published a discussion document on inadequate competition in the market, and in February 2012, approved the determination of inadequate competition in markets for piped gas, rejecting the notion that all sources of energy are alternatives to natural gas. NERSA’s approved tariff-setting methodology was based on “energy price indicators”. Sasol applied for maximum gas prices, a trading margin and a transmission tariff in early 2013. These applications were published for comment, and ultimately approved by the NERSA board in March 2013.

Large industrial customers for gas applied to have NERSA’s decision set aside in October 2013 on the basis that NERSA’s decision had the effect of allowing Sasol to continue to charge monopoly prices for natural gas on the grounds that NERSA ought to have determined that there was ineffective competition prior to deciding on its methodology. Other concerns raised include that the market definition exercise was not undertaken carefully in that, for example, the various levels of the supply chain were not separately analysed. This is in contrast to the careful market definition and price regulation approach implemented by ICASA.

ICASA’s careful regulatory approach follows the prescriptive requirements of the ECA, which set out the factors that ICASA must take into account when intervening in markets. The Gas Act, on the other hand, is less prescriptive and provides NERSA with considerable discretion.

The article includes a range of recommendations, including that the Gas Act ought to be amended to allow NERSA to revise its methodologies when market conditions change (already allowed for in the ECA). A set of prescribed steps ought to be set out in the Gas Act for NERSA to follow before it intervenes. NERSA’s interventions ought to take into account the factors considered by competition authorities when arriving at a decision, including factors such as barriers to entry, industry concentration and history of collusion in the market. Rather than “approve” prices and tariffs, NERSA ought to be allowed to “set” prices and tariffs.

There are planned amendments to the Gas Act that remove the requirement that NERSA first determines that the market is characterised by “inadequate competition”; the ECA was recently amended to remove some of the guidance to ICASA on how it should intervene. Rather than becoming clearer, the ECA and Gas Act are likely to provide less guidance to regulators and less certainty to market participants in future. The article further recommends mandatory consultation between sector specific regulators and the competition authorities in order to allow for greater knowledge sharing, as well as adequate provisions for appeal. The latter in particular would provide for decisions to be appealed on legal and substantive technical grounds on an expedited basis to a single body. Such an appellate body could hear appeals of the decisions of various regulated sectors, since competition principles and economic regulation principles are consistent across sectors.

THE CRITICAL IMPORTANCE OF SPECTRUM REGULATION FOR FUTURE SECTOR DEVELOPMENT

A work in progress contribution, titled *Considering possible regulatory approaches to television white spaces (TVWS): A view from South Africa*, deals with radio frequency spectrum regulation. These case notes address the issue of reducing barriers to entry in markets for broadband services by opening up access to TV white spaces (TVWS) spectrum to broadband service providers. TVWS are the radio frequency spectrum channels between TV channels that are left open so as not to cause interference between TV transmissions. TVWS can be used, under certain circumstances, for broadband services without causing interference with TV transmissions. A TVWS trial in Cape Town - a joint project between Google, TENET and the CSIR - was concluded in September 2013. The project provided

broadband services to 10 schools, and proved that TVWS can be used for broadband access without interfering with TV transmissions. The trial also helped to create regulatory support for the use of TVWS. A further trial is planned, with sponsorship from Microsoft, in Limpopo. The aim of this trial is to connect five rural schools at a distance of up to 10 km. The key challenge faced by regulators in making TVWS available for broadband is shifting from a dedicated spectrum assignment approach to a “dynamic spectrum assignment” (DSA).

There is a considerable amount of spectrum that could be shared through DSA. The “digital dividend” will yield 126 MHz, which can be used for broadband services. The rest of the UHF band, approximately 224 MHz, is reserved for broadcasting use. Approximately 75% of this spectrum, or 168 MHz, could be used for TVWS. The regulatory approach in the US and the UK has been to assign “licence-free” spectrum, which led to the dramatic growth of Wi-Fi devices. However, this approach also results in interference and no ability to manage quality of service. A further possible approach is the defined use services regime, such as walkie-talkies and ski-boat radios, where there is no protection for licensed users, who are only able to communicate when the spectrum is unused.

The licence exempt approach requires that all devices be registered in a geo-location database. Each device is assigned a channel in a licence-exempt spectrum, which assignment must be renewed at regular intervals. In a co-ordinated usage regime, in which devices also register on a geo-location database, devices are assigned spectrum so that they do not cause interference with higher priority devices. Again, the device is required to renew its use of spectrum regularly. Dynamic spectrum assignment (DSA) relies on regular calculation of whether spectrum can be used for a particular purpose without interference between users. This requires precise Global Positioning System (GPS) coordinates for devices as well as a radio propagation model (a model that predicts signal strength in different locations). When spectrum use changes, spectrum assignments are re-calculated and devices may be instructed to switch off. The dynamic spectrum assignment approach therefore requires intelligent devices that have software definable radios (SDRs). A Protocol for Accessing White Spaces (PAWS) has been defined by the Internet Engineering Task Force (IETF), which sets out how white spaces devices interact with geo-location white spaces databases.

A key question is how the Administered Incentive Pricing (AIP) approach to the regulation of spectrum in South Africa would be applied to dynamic spectrum assignment. The AIP system includes seven parameters, including area sterilised and type of spectrum, which are intended to ensure that spectrum is used to its highest value. The AIP system could equally be applied to the assignment of TVWS spectrum using the DSA approach.

The use of TVWS could have a considerable impact on broadband coverage: the UHF band (where TVWS resides) has excellent properties for increased coverage and in-building signal penetration. It is therefore particularly well suited for increasing broadband coverage in rural areas. Greater broadband coverage, in turn, has been linked to higher economic growth.

This set of case notes shows the potential for regulatory innovations that could reduce barriers to entry, increase competition and stimulate economic growth.

UNIFYING THEMES IN COMMUNICATIONS REGULATORY REFORM

The first unifying theme across several of these articles is reducing barriers to entry, whether by reducing access prices (including call termination rates), providing for infrastructure sharing, eliminating regulatory barriers to entry such as the onerous licensing process in South Africa, or assigning TV white spaces spectrum for shared use by small-scale new entrants. The second theme relates to a call for reform of state ownership in operators and consolidating regulatory independence, to bring about greater competitiveness among operators and reduce conflicts of interest inherent in governments owning and regulating operators. The third theme is the need for the efficient use of resources in the telecommunications sector, including in relation to the rapid assignment of spectrum and sharing of existing infrastructure.

Taken together, these reforms, if implemented, have the potential to unlock considerable gains for consumers of electronic communications services in Africa.