

https://dspace.org/

Monopoly pricing of telecommunications services in Swaziland

Lushaba, Samkelo Welcome

2016
http://hdl.handle.net/10539/21958

Downloaded from a DSpace repository. https://dspace.org/

Monopoly pricing of telecommunications services in Swaziland

Samkelo Lushaba

A research report submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements of the degree of Master of Business Administration

March, 2015

ABSTRACT

According to Porter (1999, p. 842) “telecommunications, transportation, energy and other sectors, all provide vivid examples of the power of competition to unleash innovation and drive unheard rates of progress… no company and no country can afford to ignore the need to compete”.

Literature provides material evidence on the existence of two-way causal relationship between investments in telecommunications and economic development. However, as other writers suggest, such economic benefits may not be fully realised if the telecommunications playing field is not evened out and a proper trajectory of the sector not clearly defined with the necessary ingredients for growth. Such requisite ingredients in the mobile telecommunications sector include a conducive regulatory framework and competition, among others. Competition in mobile telecommunications has been identified in literature as one of the factors that play a fundamental role in lowering prices and driving innovation.

More than a decade and a half into the introduction of mobile telephony in Swaziland, the market remains one of the few remaining monopolies in Africa and the only one in the Southern African Development (SADC) countries.

By using tariff data across the SADC countries over a five-year period between and including the years 2008 and 2012, this study examines the effects of monopoly in the pricing of telecommunications services in Swaziland, focusing mainly on the mobile telecommunications sector. The study furthers investigates the prospects of introducing another player into the mobile telecommunication market. This extension of the study seeks to provide a corrective recourse if the pricing exhibited some form of distortions due to the monopolistic influence.

DECLARATION

I, Samkelo Welcome Lushaba, declare this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other university.

Samkelo Welcome Lushaba

Signed at ……...

On the…….. day of ……..2015

DEDICATION

To my Mom, without your prayers, sacrifices, defying all odds to make me the person that I am today, I would not have been able to accomplish any of this. Where many could have (justifiably) given up, you soldiered on, encouraging me and believing in me every step of the way. You are my hero. May God forever bless you.

ACKNOWLEDGEMENTS

First and foremost, I would like to acknowledge my supervisor, Professor Eric Schaling, who despite assuming the supervisory role at a late stage of the report, through his guidance, support and encouragement made the whole task seem a lot easier than it actually was.

To Dr. Simatele Munacinga, thank you for your valuable insights. The first push got the ball rolling.

I am highly indebted to the government of the Kingdom of Swaziland, especially the Human Resources and Development department for affording me with such a rare opportunity to further my studies.

May I also thank the respondents, who took time off their busy and demanding schedules, to help me with the research. Learning from your rich experiences and honest responses gave the research report the much needed shape.

I would also like to express my special gratitude to the Professors and staff of the Wits Business School for such a learning experience. To Melusi Mthembu, Senior Programme Coordinator: MBA, your friendly assistance throughout the duration of the MBA course shall remain solidly engraved on my mind. I remember all of it, always willing to help and offer constructive advice, your open-door policy is highly appreciated.

To my classmates, you made sure that you made the whole learning experience a worthwhile one. Muzi Siyaya, my friend, brother and compatriot your support and motivation will always be appreciated.

To my mother, to Khumbulile my sister, her husband Dr. Percy, my nieces Aphiwe and Wele, your support and encouragement throughout the duration of the programme redefined the meaning of family.

Last but not least, to Mbongiseni Nkambule and Nontobeko Mabuza thank you guys for persistently encouraging me and ensuring that I enrolled for the programme, though at times it would seem like I was getting cold feet.

TABLE OF CONTENTS

ABSTRACT ..... **II**

DECLARATION ..... **III**

DEDICATION ..... **IV**

ACKNOWLEDGEMENTS ..... **V**

1 CHAPTER 1: INTRODUCTION **1**

1.1 PURPOSE OF THE STUDY 1
1.2 CONTEXT OF THE STUDY 1
1.3 PROBLEM STATEMENT 8
1.3.1 MAIN PROBLEM 8
1.3.2 SUB-PROBLEM 1 8
1.3.3 SUB-PROBLEM 2 8
1.4 SIGNIFICANCE OF THE STUDY 8
1.5 DELIMITATIONS OF THE STUDY 9
1.6 DEFINITION OF TERMS 12
1.7 ASSUMPTIONS 12

2 CHAPTER 2: LITERATURE REVIEW **13**

2.1 INTRODUCTION 13
2.2 TELECOMMUNICATIONS AND ECONOMIC DEVELOPMENT 13
2.3 COMPETITION IN TELECOMMUNICATIONS 16
2.4 EFFECTS OF EXCLUSIVITY PERIODS IN TELECOMMUNICATIONS 21
2.5 COMPETITION AND PRICING OF TELECOMMUNICATIONS SERVICES 25
2.6 FACTORS THAT INFLUENCE TELECOMMUNICATIONS PRICING 29
2.6.1 REGULATED TELECOMMUNICATIONS PRICING STRUCTURES 32
2.7 TELECOMMUNICATIONS NATURAL MONOPOLIES 34
2.8 KEY DETERMINANTS OF MOBILE TELEPHONY SERVICES DEMANDS 35
2.9 INFRASTRUCTURE SHARING AS AN ENABLER FOR COMPETITION 36
2.10 CONCLUSION OF LITERATURE REVIEW 37

3 CHAPTER 3: RESEARCH METHODOLOGY 39

3.1 RESEARCH METHODOLOGY/PARADIGM 39
3.1.1 COMPARATIVE RESEARCH TOOL 39
3.1.1.2 THE ITU MOBILE-CELLULAR SUB-BASKET 42
3.1.1.3 THE BASKET METHODOLOGY WEAKNESSES 43
3.1.2 QUALITATIVE INDUCTIVE CONTENT ANALYSIS 43
3.2 RESEARCH DESIGN 44
3.3 POPULATION AND SAMPLE 45
3.3.1 POPULATION 45
3.3.2 SAMPLE AND SAMPLING METHOD 45
3.3.3 SAMPLE NUMBERS 47
3.4 PROCEDURE FOR DATA COLLECTION 48
3.5 DATA ANALYSIS AND INTERPRETATION 49
3.6 LIMITATIONS OF THE STUDY 51
3.7 RELIABILITY AND VALIDITY 51
3.7.1 EXTERNAL VALIDITY 52
3.7.2 INTERNAL VALIDITY 52
3.7.3 RELIABILITY 52

4 CHAPTER 4: PRESENTATION OF RESULTS 54

4.1 INTRODUCTION 54
4.2 INTERNATIONAL TELECOMMUNICATION UNION (ITU) BACKGROUND 54
4.3 DEMOGRAPHIC PROFILE OF RESPONDENTS 55
4.4 CELLULAR-MOBILE PENETRATION AND TARIFF DATA COMPARISON OF THE SADC COUNTRIES 56
4.4.1 MOBILE-CELLULAR TELEPHONE SUBSCRIPTIONS PER 100 INHABITANTS COMPARISONS 56
4.4.2 CELLULAR-MOBILE TARIFF COMPARISONS 58
4.4.2.1 COMPARISON OF RAW VOICE TARIFF DATA 58
4.4.2.2 COMPARISON USING THE ITU MOBILE-CELLULAR SUB-BASKET, 2013 60
4.5 RESULTS PERTAINING TO SUB-PROBLEM 2 62
4.6 SEMI STRUCTURED INTERVIEW GUIDE DESIGN 63
4.6.1 EXTENDED EXCLUSIVITY PERIOD 64
4.6.2 NATURAL MONOPOLIES IN TELECOMMUNICATIONS 64
4.6.3 VIABILITY OF ANOTHER ENTRANT ENTERING THE SWAZI MARKET 66
4.6.4 FACTORS THAT INFLUENCE TELECOMMUNICATIONS PRICING 69
4.6.5 COMPETITION, INNOVATION AND PRICING OF TELECOMMUNICATIONS SERVICES 71
4.6.6 REGULATORY ROLE 73
4.6.7 ROLE AND RELEVANCE OF THE FIXED LINE MODEL 74
4.7 SUMMARY OF THE RESULTS 74

5 CHAPTER 5 DISCUSSION OF THE RESULTS 76

5.1 MOBILE-CELLULAR TELEPHONE SUBSCRIPTIONS PER 100 INHABITANTS' COMPARISONS 76
5.2 COMPARISON OF RAW VOICE TARIFF DATA 78
5.3 ITU BASKET METHODOLOGY COMPARISON 80

5.4 EXTENDED EXCLUSIVITY PERIOD 82
5.5 NATURAL MONOPOLY IN TELECOMMUNICATIONS AND WHETHER OR NOT MTN-SWAZILAND EXHIBITS CHARACTERISTICS OF ONE 83
5.6 VIABILITY OF ANOTHER ENTRANT ENTERING THE SWAZI MARKET 84
5.6.1 ENTRY INFORMED BY ECONOMIC VIABILITY 85
5.6.2 ENTRY INFORMED BY COMPANY'S STRATEGIC DIRECTION 86
5.7 COMPETITION, INNOVATION AND PRICING OF TELECOMMUNICATIONS SERVICES 87
5.8 THE ROLE OF THE REGULATOR 89
5.9 CONCLUSION 91

6 CHAPTER 6 CONCLUSIONS AND RECOMMENDATIONS 93

6.1 INTRODUCTION 93
6.2 CONCLUSIONS OF THE STUDY 93
6.3 RECOMMENDATIONS 96
6.4 SUGGESTIONS FOR FURTHER RESEARCH 97

REFERENCES 98

APPENDIX A: 107

OECD BASKET METHODOLOGY 107

APPENDIX B: 108

CONSISTENCY MATRIX 108

APPENDIX C: 112

RESEARCH INSTRUMENT 112

APPENDIX D 114

TRANSCRIBED INTERVIEW EXAMPLE 114

APPENDIX E: 135

RULES APPLIED IN THE COLLECTION OF MOBILE CELLULAR PRICES BY THE ITU 135

APPENDIX F: 138

LIST OF TABLES

Table 1: Table of respondents 48

Table 2: SADC Mobile-cellular sub-basket, 2013 60

Table 3: Issues and questions 63

List of Figures

Figure 1: MTN-Swaziland Shareholding Structure 4

Figure 2: Level of Mobile Competition – 2012 5

Figure 3: Mobile-Cellular subscriptions per 100 inhabitants 7

Figure 4: Growth of competition in selected services 18

Figure 5: Countries allowing competition, for selected ICT services 18

Figure 6: Projected benefits from users from competitive telecom services in 2010 26

Figure 7: Competition in mobile telecommunications markets 29

Figure 8: Content analysis framework 50

Figure 9: Mobile-cellular telephone subscriptions per 100 inhabitants SADC countries. 57

Figure 10: SADC Tariff comparison in US$.....59

Figure 11: Mobile-cellular prices as a percentange of GNI p.c. in the SADC countries 2013.....61

1 CHAPTER 1: INTRODUCTION

1.1 Purpose of the study

The purpose of the research was to investigate and analyse the effects of monopoly in the pricing of telecommunications services in Swaziland, focusing mainly on the mobile telecommunications sector. High telecommunication costs may hinder economic development that would otherwise have benefited from telecommunications. As a result of high telecommunication prices, the benefits that may be derived from Internet access, e-learning, e-agriculture, e-government, e-commerce and other mobile based applications, known as m-development, may not be fully realised. High costs may also stifle growth because resources that would otherwise be directed to other economic initiatives, both at micro and macro level, are then channelled to telecommunications services. Furthermore, the research also investigated Swaziland's capacity to accommodate multiple mobile telecommunications services providers.

The principal objective of the study was on monopoly pricing of telecommunications services in Swaziland, however it would have been in vain to study telecommunications pricing in isolation, without investigating the prospects of introducing the elements of competition in the Swazi mobile telecommunications market.

1.2 Context of the study

Swaziland is a developing Southern African landlocked kingdom covering an area of about 17,363 square kilometres (Central Statistics Office, 2007). It is subdivided into four regions, Manzini, Hhohho, Shiselweni and Lubombo. The country shares borders with the Republic of Mozambique in the East, and the Republic of South Africa in the South, North and West. According to the World Bank (2013) as of the year 2012, Swaziland had a population of slightly above

1.2 million, 63 percent of which live in abject poverty (living on less the US$1 per day) and a GDP of $3.747 billion. By 2007, the unemployment rate stood at 45.1% (Central Statistics Office, 2007). The Swaziland Lilangeni is pegged to the South African Rand, essentially subsuming the country's monetary policy to South Africa.

In 2011, Swaziland ranked 145 out of 161 economies in the ICT Price Basket (IPB) rankings, a global benchmarking tool developed by the International Telecommunications Union (ITU) that provides information on the cost and affordability of fixed-telephone, mobile-cellular and fixed-broadband services (ITU, 2012). According to ITU (2014d), the total rural population of Swaziland having access to a 3G mobile network at the very least, in the year 2011/2012 was 50 percent. Using the mobile Cellular price basket, ITU (2014d) further ranks Swaziland 130th out of 168 economies using the Mobile-Cellular Sub-basket, 2013.

Swaziland's fixed and mobile telecommunications is currently monopolised respectively by, The Swaziland Post and Telecommunications Corporation (SPTC) and Mobile Telephone Network (MTN) – Swaziland. The former has enjoyed a monopoly in fixed-line telecommunications since establishment in 1983 to date, while MTN has operated in monopoly since 1998. Both organisations entered into a Joint Venture Agreement in 1997 which, among other obligations, prevented SPTC from providing services that would be in direct competition with MTN. In 2012, however, SPTC rolled out products that were seen to be in competition with MTN and in violation to the agreement dictates, resulting in the matter being resolved in favour of the latter by the International Court of Arbitration.

MTN Swaziland LTD is a subsidiary of the MTN Group Limited where the latter holds a 30% stake in MTN - Swaziland. The MTN Group is a Johannesburg Stock Exchange (JSE) listed multinational telecommunications company that operates in 21 countries in Africa and the Middle East (MTN, 2013). The rest of MTN Swaziland shareholding structure (*Figure 1*) comprises SPTC with 41%,

Swaziland Empowerment Limited 19%, and 10% belonging to His Majesty, King Mswati III, in his personal capacity, a stake he acquired from SPTC in 2004; although His Majesty the King's shareholding remains undocumented, it is a common and public understanding (Sutherland, 2014).

MTN-Swaziland started operating in September 1998, after being granted a ten-year exclusive licence for Global Systems for Mobile Communication (GSM) services by the Government of Swaziland through the then Ministry of Tourism Environment and Communication. It is believed that the exclusivity period was so granted to enable MTN to recoup its start-up costs. It is also believed that such a period was necessary for shareholders to realise their return on investments without any possible threat from competition. Fifteen years later, MTN Swaziland remains the only mobile telecommunications services provider in the country.

According to the ITU (2014a) MTN-Swaziland enjoyed a subscriber base of 893,000 customers in 2013 whilst there were 805,000 subscribers in 2012. Network coverage comprises two components, population and geographic coverage, MTN-Swaziland had a population coverage off about 97% and 93% geographical coverage. Mobile telephone subscriptions for every 100 inhabitants in the year 2013 were 71.47.

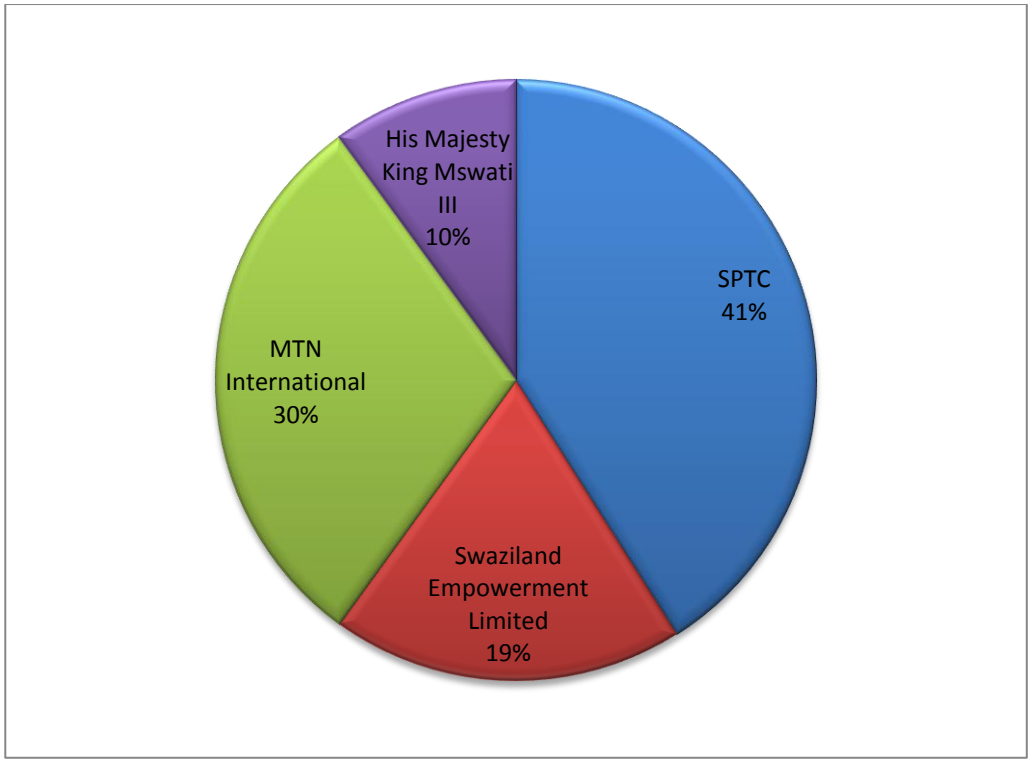


Figure 1: MTN-Swaziland Shareholding Structure - *His Majesty the King's stake remains undocumented and is currently based on public assumption (Sutherland, 2014)*

SPTC was established in 1986 as a parastatal, under Act No. 11 of 1983 with the Swazi Government having a majority interest. The parastatal currently falls under the jurisdiction of the Ministry of Information and Communications Technology, a young ministry established in 2008.

SPTC is made up of two business units, SwaziPost responsible for postal services, ordinary and registered mail, and courier and freight services. Meanwhile Swazi Telecom is responsible for fixed-line telecommunications services and Asymmetric Digital Subscriber Line Internet provision (ADSL).

With the absence of a telecommunications regulatory body in the country, the corporation also combined functions of being an operator and the national regulator of communications. This situation then rendered SPTC both a player and a referee in the sense that beyond regulatory obligations and duties, SPTC also had to compete with other players in the very same industry that it

regulated. However, the Swazi government is presently working on a bill intended to establish an independent regulator (SPTC, 2012).

According to ITU (2014c), (statistics based on responses) as of December, 2013, Swaziland remained one of two countries in Africa and seventeen globally with monopolies in the provision of mobile telecommunications services. Figure 2, shows a graphical representation of the level of mobile competition in 2012

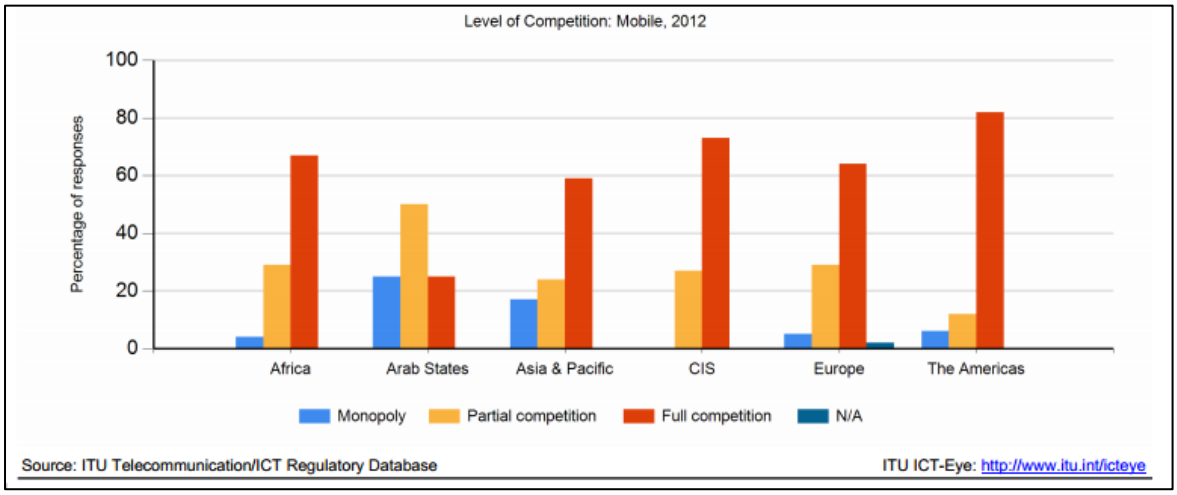


Figure 2: Level of Mobile Competition – 2012 *Source ITU (2014c)*

Telecommunications play a major role in the development of countries. Telecommunications infrastructure investments, the availability and use of telecom services in developing countries can improve living standards and lead to economic growth in a country (Garbacz & Thompson Jr, 2007; Röller & Waverman, 2001). Meanwhile, Cronin, Parker, Colleran, and Gold (1991) establish a causal relationship between the level of well-developed telecoms infrastructure and high levels of economic development and that an increase in the former stimulates overall economic growth. The development, availability and use of such services may be affected by many other dynamics such as pricing, existing (or nonexistence of) regulatory framework, competition or lack of it in the industry, among others.

An increase in competition is more likely to force prices down as telecommunication operators are expected to compete more on prices (Valletti

& Cave, 1998). Wallsten (2001) observed that a general consensus exists in that competition is more likely to be the best catalyst in promoting development in the telecom sector. A monopoly provider is less incentivised to offer quality services and lower prices compared to firms operating in competition.

Competition, by far is the most successful change agent, it therefore is the duty of government reformers to carefully consider the implications and consequences thereof, before granting exclusivity periods to incumbent telecommunications providers (Wallsten, 2001). Consequences that may result from extended exclusivity periods may be exhibition of monopolistic tendencies such as higher tariffs in services. Nonetheless, it remains to be seen whether or not the decision by the government of Swaziland to award MTN a 10-year exclusivity period was not to the detriment of the Swazi nation.

Petrazzini (1996) observes that isolated rural areas that previously had no access to telephone services are now easily connected with wireless telephones. However the conventional system of a monopoly operator is counter-innovative and is one that is not cost sensitive and therefore, according to Petrazzini (1996), must go. Competition in the telecoms industry is key to the economic development of a country. Baer (1995) identifies some of the benefits that may be foregone by delaying competition in telecommunications as follows;

- lower prices to telecommunications users,
- more variety of the faster innovation in service offerings,
- greater usage of telecommunication services,
- more investment in the telecommunication sector, which may bring
- above-average economic returns,
- productivity gains by telecommunications users, leading to increases in growth and output in other sectors,

- Increased overall GDP growth arising from positive externalities associated with telecommunications networks (p. 3).

Figure 3, (data last updated December, 2013) shows the Southern African Development Community (SADC) country cellular-densities, where Swaziland in 2012 was ranked number 9 out of 15 countries with a cellular-density of 65.39 i.e. in 2012, Swaziland had just over 65 mobile subscribers per 100 inhabitants(ITU, 2014b)

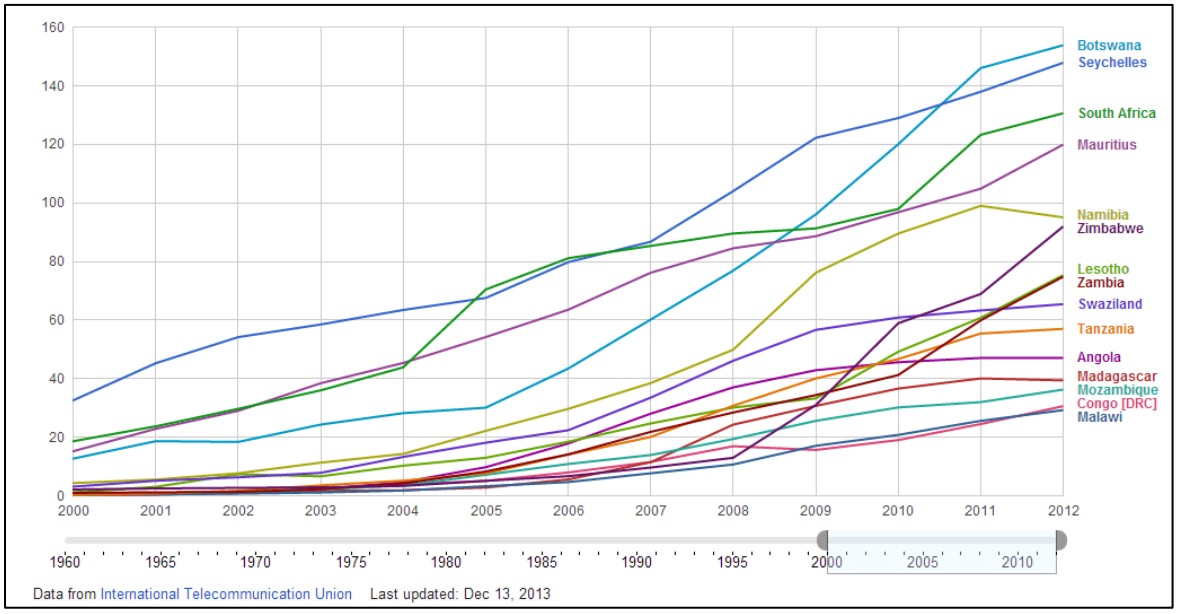


Figure 3: Mobile-Cellular subscriptions per 100 inhabitants. *Source ITU(2014)*

Botswana, Seychelles, South Africa, Mauritius, Namibia, Zimbabwe, Lesotho, Zambia, Swaziland, Tanzania, Angola, Madagascar, Mozambique, Congo DRC, Malawi

1.3 Problem statement

1.3.1 *Main problem*

The main problem is to analyse the effects of monopoly on the pricing of telecommunication services with particular focus on the mobile telecom services and whether or not other players can enter the market and effectively compete

1.3.2 *Sub-problem 1*

The first sub-problem is to assess the effects of monopolistic operations on the pricing of mobile telecommunications services in Swaziland.

1.3.3 *Sub-problem 2*

The second sub-problem is to investigate the prospects of other players entering the Swazi mobile telecommunication market or if MTN-Swaziland is a natural monopoly.

1.4 Significance of the study

The study fills a gap in that it brings to light the impact MTN's full monopoly in the supply of mobile telecommunications services has had in the pricing of its services, both voice and data. The study also contributes in determining whether Swaziland has enough market capacity to accommodate multiple players in the industry and whether or not the introduction of some form of competition in the sector would help mitigate the effects the exclusivity period may have had, such as lowering prices.

Theory proposes that healthy competition will improve performance and propel market expansion as competing firms seek to capture market share by forcing prices down and further improving on the quality of service (Fink, Mattoo, & Rathindran, 2002; Garbacz & Thompson, 2007). Therefore, the study helps

investigate how the theoretical foregone benefits such as lower costs, associated with competition, apply in the context of Swaziland and MTN's monopoly. The study seeks to establish whether Swazi consumers are losing consumer surplus due to excessive mobile prices that may be imposed by Swazi MTN, as a monopoly or not. In the absence of substitute products and competition, Swazis may have no other option than to consume Swazi MTN products regardless of the pricing of the same.

The study further provides guidance to government on whether or not multiple operators in the mobile telecommunications industry are necessary for Swaziland to derive the maximum worth in economic development that mobile telecommunications in a developing country present. Ultimately, the study proposes that, if indeed other players in the market are needed, government would have to devise ways to encourage investments from both local and foreign firms in the mobile telecommunications sector, through regulations and incentivising policies.

The study makes recommendations on policy considerations and conclusions with regards to the provision of mobile telecommunications services. The policy considerations will help the government of Swaziland craft sound decisions and policies in the provision of mobile telecommunications in Swaziland.

Apart from influencing government decisions with regards to encouraging investments in this sector if need be, the entire Swazi nation stands to benefit from the study. It is hoped that once the pricing structure has been established to be favourable or otherwise, mitigating and remedial factors would be adopted to ensure Swaziland gets the essential value from telecommunications services.

1.5 Delimitations of the study

- The research primarily focuses on the impact of MTN's full monopoly on the pricing of mobile telecommunications services in Swaziland. SPTC's

monopoly in fixed line telecommunications is only used to support a particular analysis or argument as and when relevant to the research.

- The study only considers data between the years 1998 and 2012, 1998 being the year MTN started operating in Swaziland. Therefore changes in data or status quo occurring after 2012 may change the applicability and findings of the study.
- The research is specific to the Swaziland context, therefore data from other countries is only used for analyses and comparative purposes, not to address any specific issue in those countries.
- Furthermore, comparing data on prepaid tariffs will not necessarily discount much of the tariff data to be used for analysis since a majority of customers across networks are on prepaid packages.
- Other country-specific details that may or may not influence pricing and tariff levels are not investigated in this study, details such as levels or type of infrastructure and its rollout in different countries, mobile handsets, regulator and policy issues, etc.
- The study focuses on prepaid mobile telephony and does not compare or contract post paid tariff structures mainly, because among other reasons, a common comparison proxy may not be established across the different networks, finding similar contracts to compare across different networks may not be easily achievable since there may be wide variety of contract products within a provider with each product being a company specific product and is usually attached to a particular promotion, usually for handset devices. Furthermore, comparing data on prepaid tariffs does not necessarily discount much of the tariff data to be used for analysis since a majority of customers across networks are on prepaid packages while contract services are associated with lesser but more affluent customers. According to ITU (2012), in the year 2012 more than 70 percent of all mobile subscriptions were prepaid with up to 87 percent in developing countries.
- The study does not take into account effects of promotions and discounts that are provided by operators to consumers. The reasons for not

accounting for these is that promotions and discounts are not constant and may be changed over a shorter time horizon contrasted to fixed prices that is long term.

- By virtue of Swaziland being a monopoly, only on-net prices from the different mobile providers in the different countries during peak periods are compared. Off-net prices are usually inflated to cater for termination costs, therefore comparing these with Swaziland's may be folly.
- Cellular densities may not necessarily depict an accurate representation of cellular penetration mainly because individual customers may have multiple SIM cards (multiple accounts) and also because providers may take significant time periods before deleting inactive accounts.

1.6 Definition of terms

- Teledensity– Fixed lines per 100 inhabitants, obtained by dividing the total number of telephone subscriptions by the total population then multiplying by 100
- Cellular density (Mobile cellular subscribers per 100 inhabitants obtained by dividing the total mobile subscriptions by the total population then dividing by 100. In most cases in this study the number will be sourced from external sources not calculated.
- Natural Monopoly – A monopoly where services could be provided at the lowest cost by a single provider, i.e. a situation where it would be more costly to have more than one provider than it would to have a single.
- Marshallian (Consumer/Producer) Surplus – Named after Alfred Marshall, consumer surplus is the excess amount a consumer would be willing to pay over and above the actual price whilst a producer surplus is the excess amount producers benefit by selling at a price higher than the least amount that they would sell for (Safaribooks Online, 2013).

1.7 Assumptions

- For purposes of this study, in the literature review if a specific designation of either mobile or fixed telecommunicatinos is not made, it shall be assumed to be applicable to either, and therefore, a generalisation may be made with reference to one or both.
- We also assume that to a certain degree, an accurate reality perspective will be constructed based on experiences of the respondents.
- Data sourced from the ITU database is as accurate as the respondents from which the ITU sourced their data in the different countries since ITU relies heavily on operators or regulators on the ground for their data.

2 CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

While the research is concerned with the pricing of telecommunication services by monopolies in the telecommunication sector, the review of the relationship between telecommunication and economic development is important. This serves to illustrate the fact that there is much to be benefited from telecommunications if the ground is level in terms of other dynamics such as competition, exclusivity periods, regulation, fair pricing and policies.

Telecommunications play a vital role in the economic development of a country, other factors, however, may hinder countries from enjoying the benefits of such services and the associated investments. Therefore, for purposes of analysing the effects of the telecommunication monopolies, it is crucial to first describe how previous studies associate telecommunications and development.

Telecommunication has over the past years undergone major reforms, labour productivity and teledensities, especially in developing countries, increased (Fink, Mattoo, & Rathindran, 2003). However Wallsten (2003) notes that the sustainability of such reforms hinges fundamentally on other issues such as competition, a necessary requisite for telecommunications reforms because of its high correlation with increases in teledensities, connection capacity and a decline in call prices.

2.2 Telecommunications and economic development

A number of studies have investigated the relationship between investments in telecommunications infrastructure and economic development. These studies established a strong positive relationship between investments in telecommunications infrastructure and economic development. Dholakia and Harlam (1994) acknowledge the presence of inputs other than investments in telecommunications infrastructure that are also requisite for economic

development. Other studies that have included other inputs have also yielded a similar positive relationship, despite the presence of the other variables. High quality telecommunications infrastructure proved to be more significant with regards to economic development than other inputs such as education, energy and road networks. The benefits of telecommunications investments in economic development are highly attractive in developing countries.

According to Sibandze (2013), experts at the 30th International Telecommunications Union, Service Network Operations, conference held in Swaziland, agreed that not only does Swaziland's economic growth depend on the demonopolising of the telecommunications industry but also largely depended on the provision of the cheapest telecommunications services. The experts agreed that the provision of fixed mobile services by the existing operators would be an ideal substitute for formal competition.

Aker and Mbiti (2010) identify five mechanisms through which mobile telecommunication can be of economic value to consumers and producers in Sub-Saharan Africa. First, through ease of access to information, search costs are reduced, hence increasing market efficiency across all spheres. Second, with improved and increased communication, the productive efficiency of business entities and otherwise is improved. Third, employment opportunities and income generating initiatives are created in response to the demand for mobile-related services. Fourth, by communicating through social networks, households' exposure to risks is mitigated. Finally, Aker and Mbiti (2010) propose that mobile telecommunication can contribute to economic development through mobile-based applications known as m-development for facilitating financial, health, educational and agricultural services.

In a study where evidence from 21 Organisation for Economic Co-operation and Development (OECD) counties was observed over 20 years, Röller and Waverman (2001) affirmed the relationship between investments made in telecommunications infrastructure and economic development. The study further established that, the more telecommunications systems improve, the

more business transactional costs fall, thus increasing output for firms in respective economy sectors. With more economic growth and development resulting from telecommunications infrastructural investments and otherwise, a feedback process is so created as the demand for more telecommunications services is stimulated and thus creating a virtuous cycle.

A time series analysis using information from the state of Pennsylvania by Cronin, Parker, Colleran, and Gold (1993) also confirmed the two-way causal relationship between investments in telecommunications infrastructure and economic development at both national and county level, albeit over a two years or more time horizon. The findings by the study at county level suggested that relatively small geographical areas can be positively affected by investments in telecommunications infrastructure. The same analysis showed that telecommunications investments stimulate economic activity measures such as personal income and employment activity.

Abraham (2006) established that with a wider use of mobile phones, market efficiency is raised while risk and uncertainty are reduced resulting in greater market integration. The results are a positive gain in productivity and in the Marshallian surplus. An efficient market is further characterised by, among other attributes, its competitiveness, the existence of property rights and trust, all respectively in correct proportions.

Abraham (2006) further observes that the major problem in developing economies is not the absence of markets per se but rather the inefficiencies in their overall functionality. In the study it was discovered that the efficiencies of markets and productivity were largely improved by the introduction of mobile phones which enhances the free flow of communication.

Forestier, Grace, and Kenny (2002) argue that as much as telephony and related infrastructure can play a significant role in the economic development of *poor* countries, through income generation opportunities and other life improving services, historically the poor have not been able to take advantage of such opportunities. It is the only the rich who have been able to fully exploit

the benefits presented by telecommunications. Meanwhile Madden and Savage (1999) suggest that overall national productivity, along with accelerated knowledge diffusion, is enhanced by telecommunications. The efficient provision of telecommunication service can improve organisational efficiencies of firms resulting in overall national economic growth.

Alleman, Hunt, Mueller, Rappoport, and Taylor (1994), while investigating why investment initiatives by governments are not directed to telecommunications and whether or not telecommunications are an important driver of economic growth established that the reasons are centred on control and ownership. The study by Alleman et al. (1994) also concluded that lack of proper telecommunication infrastructure and associated investments, along with other factors, such as political and social, hamper economic development in SADC countries.

Alleman et al. (1994) further illustrate that the positive correlation between the consumption of telephone services and Gross Domestic Product (GDP) is relevant for SADC countries which include Swaziland. However, underlying the relationship between telecommunications and growth are institutional mechanisms and policies which underpin telecommunications investments.

The literature review emphasises the role of telecommunications in the economic development of countries both as a driver and as a consequence. The review further highlights the importance of other factors, such as pricing, regulation and competition that may be necessary for the benefits of telecommunications to be fully exploited for economic development.

2.3 Competition in Telecommunications

Matthews (2002) describes competition as an *ordering* phenomenon in society. Competition is good for a society and exhibits human attributes since it implicitly advocates for survival of the fittest (Sheppard, 2000). Meanwhile Ganesh and Zorn (2011) liken competition to the notions of freedom in terms of free will and

free markets. Competition makes firms internally more efficient so as to have a competitive advantage over their rivals, thus competition causes efficient firms to flourish over inefficient rivals (Vickers, 1995). Li and Xu (2002) agree that among other things, competitive pressure is associated with a rise in employment, faster telecommunications network penetration and relatively higher factor productivity.

Studies show that the current trend towards competition is not entirely a new concept in telecommunications; telecommunications were highly competitive in the nineteenth century (Petrazzini, 1996). According to Wallsten (2004), this perception changed as telecommunications operators (mainly public) were eventually regarded as natural monopolies. However, unlike fixed-line offerings, mobile services were not subject to natural monopoly characteristics. Due to poor fixed-line conditions, high start-up costs compared to those of building a wireless network, most of telecommunications competition presented itself in mobile telephony.

Kelly (2002), though acknowledging the fact that setbacks in the telecommunications sector due to challenging market conditions may have forced a decline in the number of telecommunications firms in the market, the prominent trend has been to a larger extent toward greater competition in the telecommunications market. From the late 1990's, there has been a steady rise in the number of countries introducing competition in their markets (Figure 4).

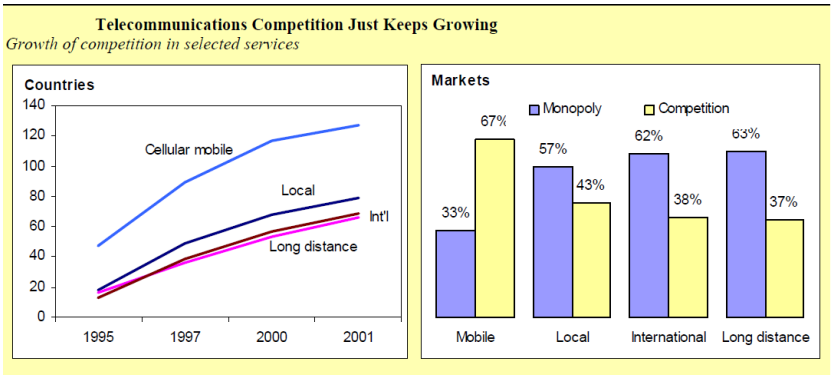


Figure 4: Growth of competition in selected services. *Source ITU (2013) Trends in Telecommunications Reform 2002*

Kelly (2002) further noted that competition in selected ICT services in general has been the system of choice in many countries as shown in Figure 5.

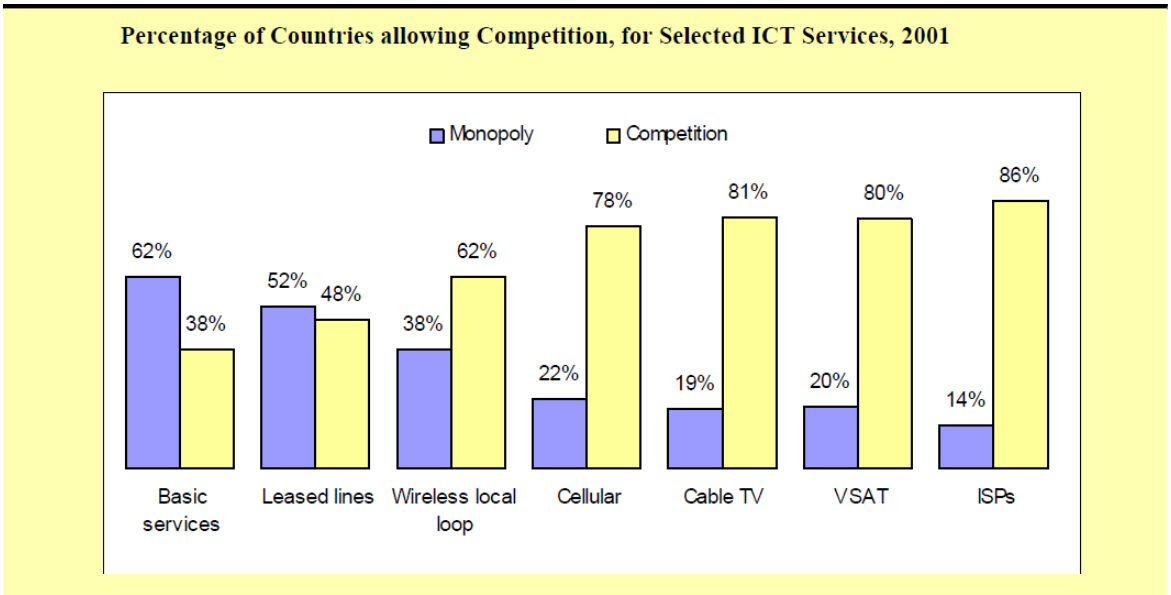


Figure 5: Countries allowing competition, for selected ICT services, 2001 - Source ITU (2013): trends in telecommunications reform 2002

For many years the telecommunications industry's market structure was supported by the natural monopoly argument – that services could be provided at the lowest cost by a single provider, an argument that was weakened by the introduction of mobile telecommunications and the inherent switch from analogue to digital transmission (Gruber, 2001). Galal and Nauriyal (1995)

observe that the preference of countries relying on public ownership for the provision of services such as telecommunications, power, roads, etc. was being reversed. This shift has introduced immense technological progress and has further created more room for potential competition in the telecommunications sector. However, privatisation alone is not enough to achieve long lasting public benefits, governments also need to bring in other necessary regulatory reforms, such as competition, whose absence may undermine this very (privatisation) reform (Klein & Gray, 1997; Wallsten, 2001). Li and Xu (2002) also agree that to achieve the best economic returns, telecommunications should be opened up to competition.

Wallsten (2001) asserted that the findings of his study were consistent with conventional wisdom when he confirmed that competition among firms had benefits across the board, both in internal efficiencies and externalities. Meanwhile, in a study of the effects of divestiture, privatisation and competition using AT&T and British Telecom (BT) as case studies, Kwoka (1993) reported a 17% growth in productivity for AT&T attributable to strengthened competition. While Gruber (2001) in the study of competition, innovation and the diffusion of mobile telecommunications in Europe found that there is a relationship between the diffusion of mobile telecommunications and the number of firms in a market.

Developed and undeveloped countries have allowed competition in some or all sectors of the industry as a means to improve productivity and performance in the telecommunications sector with more and more other countries gravitating towards a similar route (Petrazzini, 1996; Ros, 1999). Ros (1999) further established the association between competition in telecommunications with increases in teledensities, connection capacities and decreases in call tariffs.

Some studies however, have reported that the effect of telecommunications competition on productivity was insignificant. A cross-sectional time-series econometric analysis, (where cross-sectional variation is introduced into the time series) from 1984 to 1987 of 10 OECD countries by Staranczak, Sepulveda, Dilworth, and Shaikh (1994) suggested that no significant

relationship existed between competition and growth in productivity. Staranczak et al. (1994) argue that the cross-sectional times-series methodology they employed in their analysis was comparatively superior to time-series, a methodology used by previous studies that had ascertained a positive effect on productivity growth due to competition. The authors substantiated their arguments by asserting that the methodology they employed permitted the use of a relatively shorter time horizon which subsequently introduced more variation on the existence of competition in their analysis hence avoiding the problem linked to measuring telecommunications changes over extended periods. The authors further observed that policy makers' intentions of opening telecommunication markets to competition may not necessarily result in enhanced productivity growth.

Ganesh and Zorn (2011) further argue that although competition proponents may make claims for why competition is good, they fall short in; providing alternatives to competition, explaining and acknowledging that which competition may not do, its limitations and unintended, inherent consequences.

Levin, Cohen, and Mowery (1985) criticise the assertion that competition drives innovation gains a whole lot more than monopolists, their argument is that competition does not consider the probability of imitation that may be a consequence thereafter. Meanwhile, Hermalin (1992) argues that the effects of increased competition can be ambiguous and not as definitive as other literature purports it to be. Martin (1993) claims that there exists an inverse relationship between the level of firm efficiency and the number of firms in the market. Horn, Lang, and Lundgren (1994) also report a negative relationship between the competitiveness of the market and the firm's internal efficiency. Horn et al. (1994) further assert that competition would indeed promote allocative efficiencies but the same compromises on internal efficiencies.

In a nutshell, a few studies show an inverse relationship between efficiency and competition, with some studies claiming that competition benefits are not as glorified as the majority of literature reports them to be. However, the bulk of the

literature reviewed established a strong positive link between internal positives and externalities that may be so benefitted by the introduction of competition in the telecommunications industry. Although Staranczak et al. (1994)'s study reported an insignificant relationship between competition and productivity it did allude to the fact that other different studies over a longer period with improved proxies may detect a pattern different to theirs.

2.4 Effects of exclusivity periods in Telecommunications

As much as extensive research work has been done on the effects of privatisation and competition on productivity and efficiency, not much has been covered on the policy designs of the same, and how policy affects performance and productivity. Such policy issues include how, for instance, granting a monopoly, exclusive operating rights affect productivity in the long run (Li & Xu, 2002; Wallsten, 2004).

Some governments around the world allow firms in the telecommunications market to operate as a monopoly for a number of years before allowing competition, a move that is generally defended by the same governments as one that incentivises investments albeit delaying competition (Wallsten, 2003). Atiyas and Doğan (2007), emphasise the fact that the benefits of competition may not be fully realised on instances where new entry is delayed until after many years of incumbency.

In the study of the Turkish mobile industry, Atiyas and Doğan (2007) note that at the time the government issued more licenses, the two incumbent operators Turkcell and Telsim had had their networks and associated infrastructure rolled out materially across the country and the same had significant first-mover advantages. The responsibility therefore rested on the authorities to design policy tools that would have stimulated effective competition in the mobile sector. Such tools, the authors argue, would be; interconnection regulation, number portability and national roaming. In the Turkish experience, despite the regulator having resolute intentions to implement national roaming and

interconnection regulation, there was not much success in implementing roaming, however, interconnection regulation was well implemented

Atiyas and Doğan (2007) also acknowledge that, the first-movers in the mobile telecommunications sector will always have advantages whose extent increases with the length of the incumbency period. There are always inherent challenges and complexities associated with the regulation of an industry with prolonged delayed-entry as was the case in Turkey. Therefore a policy lesson so derived from this experience is that simultaneous entry is more likely to promote a competitive environment than sequential entry would possibly allow. Once first-movers establish market dominance, that dominance is usually difficult to overcome. To further illustrate this phenomenon, Atiyas and Doğan (2007) reveal that the new entrants in Turkey had a combined market share of 3.8% in their first year of entry increasing to 7.2% the following year. Meanwhile the dominant provider retained a 68.1% market share, a market share comparatively higher than any dominant operator in the OECD countries that had four mobile network operators except in Mexico. In other countries such as Germany and Denmark where the issuance of GSM licenses in 1997 was simultaneous, all operators had similar market shares whereas in other countries such as Ireland, Italy and Spain where entry was staggered, market dynamics favoured first entrants.

Longer incumbency periods technically lead to significant asymmetries between incumbents and new entrants because of advances by the former in terms of geographical coverage, subscriber base and potential switching costs, such discrepancies may however be corrected by proper regulatory policies that would mitigate the first-mover advantages (Atiyas & Doğan, 2007).

By analysing about 160 countries for two decades, Li and Xu (2002) found strong evidence that privatisation with exclusivity yielded much lower output growth and fewer trends of service improvements than privatisation without exclusivity provisions. With such exclusivity periods being not so much of a rarity in telecommunications, Wallsten (2004) also argues that the same also

stalls investments in telecommunications network. A firm whose monopoly is guaranteed is less incentivised to invest more because there is no threat from competitors gaining more market share. It is the imminence of the entry of competitors that induces the incumbent to invest. Wellenius (2000) observed that Chile, a country that had not make exclusivity provisions, experienced higher and faster network growth compared to Mexico and Venezuela which had granted exclusivity periods to their telecommunications firms.

Li and Xu (2002) established that privatisation, coupled with exclusivity periods, undermined the gains of the former although without necessarily cancelling the gains entirely. The pressure, as presented by competition, has a strong correlation with a rise in employment, faster network expansion and other associated benefits.

Despite finding results more or less consistent with other studies in the same area, such as Ros (1999) and Wallsten (2001), Li and Xu (2002) argue that their study differs in the data and methodology they employed in their analysis. Their sample was wider and consisted of more information on telecommunication reforms. A wider set of behavioural attributes is used in their study compared to those used in other studies.

Li and Xu (2002)’s study not only affirms findings from other related studies but also gives more reliable conclusions in that, for instance, through a wider coverage of both privatised and non-privatised countries, the study avoids sample biases previous studies would have been weakened by. Other studies are more prone to sample biases because of their use of samples consisting solely of privatised firms.

Even though some advocates of exclusivity argue that exclusivity is requisite to encourage investment, the only reasonable positive that can be gained out of granting firms exclusivity periods would be the revenues governments get from the issuance of such licences (Wallsten, 2004). Consequently, such gains are gained by foregoing future long run investments.

According to Barbour (1997), the absence of competition over exclusivity periods ensures economic viability throughout the duration of that period in which firms may recoup their initial setup costs. With restricted market entry, the operating firm, through the exclusivity period, is able to direct input resources to network expansion and improvements. With network expansion, a broader coverage of services is achieved and hence benefiting both the operator and customer.

Barbour (1997)'s argument that a monopoly and extended exclusivity periods in developing countries can be used to promote growth in infrastructural capacity and quality of service with rapid improvements is considered by Noll (1999) as bad economics. Noll (1999) further argues that the notion that a monopoly minimises the risks faced by firms which in turn, triggers the firm's inclination to invest is flawed because the investment risks faced by monopolies and competitive firms are the same. The risks such as those presented by costs, demand and political climate will be the same regardless of the degree or lack thereof of competitiveness of a firm. Monopolists are often cushioned by greater market power and are therefore less incentivised to undertake investments. Monopolies and competitors alike are likely to make investments if the returns thereof justify expense.

Despite a few authors defending exclusivity, the bulk of the literature reviewed suggests that granting exclusivity periods to operators inhibits output growth and productivity. The literature review also highlights the salient fact that telecommunications reform has brought telecom services to a wider world population while improving the service to others. The importance however of the reforms is compromised by other unfavourable institutional arrangements such as exclusivity periods.

Although the literature reviewed studies exclusivity in reference to newly privatised operators, a generalisation may be safely borrowed from the studies

and link them to the context of this research where a monopoly (MTN, though not newly privatised) was granted a 10-year exclusive period.

2.5 Competition and pricing of telecommunications services

Monopoly providers whether public or private are not incentivised to offer their services and products at lower prices than firms operating in a competitive environment (Wallsten, 2004).Telecommunications competition would generally lead to firms offering lower prices without compromising on the quality of the services being offered (Boylaud & Nicoletti, 2000). Competitive market dynamics in the telecommunications industry, as noted by Kaserman and Mayo (1994) inevitably force prices down.

In a study of patterns of competition in UK mobile telecommunications between the years 1985 and 1993 inclusive, a period respectively characterised by two eras, one serviced by a duopoly and the other by competition, Valletti and Cave (1998) noted that competition among telecommunications firms led to price cuts. These price cuts were implemented either directly or indirectly, the latter through an extension of off-peak bands, or budget plans accompanying a particular tariff plan. In the same study, to emphasise the importance of pricing in competition, Valletti and Cave (1998) also observed that Cellnet's intention to increase connection and monthly charges were withdrawn after the realisation that Vodafone did not follow suit.

Petrazzini (1996) noted that although telecommunications has been associated with significant strides in reforms and infrastructural investments; there still exists room for competition on prices. In 1994, the call charge per minute from London to New York was about 60 cents whilst the underlying costs for the call were close to 10 cents, a mark-up close to 500 percent due to lack of competition. Despite many countries protecting monopolies, competition forces prices down. Rate cuts due to competition are facilitated by the fact that the underlying marginal costs of a call per minute are very low.

Petrazzini (1996) further argues that the notion that monopolies can best provide high quality services at low costs across the board, to government, business entities and households is no longer valid; therefore, in this regard, the protection of monopolies is an untenable strategy.

Figure 6 sourced from Petrazzini (1996) shows projected benefits including cost benefits (in billions of dollars) that would be gained if pro-competitive policies were implemented expeditiously. The projections exclude nations that were presumed to be competitive at the time. Furthermore, the projections show that the introduction of competition in telecommunications markets would result in significant cost savings (through lowering of prices) across all country income levels. The validity of the projections however, could not be ascertained post the projection period from literature.

Projected benefits to users from competitive telecom services in 2010 and cumulative gains, 1997-2010[a]
(billions of dollars)

	Cost savings 2010	Quality benefits 2010	Total gains 2010	Cumulative gains[b] 1997-2010
Income level				
Low	10	15	25	177
Middle	25	25	49	346
High	50	25	75	523
Totals	85	65	149	1,046
Region/country				
European Union[c]	27	14	41	288
Latin America	9	9	17	120
East Asia and Pacific	12	18	30	211
Japan	19	10	29	201
South Asia	3	5	8	56
Rest of world	14	10	24	169

Figure 6: Projected benefits from users from competitive telecom services in 2010 *Source (Petrazzini, 1996)*

In a comparative study using a large set of OECD countries Boylaud and Nicoletti (2000), taking into consideration technological developments, established that the development of effective competition reforms in telecommunication services led to lower prices. This was proxied by the number

of competitors in a market. Laffont and Tirole (2001) acknowledge that competition creates an environment where providers are incentivised to lower costs, increase innovation initiatives and eliminate distorted pricing. Monopolists, by virtue of being price-setters in pursuit of profitability, may raise the prices of their products at will without running the risk of losing customers. Wasteful spending by a monopolist may prompt the firm to adjust and increase prices albeit over a long period to recoup the revenue shortfall.

Evidence on competition resulting in lower prices is brought forth by Petrazzini (1996). AT&T long distance prices were slashed by 70 percent between the years 1983 and 1991 due to the introduction of competition. Meanwhile Japan's NTT's long distance telecommunications prices fell by 50 percent between the years 1985 and 1992; this drop in prices was attributable to telecommunication markets opening to competition in 1986. There is also growing evidence of lower telecommunication prices due to competition in developing countries, despite competition still being in its early stages in such countries. . Petrazzini (1996) gives an example of Chile between 1984 and 1994 where local rates, long distance and international rates dropped respectively by 36 percent, 38 percent and 46 percent, whereas in Ghana, competition forced the then incumbent, Mobitel to drop connection costs by 50 percent.

The bulk of the literature reviewed reveals a significant association between the competitiveness of a market and lower telecommunication prices. There are however instances - such as those discussed by Atiyas and Doğan (2007) for the Turkish experience - where the introduction of competition only brought about mild price changes initially. In 2004, the Turkish mobile industry was one of the most concentrated in Europe; however its mobile telecommunications prices remained one of the highest in the OECD countries This, however, according to Atiyas and Doğan (2007), is attributable to the extended years of duopoly operation in the industry by Turkcell and Telsim.

Choi, Lee, and Chung (2001) in their study of competition in Korean mobile telecommunications markets, strategy and regulatory environment thereof,

allude to the fact that consumers will only pay for a product or service if the consumer surplus is positive, that is, the perceived benefits of a product outweigh the product price. Consumers not only make this purchasing decision based on consumer surplus, they will, if given a choice, further compare between existing providers and subsequently make a decision to buy where the consumer surplus is largest. This phenomenon triggers price-reduction strategies by players in the market in their pursuit to increase market share. However, as Choi et al. (2001) note, competition with price regulation may not achieve the best results, and they further propose that complete deregulation is requisite to enhance competitiveness in the telecommunications sector.

ITU (2014d), after decades of studying ICT and telecommunications trends, acknowledge that one of the major elements in forcing down telecommunications prices is competition. Through employing the Herfindahl-Hirschman Index (HHI) as a tool for measuring the competitiveness of mobile telecommunications markets between the years 2008 and 2013, ITU (2014d) established that the fall in telecommunications prices coincided with an increase in competition*. (Figure 7)*

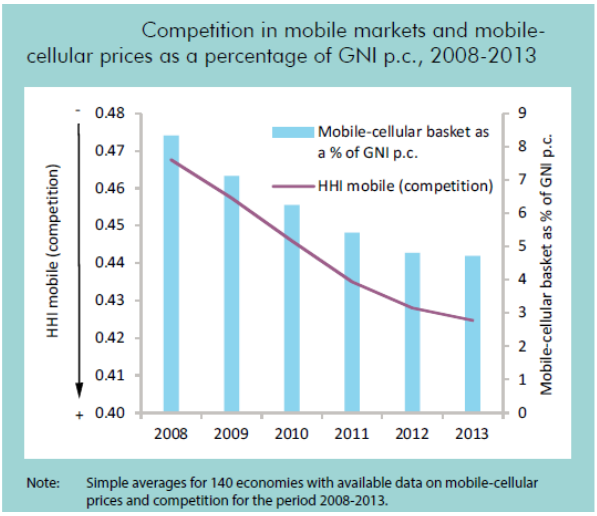


Figure 7: Competition in mobile telecommunications markets *Figures given as a percentage of GNI p.c., 2008 – 2013 Source (ITU, 2014d)*

Using panel regression, on 144 countries between the years 2008 and 2013, ITU (2014d) established a strong correlation between competition as measured by the HHI and prices, indicating that increased competition resulted in a significant price reduction. The econometric model so used for example, showed that in a market comprising of two mobile-cellular providers with equal market share, the entry of a third operator that manages to secure a market share of 10 per cent is correlated with a 3.7 per cent price decline.

2.6 Factors that influence telecommunications pricing

According to Gillen (1994), in a market economy, there are two functions served by prices; in the short term, they act as a signal ensuring that the allocation of goods and services is done to those who value them the most, with such value being determined by the consumer's inclination to pay. In the long run, prices provide a signal to capital markets to divert capital to those undertakings that yield the highest return. Telecommunications pricing is by far the richest in the development of sophisticated pricing compared to any market, rapid technological changes and fast paced innovations have increased productivity, lowered costs associated with maintenance, while increasing the ability to offer more products (Gillen, 1994).

An efficient telecommunications pricing system exists when the price of the services thereof is equal to the marginal production cost (Kaserman & Mayo, 1994). Kaserman and Mayo (1994) further observe that the cost of producing telecommunication services fall into two classes, fixed and variable costs where the former is not influenced by the call volumes with the latter being dependent and varying with the volume. Fixed costs, costs that remain constant even if no single call is made, are usually associated with a firm's assets that allow customers access to both local and international networks; such assets include wires, satellites and switching equipment among others. Telecommunication variable costs on the other hand are associated with switch operations, billing and collection expenses, etc. Kaserman and Mayo (1994) further assert that the basic principle behind efficient pricing requires that the per-unit price of telecommunication services be independent of fixed costs. Assigning fixed costs to per-minute pricing inflates the usage price above marginal costs hence defying efficient allocation requirements. The authors continue to propose a two-part tariff structure; a predetermined monthly charge to recover fixed costs and a usage based charge covering variable costs.

The ability of any telecommunications firm to effectively and efficiently charge for the consumption of telecommunications services remains a critical competency issue for that firm (Ezziane, 2005).

Mitchell and Vogelsang (1991) noted that due to benefits from massive technological advancements and rapid innovations in electronics, information and communications technology processes, materials and computers, the telecommunications sector has enjoyed a high rate of productivity increase. The benefits so inherited manifest themselves in telecommunications cost reductions which have been predominantly notable in long distant calls, exploiting high capability fibre-optics and advanced multiplexing. The rise in effective competition, growth and regulatory restructuring has led to telecommunication service providers introducing new pricing structures and revising others.

Atiyas and Doğan (2007) explained that the cost of making mobile calls constitutes three integrants; call origination, call transmission and lastly, call termination. The principle behind the three-component structure is that the mobile network operator in which a call originates pays a termination fee to the rival mobile operator in which the call is terminated. Therefore the cost of an inter-network call is highly dependent on the terminating charge the originating mobile network operator pays to the terminating mobile network operator. This therefore makes the incumbent which would logically have a high customer base to be more favourable than new entrants because of high switching costs that may be as a result of incumbents setting high termination charges.

Atiyas and Doğan (2007) further explain that with such dynamics at play, to avoid high call costs due to high termination charges, among other factors, customers are better off subscribed to a network on which most people with whom they would want to communicate, are also subscribed. This then makes it difficult for new entrants to materially expand their subscriber base and gain market share.

Littlechild (2006) also alludes to the fact that mobile termination charges remain an unresolved concern in many countries world over. Due to the high charges associated with terminating calls, the phenomenon has proved to be a major deterrent to competition and growth in the mobile telecommunications sector.

Another factor or strategy for pricing telecommunications pricing is segmentation (Bayer, 2010). Segmentation is the strategy employed by companies to break down markets into groups of customers both existing and potential who exhibit or share similar attributes, based on demography, income levels or groupings or age groups (Forsyth, Gupta, Haldar, Kaul, & Kettle, 1999).

Clemons and Weber (1994) define segmentation as the use of a firm's historical transaction data with the aim of identifying heterogeneity of customers, their needs and varying costs of service. Segmentation provides firms with the flexibility to offer customers a variety of products or services so as to meet their

needs differently. Segmentation also helps companies attach different pricing structures to different customers as reflected by the perceived value of the different customer groupings attached to the services or product bought.

According to Clemons and Weber (1994) firms use segmentation as a means to know their customers better than what for instance, customer satisfaction surveys provide, it is a method that helps firms know what customers buy, when and how payments are made. This strategy aids in helping firms identify profitable customers for purposes of retaining them against the advances of competition. Not only is segmentation done for customer retention, companies segment customers so as to woo other potential customers into their base.

2.6.1 *Regulated telecommunications pricing structures*

Peitz (2003) mentions that a common feature in the telecommunications political rhetoric is the benefit of regulated competition and that it serves the consumers and welfare better than monopolies, both on a short-term and long-term perspective. Opening up markets to competition should not disregard the need for proper regulation, the market structure may change, and so should the nature of regulation. Regulatory policy should be centred on the likelihood of operators, new entrants in particular, to access competitors' networks and that they may be able to terminate calls originating from their (new entrants) network on their competitors.

Armstrong and Wright (2009) propose proper regulation of prices so as to avoid what is termed 'competitive bottlenecks' should be ensured to achieve maximum utility from competitive markets. One of such bottlenecks in (mobile) telecommunications is mobile call termination. Mobile call termination is the service where a network terminates a call made by its customer(s) on another different network.

Peitz (2003, 2005) suggest that regulation should mediate in cases where incumbents make entry difficult through excessive termination rates. Regulation should be enforced cautiously so as to promote competitiveness and innovation in a market.

By virtue of new entrants having different initial attributes to those of incumbents' position, in terms of coverage, subscriber base, brand goodwill and quality of service, asymmetric market environments (an environment where an incumbent enjoys such advantages over any entrant) are inevitably created (Peitz, 2005). According to Peitz (2005), regulations of telecommunication markets help distinguish between operators with substantial market power and those without substantial market power. In Europe, operators with substantial market power are obliged to base their prices at cost while operators without substantial market power are not obliged to use cost-based access pricing. This effectively means that interconnect charges by companies with disparate market powers may be different even though the companies may have the same cost structure.

To neutralise asymmetries and promote competition, regulators should provide asymmetric access price regulation which in turn would stimulate entry while increasing consumer surplus (Peitz, 2005). Asymmetric market conditions may require asymmetric price regulation; in asymmetric price regulations, incumbents and entrants are treated differently, a situation for instance where only the entrant enjoys an access mark-up (Peitz, 2003). The complexity would be when an incumbent and entrant participate on the same terms, thus making the task of the regulator a difficult one (Hoernig, 2007).

The balancing act by regulators ensuring that new entrants are not forced out of the market by anticompetitive behaviour by incumbents, may prevail until the asymmetries are to an extent eradicated (Peitz, 2003)

2.7 Telecommunications Natural Monopolies

Natural monopoly is defined to occur when a single utility producer produces at costs lower than any other producer would at any one point in time for structural reasons. It is a situation that would generally result in higher prices if another producer would be allowed to supply the market. High production costs would lead to a decline in long-run average total costs with an expansion in output (Depoorter, 1999; DiLorenzo, 1996; Dowd, 1992; Mosca, 2006). DiLorenzo (1996) asserts that proponents of natural monopolies would argue that competition led to consumer inconveniences through the creation of duplicate facilities, such as the digging up of streets in cases of dual water lines in the provision of water utilities. Mosca (2008) established that the original use of the adjective, *natural* was to indicate those instances of monopoly existing through natural agents available in fixed quantities such as talent and land. Therefore, the use of the adjective was intended at differentiating a monopoly that was as a result of nature (natural monopoly) from that which was created by law (artificial monopoly). Depoorter (1999) states that a natural monopoly occurs when entrants are not naturally enticed to participate in a given industry and when their survival is not guaranteed even if the incumbent does not employ predatory tactics.

DiLorenzo (1996) argues that the concept of natural monopolies, whose evidence in history is non-existent is only a myth perpetuated by protectionists from governments and monopoly operators as opposed to being a situation resulting *naturally* from the free-market. There is also no clear-cut evidence of a producer who achieved lower long-run average costs than anyone else in the sector and hence achieving permanent monopoly status.

The likelihood of natural monopoly occurrence is when the market is small and there is the existence of barriers to entry as a result of technological economies of scale (Mosca, 2008).

2.8 Key determinants of mobile telephony services demands

By using cross-country telecommunications consumption data and alternative systems of demand equations, Castro Martins (2003) reaffirms a concept discovered in previous studies that were made in different industries, that price elasticities in telecommunications are greater in less developed countries. The study by Castro Martins (2003) further reemphasises the phenomenon of the different time and country-fixed effects that exist in the demand for telecommunications as suggested by the difference in elasticities between rich and poor countries, these effects, the study suggests, should be taken into consideration for regulatory purposes.

Through the use of observations from 64 countries, Ahn and Lee (1999), established that mobile telecommunication subscription rates are pivoted on country-specific factors such as, GDP per capita, technology and industrialisation levels, tariff systems, fixed line facilities among others. Madden and Coble-Neal (2004) in their study of economic determinants of mobile telephony also discovered that an increase in GDP per capita resulted in an overall mobile telephony subscription growth the following year. With mobile telephony costs dropping, prices falling, while quality and efficiency are on a steady rise, fixed-line and mobile telecommunications services are more and more becoming substitute services, a higher fixed-line services price signals an increase in mobile subscriber base.(Madden & Coble-Neal, 2004; Rodini, Ward, & Woroch, 2003),

Buys, Dasgupta, Thomas, and Wheeler (2009) also allude to the fact that the demand for mobile telephony services is determined by population size, per capita income, together with the level of competitiveness in the mobile sector within a country.

2.9 Infrastructure sharing as an enabler for competition

Competitive elements in the telecommunications sector are best summarised by Höffler (2007) into two distinct forms; infrastructure and service competition. With infrastructure competition, operators roll out their own infrastructure and provide services and compete with other operators with respect to them whereas with respect to service competition, firms only compete based on their service offerings (Baer, 1995). Regulators face the dilemma of promoting competition through the enacting of parallel infrastructures or on the basis of a having a single infrastructure whose access would be regulated and controlled (Höffler, 2007).

According to Frisanco, Tafertshofer, Lurin, and Ang (2008); Kibilda and DaSilva (2013), the current mobile telecommunications' business model is one that exhibits traits of a high degree of vertical integration. Mobile networks have a firm grip on their supply chain; from the planning of network architecture and topological issues, to the rollout of same, from the creating of market to the provision of services to end users and managing customer relationships. This model is highly capital intensive especially at the rollout phase, resulting in increased capital and operational expenditure (Kibilda & DaSilva, 2013).

Technological advances and regulatory requirements are now prescribing a shift from this traditional business model, more and more mobile network operators are now gravitating towards a model that would enable them to focus on undertakings that are differentiating themselves at the marketplace, i.e. a model that would ensure that the focus is primarily on the service offerings (Frisanco et al., 2008; Meddour et al., 2011). Infrastructural and coverage issues are slowly not being seen as one of the critical focus areas by mobile network operators (Frisanco et al., 2008).

Mobile infrastructure sharing where safeguards combating anticompetitive behaviour are used, enhances competition (Meddour et al., 2011).

The cost savings potential as a result of infrastructure sharing are fully realised when the standalone operator sacrifices control over its network, therefore allowing other operators to compete and differentiate themselves based on the quality of network and service offerings (Meddour et al., 2011).

Among the technical approaches towards infrastructure sharing proposed by Meddour et al. (2011), is the Mobile Virtual Network Operator model (MVNO), a model that provides mobile services without owning frequencies or on network infrastructure. An MVNO would typically source wholesale minutes from an infrastructure owner and resell to end users. Technically, the MVNO subscriber roams on the network of the infrastructure owner. This model can boost competition especially in markets where mobile networks have been materially rolled out. The MNVO increases end user benefits, enhances competition in the mobile markets, boosts innovation and helps in keeping mobile telecommunications prices low (Kim & Park, 2004; Ulset, 2002).

2.10 Conclusion of Literature Review

The literature review illustrates the importance of telecommunications services and infrastructural investments for economic development especially in developing countries. Furthermore, through practical studies about countries and firms which were previously operating as a monopoly, a strong relationship between competition, output growth and other substantive externalities is established. Throughout the literature studied, a vast practical international experience that supports the importance of competition in telecommunications was established.

An inverse relationship was established in the literature between exclusivity periods that were granted firms and output growth. Studies show that exclusivity periods delay competition and therefore stall telecommunications investments. The literature provides substantial evidence from countries where incumbents

that enjoyed extended exclusivity periods had significant first mover advantages over new entrants. Authorities and regulatory bodies however can neutralise these advantages and lay out a proper playing field for competition through proper legislation and a conducive regulatory environment. A few authors however advocate for exclusivity periods in telecommunications and argue that it promotes growth in infrastructural capacity.

The literature reviewed, affirms that competition promotes firm efficiency as firms strive to outwit their inefficient rivals thus fostering a virtuous cycle among the players involved. Furthermore, according to the literature, competition in telecommunication services drives prices down and increases innovation initiatives. The literature also shows that not only will consumers seek a higher consumer surplus but would also compare among different providers for a better deal when making purchasing decisions.

3 CHAPTER 3: RESEARCH METHODOLOGY

This section describes the methodology that was followed in carrying out the research that addresses the research's main and sub-problems. This section will further give an outline of the tools used for data collection, analysis and interpretation.

The purpose of the research was to study monopoly pricing of the telecommunications services in Swaziland focusing on mobile services. The research was broken down into a main problem and two sub-problems. The main problem was to analyse the effects of monopoly on the pricing of telecommunications services. The first sub-problem was to assess the effects of monopolistic operations on the pricing of mobile telecommunications services in Swaziland. The second sub-problem was to investigate the prospects of other players entering the Swazi mobile telecommunications market. Barrantes and Galperin (2008) identify three basic dimensions associated with access to telephone services; availability, accessibility and affordability. While the former two refer to the equal distribution of telephone services and are easily measureable, there is no formal consensus on the measurement of affordability. Barrantes and Galperin (2008) further suggest three measures of consumer welfare with regards to affordability; Gross Domestic Product per capita, minimum wage, and individual poverty line. Therefore, using an international comparison, the main research problem was addressed through a comparative study of mobile telecommunications pricing across the SADC countries of which Swaziland is a member. Data was sourced from the ITU database covering the periods 2003 to 2012.

3.1 Research methodology/paradigm

3.1.1 *Comparative Research Tool*

To address the main problem the research used comparative methods using data from the ITU website for the 14 SADC countries. The selection of SADC

countries however is a deliberate choice and not a random one because of the somewhat similar demographics the countries share. Through this method the number of mobile services providers in each country was established and the calls charged by each provider, comparing each of those to Swaziland's.

The comparison of prices across networks was multi-faceted where the first comparison was done with raw tariff prices from the different countries against Swazi-MTN's prices. Raw voice charges were compared across the networks. The second method used the ITU basket methodology where monthly mobile-cellular price baskets were compared.

The comparative method defined by Collier (1993) is a fundamental tool for analysis which plays a vital central role in synthesising by way of conceptualising similarities and differences among case studies. Meanwhile Lijphart (1971) defines the comparative method as one of the basic scientific methods designating a cross-societal, cross-economy, or macro-societal attributes of societies and social analysis. It is an important analysis tool that not only contextualises the differences and similarities among cases but also enhances the power of description (Collier, 1993). Meanwhile, Ragin (1989) defines comparative research as one which uses comparable data from at the minimum two societies, a method that is usually used to explain differences among countries.

The comparative method used however in the research is not Qualitative Comparative Analysis which, according to Ragin (1994), is a technique that uses Boolean algebra or truth tables to implement ideologies of comparison.

According to Lijphart (1975), the closest comparable to the comparative tool is the experimental research tool, however the latter uses two equivalent groups where one is set to be the experimental group and is subjected to some stimulus while the other group – the control, is not. The two groups – experimental and control are compared where any evidence in difference between the two would be attributable to the stimulus.

Levy and Spiller (1994) have used the comparative analysis tool to analyse performance determinants of privatised entities in different political and social settings. The comparative study was carried out across five countries; Argentina, Chile, Jamaica, the Philippines and the United Kingdom to assess the interaction of political institutions such as electoral, judicial, social, among others, with telecommunications regulatory processes so as to determine possible administrative expropriation that would affect the performance of the telecommunications sector. The authors were able to establish interactions and levels thereof of the institutions in the different countries with telecommunications regulations.

This research used the comparative analysis method to deduce similarities and differences across the SADC countries with regards to mobile telecommunication markets (monopolies or competitive) so as to deduce pricing disparities that may exist within the different market structures and hence link the findings to economic development and growth attributes such as GDP per capita across the examined countries. The rationale behind using the comparative design is to benchmark MTN – Swaziland's pricing of its services against other countries, a majority of which share similar demographics with Swaziland. The comparison seeks to investigate pricing from a monopolistic market versus pricing from a competitive market.

3.1.1.1 Comparative Tool – Weaknesses

The main problem associated with this method as noted by Lijphart (1971) is that it usually uses many variables to compare fewer cases. This however may not pose a major challenge for this particular study because a smaller number of variables will be observed from a total of 15 cases or countries. Another weakness of the comparative approach is the tendency for researchers to attach too many negatives to results which lead to researchers picking cases that would be consistent with the hypothesis being investigated resulting in deviant cases being dropped. This weakness did not apply in this study

because all the SADC countries were investigated without dropping or picking according to (less or high) favourability.

3.1.1.2 The ITU Mobile-cellular sub-basket

According to ITU (2014d), the ITU mobile-cellular sub-basket represents a price of a standard basket of mobile telecommunications monthly usage for 30 outgoing calls to the same network, off-net and those directed to a fixed line in ratios predetermined, this measure is calculated as a percentage of a country's average monthly Gross National Income per capita (GNI p.c.). The mobile-cellular price basket is generally based on prepaid tariffs. The mobile cellular price sub-basket is modelled around that of the 2009 OECD basket methodology where consumption patterns are traced for different types of users with the prices matching the different mobile services (OECD, 2014). See APPENDIX D.

The difference however between the ITU mobile-cellular sub-basket and the OECD methodology is that the latter bases its measurement on the prices of the two largest mobile providers in a country, while the former makes use of the prices from the largest mobile operator (ITU, 2014d). One other major difference is that the OECD basket accounts for calls to voicemail, representing 4 per cent of all calls together with the one-time charges, such as that for a SIM card. (see APPENDIX A).

The strength of the basket methodology is that it allows for ease in comparing the products of an operator, and further allows comparing cheapest products between operators in a country thus allowing the benchmarking and comparisons across countries to be applied consistently (Stork & Gillwald, 2014).

3.1.1.3 The basket Methodology Weaknesses

Not enough literature criticising the ITU mobile-cellular sub-basket is available, therefore only the weaknesses of OECD basket methodology on which the ITU mobile-cellular sub-basket methodology is based, is discussed. The following section discusses the weaknesses of the OECD basket methodology instead of the ITU methodology albeit the differences that the two may exhibit.

According to Stork and Gillwald (2014), the OECD basket 2010 methodology includes tariffs from only two of the dominant operators, (ITU considers prices from the largest operator). The inherent downside to this is that as prices change due to regulatory interventions the same would only be expected from smaller operators. Furthermore, OECD baskets do not cater for the actual number of subscribers in each package and the actual minutes thereof. An undisputed fact is that no one user can be considered to be an average user and therefore usage patterns may not be accurately captured by the baskets. Lastly, the same on-net/off-net basket is employed for all operators although subscribers from smaller operators are typically likely to have different on-net/off-net ratios compared to subscribers from larger operators. While refuting assessments made by the OECD on the competiveness or lack thereof of the Mexican telecommunications market, Hausman and Ros (2012) identified what they referred to as flaws within the OECD basket methodology. The authors argue that the OECD did not use specific econometric factors to avoid and eliminate biases due to differences in GDP per capita, computer penetration densities, income inequalities and other pertinent factors that vary from country to country. The authors further argue that the OECD price equations do not include the cost variable, whereas it (cost) is an important economic driver of mobile prices.

3.1.2 *Qualitative Inductive Content Analysis*

The second sub-problem was addressed by qualitative inductive content analysis where data collected from the different interviewed segments was

condensed into thematic areas accordingly. This was done so as to establish clear links within and between the two segments. Qualitative content analysis is defined as a method of analysing textual, spoken and visually communicated messages (Elo & Kyngäs, 2008; Graneheim & Lundman, 2004). This tool has been used widely in nursing and education research. Content analysis can either be used in a deductive or inductive way, for the purposes of this research however, inductive content analysis was employed. This is mainly because there is not enough former knowledge of the impact of the MTN monopoly in Swaziland. Whereas a deductive approach is based on an earlier theory or previous knowledge (Elo & Kyngäs, 2008), inductive content analysis has been used by Graneheim and Lundman (2004) in a study of concepts, procedures and measures to achieve trustworthiness.

3.2 Research Design

The research employed a two-pronged approach. To investigate whether or not MTN-Swaziland's pricing of their products exhibit monopolistic tendencies as discussed in the literature review, comparative methods were used, using tariff data sourced from the ITU databases. Secondly, interview schedules were conducted mainly to address whether or not the MTN monopoly is a natural one. The sampling of the respondents (individuals and organisations) was informed by their relevance to the study, for example, telecommunications companies and individual practitioners, so as to extract relevant and pertinent conclusions. South African telecommunications organisations that were interviewed were Cell C, Vodacom and Telkom Mobile. For purposes of obtaining a neutral perspective, independent specialists were interviewed.

The main disadvantage of the interviews is that other factors not included in the research may affect the responses of the respondents and thus lead to inaccurate conclusion being drawn.

The ITU, on an annual basis, publishes country telecommunications data covering issues such as teledensities and pricing. Therefore this platform

served as a useful tool for extracting comparative tariff data for purposes of comparing market structures and issues such as pricing in countries in the SADC region.

3.3 Population and sample

3.3.1 *Population*

The data used in the research comprised African country data sourced from the ITU, which in essence, was a desktop analysis. For purposes of obtaining a perspective from operators in the telecommunications space, the population also included respondents from operators MTN – Swaziland, South African (mobile) telecommunication companies, Cell C, Telkom Mobile, Vodacom, and furthermore, for a balanced, non-biased perspective, the population also included independent analysts – a telecommunications analyst and two economists, one based in South Africa while the other was based in Swaziland, the latter also doubles up as being a consumer of Swazi MTN services and products.

The choice of using ITU data was informed by the fact that ITU has been the major custodian of telecommunications data and statistics across the world for many years now and also because the data used therein is sourced by the ITU from regulators and formal bodies on the ground through questionnaires, respectively from each participating country.

3.3.2 *Sample and sampling method*

From the data obtained in ITU, the focus was only on countries in the SADC region because, to a large extent these countries are economically and demographically similar with a majority of them being classified in the same bracket of Least Developed Countries.

After approaching the different entities listed above, the researcher was accordingly assigned, respectively, a respondent by each company after considering the relevance of the research to their respective portfolios in these organisations. The independent analyst and the South African Analyst were suggested to the researcher by one of the respondents from the telecommunications operators. The telecommunications analyst has a rich experience in the telecommunications sector, his eloquence in the field and strong telecommunications profile was supported by Internet searches the researcher performed. The telecommunications specialist is very conversant with the dynamics playing out in the telecommunications market in Swaziland since his expertise has been formally sought for mediation purposes in the impasse between MTN-Swaziland and the SPTC. Meanwhile the economist based in Swaziland was suggested by a university in Swaziland where she lectures on a part-time basis. The Swazi based economist is time and again requested by Swazi dailies to provide insights and perspective on topical issues. Her responses in this study however, are not representative of her affiliation with the university she lectures in or any other organisation but are her own, based on both her understanding of economic theory and as a consumer of MTN-Swaziland products.

A perspective from the Swaziland Post and Telecoms Corporation (SPTC) would have been ideal and relevant in this study; however the researcher's attempts to secure interviews with SPTC's executives were futile. Two executives of the corporation were repeatedly requested differently on different occasions, with no success of an interview session from either. Insights from SPTC would have been valuable in this study because among other reasons, the SPTC had until recently been tasked with regulatory duties, a case that rendered the same a referee and a player in the Swazi telecoms market.

Furthermore, SPTC holds 41 per cent shares in MTN-Swaziland, therefore by virtue of the corporation being a dividend recipient, whatever happens in MTN-Swaziland or the (mobile) telecommunications landscape greatly affects SPTC. One other major reason that would have made SPTC a valuable respondent is

that, at some point SPTC gave the Swazi market a taste of competition when they rolled out products and services that were in competition with those of MTN-Swaziland. The rolling out of such services and products was halted by the courts after MTN-Swaziland filed a complaint against SPTC citing the latter's breach of Joint Venture Agreement that existed between the two parties which prohibited SPTC against venturing into products and/or services that would be in direct competition with those of MTN-Swaziland.

The competition by SPTC, albeit running only for a few months, disrupted the then status quo and as the respondent from MTN-Swaziland puts it "negatively impacted on MTN-Swaziland's revenue."

3.3.3 *Sample numbers*

- 14 SADC Countries were used in the comparison of tariffs, these countries are Angola, Botswana, Democratic Republic of Congo, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe.
- 4 Mobile Telecommunications providers, 3 from South Africa and one being an executive from Swazi-MTN
- 3 Independent Analysts,
    - A Telecommunications specialist based in South Africa
    - 2 Economists, one based in South Africa the other based in Swaziland
- Swaziland Communications Commission - Acting CEO

Table 1: Table of respondents

Description of respondent	Number sampled
Vodacom Managing Director	1
Telkom Mobile Pricing Executive	1
Cell C Executive	1
Independent Telecommunications Analyst –Africa Analysis	1
MTN – Swaziland Executive	1
Independent Economist – South Africa	1
Independent Economist – Swaziland	1
Swaziland Communications Commission – Acting CEO	1
Total	**8**

3.4 Procedure for data collection

Interview schedule appointments were made and set accordingly for all the respondents. Three of the interviews were conducted at the respondents' duty stations, the ideal situation was for the interviews to be conducted at a place outside their normal duty stations so as to minimise work related distractions, it was also hoped that if respondents were out of their duty stations the responses would be more objective. The interviews adopted a flexible approach in that even though a structure was formulated, questions and feedback were based on responses given at the time. All the interviews were recorded after consent was sought from the respondents. Notes were also taken during the interviews, recording among other things, gestures that were given out by respondents. For purposes of analysis and interpretation, transcriptions of all the audio interviews were duly made (See APPENDIX D for an interview transcript example).

The choice of SADC countries used in addressing the first question is vital because it eliminates the element of bias in the comparative methods and also avoids *less favourable* cases or countries being eliminated. The analysis in the

SADC countries was based on data between 2008 and 2012. Comparisons from the different providers in different countries in terms of pricing were made. The following Voice Headline tariff attributes across all networks and SADC countries were compared; peak less value and off peak less value.

3.5 Data analysis and interpretation

Data from the different prospective respondents was gathered and analysed per segment grouping then ultimately as a whole. The analyses were done so as to identify common themes from the respondents which were then structured according to issues discussed in the literature review.

Oral and written Interviews were analysed using Elo and Kyngäs (2008)'s content analysis model as shown in Figure 8

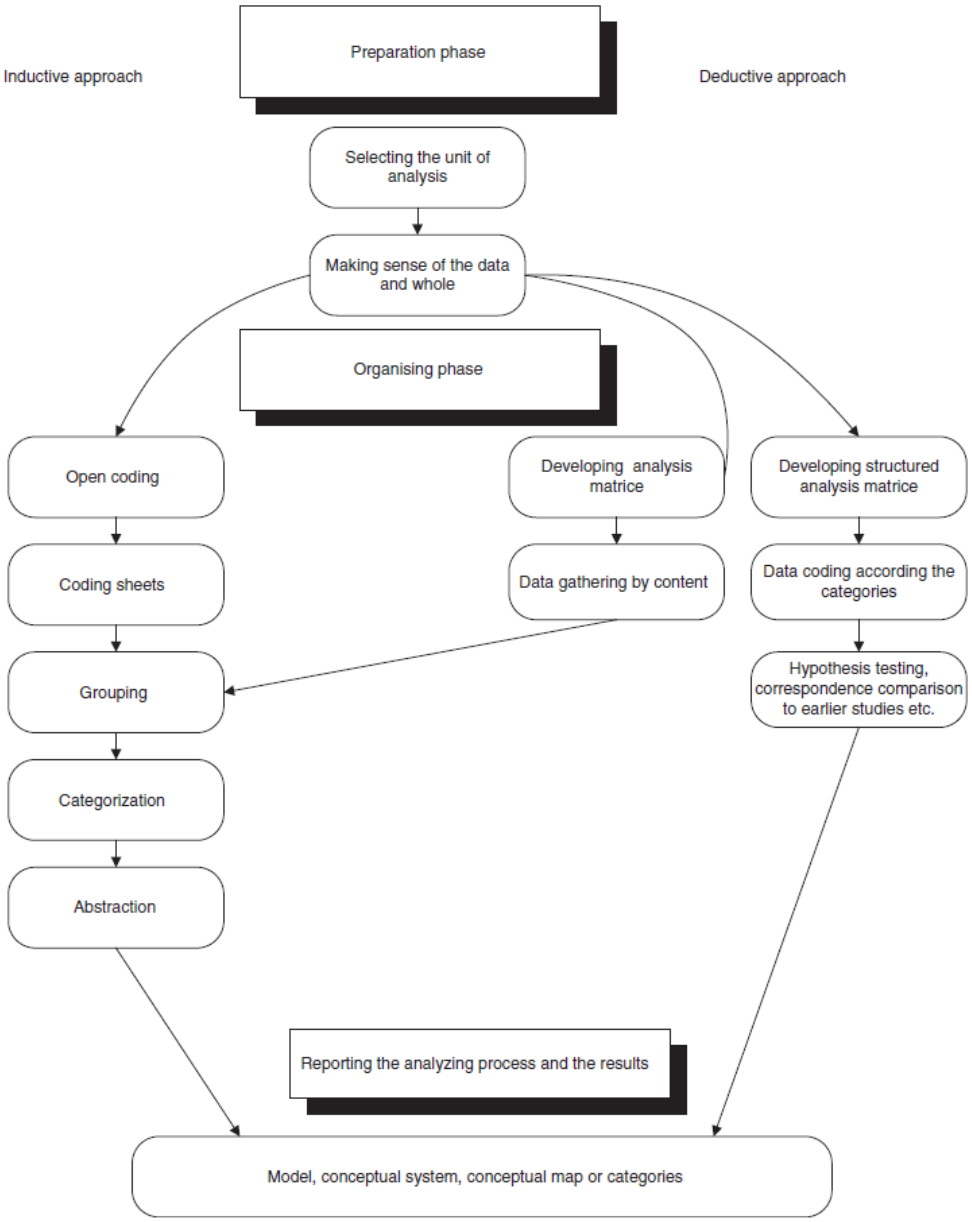


Figure 8: Content analysis framework - *Preparation, organizing and resulting phases in the content analysis process Source (Elo & Kyngäs, 2008)*

As per the model given by Elo and Kyngäs (2008), analysis was done in three main phases; preparation phase, organising and reporting. For the interviews conducted, a latent content analysis, defined by Elo and Kyngäs (2008) as one that takes note of gestures, silence and pauses, sighs, laughter and smiles, and posture was used. Next in the analysis process, as suggested by Dey (2003), the following was also considered in the analysis; who the person responding is,

the place where it is happening, time of occurrence and what actually is happening. Thereafter, the data was organised, coded and categorised. Ultimately the data was then grouped according into thematic areas as abstracted from the responses and thus a general interpretation was formulated.

3.6 Limitations of the study

- The comparative method is the closest benchmarking tool that could have been employed by the study so as to compare pricing structures across competitive networks and countries. The downside to this method is that other factors that may affect pricing were not taken into consideration, other factors such as the cost of infrastructure, political environment, etc.
- The interviews and findings hereof are limited to the sampled respondents and/or organisations they so represented, therefore a generalisation of the results and findings shall not be made.
- The tariff data sourced from the ITU is dynamic and changes on a periodic basis, therefore the findings in the context of Swaziland may only be confined to a certain time period.

3.7 Reliability and Validity

An essential ingredient in the formulation and application of findings is the evaluation of studies; this evaluation is normally pivoted mainly on the consideration of reliability and validity (Barrantes & Galperin, 2008). The going consensus is that studies must be open to critical assessment and evaluation, failure to critique the merits of a study and its findings thereof may have adverse consequences (Long & Johnson, 2000). Reliability and validity, therefore, remain the most pertinent tools for attaining rigor in research (Morse, Barrett, Mayan, Olson, & Spiers, 2008). Hammersley and Atkinson (2007) define reliability as a concept that “refers to the degree of consistency with which

instances are assigned to the same category by different observers or by the same observer on different occasions." This in essence talks to the repeatability of a study.

Morse et al. (2008) established that the route towards attaining rigor in a research study is that which makes use of; internal validity, external validity, reliability and objectivity. For the purposes of this research, the researcher however discussed how the three former validation criteria were used (internal validity, external validity and reliability) in this study.

3.7.1 *External Validity*

External validity which is also referred to as "generalisability" by Gibbert, Ruigrok, and Wicki (2008) is defined by the same as theories must not only explain for phenomena in the environment in which they are studied but should also be able to account for other settings. The study was able to meet the external validity criteria because the findings herein are aligned to literature and other studies within the telecommunications perspective.

3.7.2 *Internal Validity*

Gibbert et al. (2008) defines internal validity as the causal relationship that exists between research data and the results thereof. In addressing the study's research questions the research was able to meet the internal reliability criteria through the use of content analysis framework as provided for by Elo and Kyngäs (2008). Leading to the result and findings, interviews from respondents were abstracted, transcribed, coded and grouped into themes.

3.7.3 *Reliability*

Reliability refers to the elimination and nonexistence of random error that would enable other researchers to arrive to similar conclusions in other studies that would be undertaken using the same steps (Gibbert et al., 2008). The study

was able to achieve reliability mainly because the data sourced from the ITU is data that can be used by other studies in a different context and setting and may also lead to similar results in the respective setting of those studies. Furthermore, by using semi-structured interviews as a data collection tool whereby the same interview guide structure was used for all the interviews, the reliability criteria were met.

4 CHAPTER 4: PRESENTATION OF RESULTS

4.1 Introduction

This chapter provides a presentation of the consolidated results from the research. The earlier section of this chapter presents the findings from the comparison of tariffs across the SADC countries using data sourced from the ITU database. The aim was to compare the pricing of mobile telecommunications services in Swaziland – a monopoly, against prices from the SADC countries who at the very least have two operators in the mobile telecommunications sector. Later, consolidated results obtained from the content analysis, based on the semi-structured guided interviews are presented.

A brief background of the ITU and how it is the ideal source for the tariff data is presented. Subsequent to that is a description of the demographic profile of the respondents. Their relevance and involvement in the industry is also presented.

A comparison of different pricing structures across different networks and different countries is presented in graphical form. Pricing data from the different mobile networks is plotted against that of MTN-Swaziland. At first, comparison of raw prices from the different networks with MTN-Swaziland's is made on a year on year basis from 2003. Subsequently the ITU Cellular mobile sub-basket data is used for the comparison.

This chapter also presents consolidated results from the sampled respondents.

4.2 International Telecommunication Union (ITU) background

According to ITU (2015), The ITU, headquartered in Geneva, Switzerland, was established in 1865 in Paris initially as the International Telegraph Union. In 1947 after assuming the present name, the ITU became an agency of the United Nations. The ITU's scope covers the whole ICT space, studying trends

on topics ranging from digital broadcasting to the Internet, and from fixed telephony to mobile telephony. The ITU currently has a complement of 193 countries affiliated to the union with about 700 private-sector entities.

Through questionnaires sent out to participating countries, the ITU collects ICT and telecommunication data for purposes of analysing the trends in the world. The data used in this research was obtained from this source. For the purposes of the research, the ITU is the most relevant and reliable source of the data so used primarily because of the number of years it has been in existence, the fact that it is a United Nations agency and the means it employs in gathering the data.

4.3 Demographic profile of respondents

The respondents were formed mainly out of two segments, one segment represented mobile telecommunications companies all based in South Africa except for MTN-Swaziland, while the other segment constituted of independent practitioners, with the exception of the newly established Swaziland Communications Commission's Acting Chief Executive Officer.

Not only were the respondents selected based on their relevance to the study, their level of involvement in the telecommunications industry, years of experience, as well as their positioning in their organisations were also taken into consideration. Five of the respondents were from South Africa with the other three being from Swaziland. With the respondents based in South Africa, the profile was as follows, a Managing Director, Executive Head Regulatory, Manager – Pricing, an economist and an independent telecommunications practitioner, who also doubles up as being a Managing Director for Africa Analysis. The former's relevance in the study cannot be overemphasised; he has fourteen years of telecommunications industry experience and has been involved in the mediation of the impasse between the SPTC and MTN – Swaziland. In Swaziland, the composition of the respondents was as follows;

from MTN Swaziland, a Senior Business Analyst was interviewed, an economist and the Acting Chief Executive Officer of the newly established regulatory body.

4.4 Cellular-mobile penetration and tariff data comparison of the SADC countries

This section presents a comparison of the pricing of mobile telecommunications services in the SADC countries, a regional body of which Swaziland is also a part. Tariff and telecommunications data presented in this section was sourced from the ITU (2013) yearbook of statistics, telecommunications/ICT Indicators 2003 – 2012 and from ITU (2014)'s annually published report called, Measuring the Information Society – Report, 2014.

4.4.1 *Mobile-cellular telephone subscriptions per 100 inhabitants comparisons*

Figure 9 gives a graphical representation of the mobile-cellular telephone subscription per 100 inhabitants for SADC countries between the years 2004 and 2013. Yearly averages for all the countries were also calculated and included in the graph. The graph gives a pictorial presentation of cellular penetration per 100 inhabitants, a rough measure of cellular growth obtained by using the total number of subscriptions and the total population in each country.

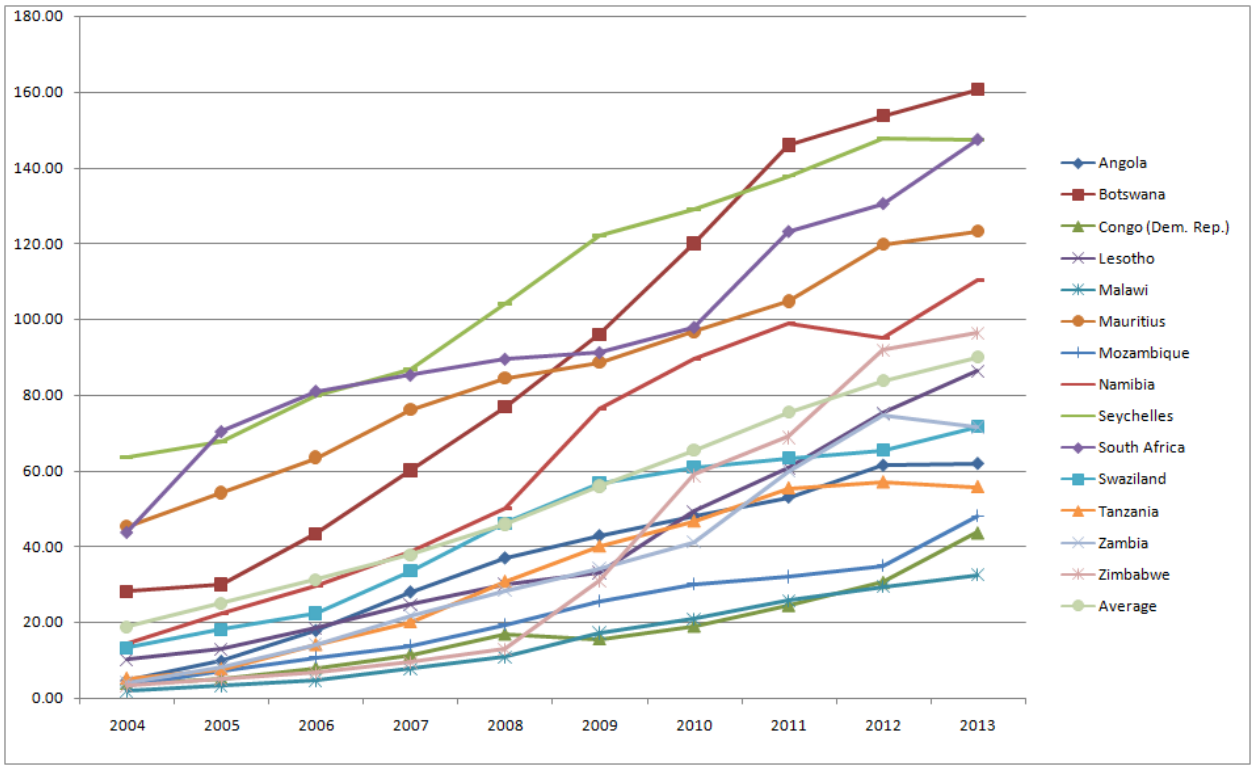


Figure 9: Mobile-cellular telephone subscriptions per 100 inhabitants SADC countries. *Source (ITU, 2013)*

In 2004, Swaziland, with a cellular line density of 13.24, was ranked number six respectively after; the Seychelles, Mauritius, South Africa, Botswana and Namibia on the number of mobile-cellular telephone subscriptions per 100 inhabitants. Although showing a great improvement in terms of subscribers per 100 inhabitants, in 2013, Swaziland with a cellular density of 71.47 is ranked ninth respectively after; Zambia, Lesotho, Zimbabwe, Namibia, Mauritius, Seychelles, South Africa and Botswana with 160.64. The initial five countries that were ahead of Swaziland in 2004 are still ahead of Swaziland in 2013, with the addition of three other countries, Zambia, Lesotho and Zimbabwe who have leapfrogged over Swaziland over the past ten years.

The average of all the SADC countries which includes Swaziland is also plotted between the years 2004 and 2013. In all ten years, Swaziland is higher than the SADC average in only two years, 2008 and 2009 with cellular densities respectively of 46.07 and 56.61 compared to averages of 45.48 and 55.03

4.4.2 *Cellular-mobile tariff comparisons*

The results of the tariff comparisons from the selected countries are presented in two sets. First, raw tariff data across the countries over the years 2008 to 2012 inclusive, is presented followed by tariff data using the ITU cellular mobile basket. In both cases the data was sourced from the ITU databases.

4.4.2.1 Comparison of raw voice tariff data

Zambia had a missing annual exchange rate value for the year 2012 therefore; the exchange rate from the year 2011 was used. This assumption will not however cause a major distortion judging by the modest changes Zambia had in the previous years. For instance, the exchange rates for the years 2010, 2011 and 2012 respectively were; 5046.11, 4797.14 4860.67.

Two countries we removed in the comparison, The Democratic Republic of Congo and Zimbabwe. The former had missing data points (tariffs) between the years 2003 and 2012, whilst Zimbabwe, besides missing tariff data for some of the years, also had missing data points on *average exchange rate per US Dollar* for all the years between and including 2008 and 2012.

Figure 10 shows a graphical presentation of the raw voice tariffs (peak, on-net) across the different SADC economies between the years 2008 to 2012. The ideal case would have been to include more years for the analysis, however due to missing data points from earlier years, especially in the year 2007 where only two countries had complete data, this was not possible. The prices were given in the local currencies used in the different countries. However, for ease of comparison and a proper benchmark, the prices were all converted to the US Dollar using the respective average exchange rate for the different countries over the years. The average annual exchange rate per US dollar, on a year to year basis is also provided by the ITU in the tables bearing the statistics and tariff data.

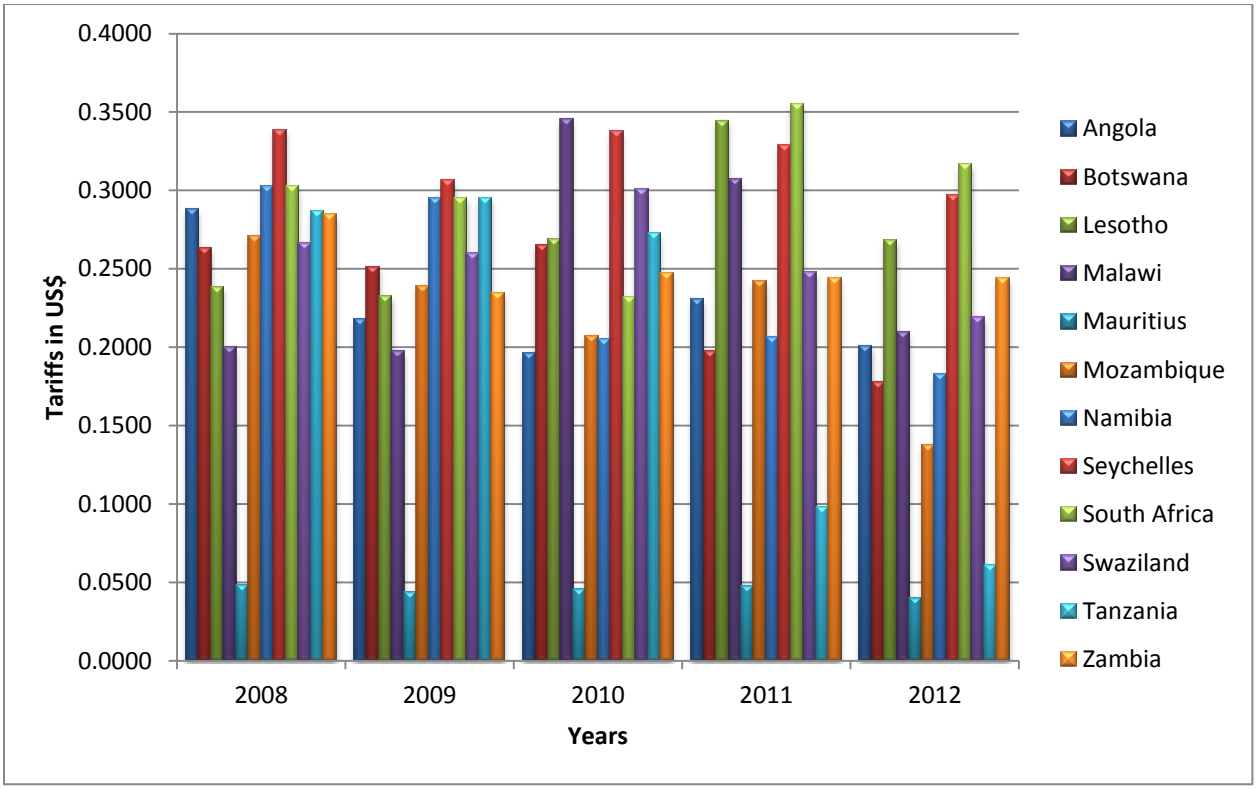


Figure 10: SADC Tariff comparison in US$ - *Source ITU (2013)*

Since the average exchange rate per US$ was used on a year to year basis, country to country, conversion using current exchange rates may not necessarily be accurate.

Appendix F shows a graphical comparison of actual off-peak, on-net tariffs in US $, the conversion to the dollar was also done using the yearly average exchange rates for individual countries.

4.4.2.2 Comparison using the ITU mobile-cellular sub-basket, 2013

The ITU mobile-cellular basket is modelled around the OECD basket methodology (See Appendix A). A more elaborate explanation of this methodology is presented in Chapter 3.

Table 2: SADC Mobile-cellular sub-basket, 2013

Economy	As a % of GNI p.c.	USD	PPP$	GNI p.c USD 2013
Malawi	56.29	12.67	40.13	270
Zimbabwe	29.75	20.33	-	820
Mozambique	25.91	12.74	24.04	590
Tanzania	17.85	9.37	21.2	630
Zambia	14.31	17.64	34.52	1480
Lesotho	12.5	16.15	37.53	1550
Swaziland	6.59	16.92	36.31	3080
Angola	4.66	19.47	21.96	5010
South Africa	3.4	20.4	36.12	7190
Namibia	2.13	10.36	17.94	5840
Botswana	1.64	10.57	-	7730
Seychelles	1.5	15.71	22.23	12530
Mauritius	0.79	6.09	9.85	9300

Data sourced from (ITU, 2014) Mobile-cellular data for the Democratic Republic of Congo not available.

Prices in Table 2 are expressed in three distinct units; the USD in which the ITU (2014) used the International Monetary Fund for exchange rates, the

International Purchasing Power Parity Dollars (PPP$) which uses the Purchasing Power Parity conversion factors rather than market exchange rates. The ITU (2014) asserts that the use of the PPP exchange factors facilitates the filtering out of price and exchange rate distortions, thus enabling a cost to be measured by taking into account the purchasing power similarities between economies. The third unit is that of a percentage of individual countries' monthly Gross National Income per capita (GNI p.c.) which enables prices to be shown relative to the size of the economy of each country. This unit of measure enables one to understand how much the price of a service represents for the user in each country (ITU, 2014).

Figure 11 shows a graphical presentation of the SADC countries' mobile-cellular prices as a percentage of GNI p.c.

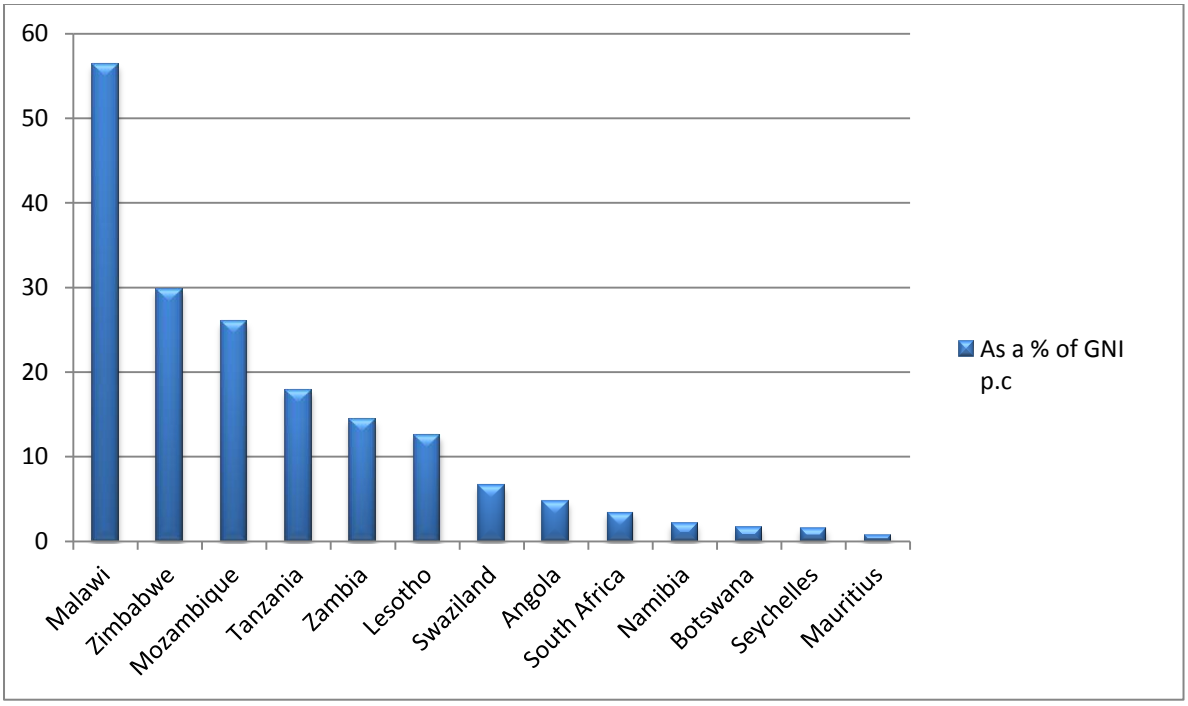


Figure 11: Mobile-cellular prices as a percentange of GNI p.c. in the SADC countries 2013 – Source ITU (2013)

The units in Table 2 as provided for by the ITU (2014) are different from the raw pricing described earlier in the chapter which does not account for any of these factors for which the ITU basket methodology accounts. A graphical representation of the PPP$ is shown in Appendix G.

4.5 Results pertaining to sub-problem 2

For this purpose, the interview guide (See Appendix C) was the primary research tool. Since the respondents were from different organisations which have varying history, operational and strategic focus, the interview guides, where applicable, were customised to address each respective organisation albeit based on a single backbone interview schedule guide. For example, while further probing the issue of exclusivity periods as a barrier to entry for potential new entrants when incumbents are at an advanced stage of the product life cycle, the researcher asked the following question to both the respondents from Cell C and Telkom Mobile respectively;

> You made your entry in the South African Market when the two major providers, MTN and Vodacom were enjoying a somewhat significant stability, economies of scale and a huge customer base, technically, by the time you made your entry, every customer that needed to be connected was connected (to some extent) and some brand loyalty had already been established.
>
> a. What competing strategies did you have as a late entrant in the mobile telecommunications sector; do you think such strategies can be reusable in Swaziland?
> b. How you describe the disadvantages of being a late entrant.

The questions were open-ended; this allowed the researcher to pick on responses made by respondents and seek further clarification on relevant issues that arose.

The interviews were all recorded, particular attention was given to gestures, body movements, postures and facial expressions made during the interviews. The recordings were then all transcribed to text for purposes of synthesising and drawing similar themes from respondents. A sample transcribed interview is shown in Appendix D.

4.6 Semi structured interview guide design

The paramount aim of the interview questions was to extract common themes from respondents then further tie these up and draw parallels with issues discussed in the literature review. Table 2 provides a rough map of the issues and the questions used for probing the same.

Table 3: Issues and questions

Issue	Questions														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Extended Exclusivity	●	●			●										
Telecommunications Natural Monopolies			●	●											
Factors influencing telecom Pricing										●					
Competition, Innovation, Telecom Prices					●				●		●				
Regulatory Role								●							●
Role of the Fixed line Model						●	●								
Telecoms and Economic Development												●	●		
Viability of another operator entering the Swazi market		●													

4.6.1 *Extended exclusivity period*

Question one and two addressed the issue of extended exclusivity periods. The aim here was to find out if indeed the granting of an initial 10-year exclusivity operating licence to MTN-Swaziland was a fair decision in hindsight, fair with regards to the economic landscape of Swaziland, the nation, the incumbent and prospective new entrants. The mobile telecommunications providers, all based in South Africa were further asked whether or not they submitted their applications when the first licence was issued to MTN-Swaziland, only Vodacom South Africa responded to the affirmative in this regard. Cell C however alluded to the fact that at the time, the company was still concerned with setting up the company and were only licensed to operate in South Africa in the year 2001, while Telkom Mobile at the time still had a stake in Vodacom and had not ventured into Telkom Mobile.

Both segments were asked to describe the Swazi Government's decision to award MTN-Swaziland an exclusivity licence for ten years. The common denominator extracted from all respondents is that the decision was a bad one, with some of the respondents suggesting that it could have been lack of foresight on the part of government especially because at the time no one would have anticipated the advances and economic impact the sector would have generally in the long run. The general consensus was that a decade of exclusivity was a very long time. A typical example is one respondent who said "ten years is quite a long time for exclusivity especially when you think it takes four to five years for an operator to break even, although it depends on individual operators and circumstances but ten years is quite a long time".

4.6.2 *Natural Monopolies in telecommunications*

Question three and four addressed the issue of natural monopolies in telecommunications, the respondents were first asked from a general perspective on whether or not they believed in the existence of natural monopolies in the telecommunications sector, subsequently, respondents were

asked if they believed that the monopoly in the mobile telecommunications sector in Swaziland is or exhibits traits of a natural monopoly. A question on whether the size of a market would be one of the factors a company considers when expanding to other countries was also asked. The size of the market has been described by literature as a factor that speaks to monopolies being rendered natural ones.

Except for one respondent from the telecommunications companies' segment, all the respondents from the two segments agreed that the mobile telecommunications current setup in Swaziland is not a natural monopoly.

One respondent said "If Swaziland was an Island in some ocean then we would probably regard it as a natural monopoly".

The one respondent, whose argument was that the mobile telecommunications monopoly in Swaziland was a natural one, attributed the extended exclusivity operating period awarded to MTN-Swaziland as being the major factor that has inevitably rendered MTN-Swaziland's monopoly a natural one. This one respondent made an example of MTN and Vodacom in South Africa that the two may individually decide to keep their on-net calls (calls within their network) at a minimum or close to nothing, in a way telling their subscribers not to call consumers of other services from other networks.

Despite the exclusivity period of MTN-Swaziland being cited as a barrier to entry, the size of the market, MTN-Swaziland's current subscriber base, maturity of aspects such as the incumbent's distribution network and infrastructure, the other respondents (about 88 per cent) noted that Swazi mobile telecommunications market like any other mobile market can never be a natural monopoly.

In the context of Swaziland, respondents based in Swaziland forming largely the second segment of non-affiliation to telecommunications companies, agreed that there was a huge gap in as far as service delivery by MTN-Swaziland is

concerned, this gap they observed, could be addressed by the introduction of another player in the industry. One respondent made an example of an individual whose business operations are at KaLanga, a place between Big Bend and Siteki in Swaziland, who, because of high data charges from MTN-Swaziland would have to travel for about twenty kilometres just to have access to internet from one of the Internet cafés powered by SPTC, the fixed line operator.

The respondent from MTN-Swaziland also conceded that MTN-Swaziland needs competition, saying that it would be healthy for both firm and country to tweak the market to the direction of competition. Substantiating his assertion, the respondent revealed that MTN-Swaziland already had a tariff and a competition strategy in place. The respondent further cited complacency as a trend that may be creeping in the operations of MTN-Swaziland, which can be mitigated by the introduction of competition. Furthermore, he highlighted the fact that it was difficult to compare how cheap or expensive their pricing is from the consumer's perspective if there is no other operator to benchmark against. Technically, MTN-Swaziland admitted to be ready for competition, however the respondent felt that on the human resource front, there is some work that needs to be done to prepare for competition.

4.6.3 *Viability of another entrant entering the Swazi market*

Tied to the issue about natural monopolies and whether or not MTN-Swaziland can be said to be a natural one was the issue of viability of a new entrant. This issue was discussed with all the respondents. The segment comprising telecommunications companies was asked to elaborate on the factors that they would consider before a decision to expand to foreign markets is made. Question 2 was crafted to address this issue. The respondents in this segment were further asked if they had made intentions to apply for an operating licence in Swaziland in light of the fact that the exclusivity period initially granted to MTN-Swaziland had elapsed. Although citing different reasons the common response shared by respondents in this segment was that their respective

companies had not been particularly attracted to the Swazi market after the award of the operating licence to MTN-Swaziland, a typical response example from this segment was “there has never been an economic appetite to move into Swaziland post the awarding MTN-Swaziland the exclusivity licence”. Furthermore, about five of the respondents were of the view that Swaziland, relatively to other markets, was for the most part not a green field they would be interested to venture into especially when other markets with a huge potential existed, such as Nigeria, Ghana, Madagascar, etc.

The respondents from the other segment had a similar question to respond to however the structure was slightly changed, they were requested to hypothetically outline the key factors they would consider if they were a mobile operator that would influence a decision to expand to other countries and whether or not they would regard a decision to move into Swaziland a viable one, if they were to assume a mobile operator role. A majority of the respondents were of the view that before such a move would be decided upon a number of key factors would have to be considered, such as how competitive the market is, the political landscape and the regulatory environment, among others.

Two themes emerged from this discussion, one as described by a respondent from the telecommunications company’s segment was that a move would mainly be influenced by healthy *bottom line prospects*, i.e. whether or not such a move would be profitable. Another theme that emerged was that a move into the Swazi market may not only be informed by prospects of making profits but it may also would be a *strategic decision* where, for instance, a company may want to cover a country from which it has been missing, in a designated region or block of countries in a geographic region, where all its major competitors have a presence and are actively participating. One respondent said “it would make sense for Vodacom who have a presence in Lesotho to move into Swaziland because it is part of a geographic footprint that you need to have if you were Vodacom”. The respondent further made mention of the fact that by virtue of Swaziland being almost a part of South Africa, Swazis through the

accessibility of South African media and technology, it would be easier for Vodacom to make its presence felt in Swaziland, especially in light of the fact that Swazis travelling to South Africa are already subscribing or have sim-cards from the South African operators, the familiarity of the Vodacom brand in the minds of the Swazis would work for Vodacom. The respondent likened a move by Vodacom to Swaziland as one that would be similar to Vodacom rolling over to 'another Gauteng'. One of the major takeaways under this theme is that companies would have to make such a decision in line with their strategic objectives as one respondent phrased it, would be, "is it important from a strategic position as a regional and global operator".

About five of the respondents indicated that the method of entry for a second or subsequent operator would also play a critical role. One respondent suggested that entry as a Mobile Virtual Network Operator (MVNO) would be the best mode of entry into the Swazi market. The respondent further suggested that an MVNO model would typically target niche markets that are of high value and high profitability. It was suggested that an MVNO would come in with a lifestyle and experience offering. Furthermore the MVNO model would have to forge strategic partnerships with MTN-Swaziland as opposed to entering the market as a full operator with intentions of building their own network from scratch.

Another respondent was of the view that SPTC had to be privatised and the only way they would consider moving into Swaziland would be through the acquisitioning of the parastatal. This, the respondent observed would mitigate the risk of low returns especially because SPTC had a sound infrastructure materially rolled across the whole country. The company would then look into diversifying the current SPTC offering to mobile services.

Another view that emerged from the discussions around this issue, was that MTN-Swaziland was currently not sufficiently able to cover the whole of Swaziland in terms of network coverage. One respondent made an example of her place of residence and her duty station separated by a ten-minute drive, she said despite the proximity of the two points which she spends time in, on a daily

basis, network reception at home was very bad, nothing compared to excellent coverage enjoyed in towns. This she thought would be the focus of a newly introduced operator. This strategy was likened to one employed by an operator in Mozambique a neighbouring country whose intention was to capture the *neglected* market. The sentiments were echoed by another respondent who made an example of areas close to borders separating South Africa and Swaziland where the MTN-Swaziland's coverage is so poor that customers along the border resort to buying South African starter packs. This lack of proper network coverage, the respondent noted, may be used by a mobile operator as an entry point.

A total of five combined respondents from both segments feel that the Swazi market is ready for a second operator. One of the five respondents using the *ripe* metaphor said that;

> I think the market is ripe right now, it's how you do it, it's about time that Swaziland introduces a second player and one of the ways as I've already said is that sell the network to an independent player who can then monetise that and let the two operators compete on top of the same network.

What this question sought to find out is how respondents would regard a move into the Swazi market with the current dynamics at play. This speaks to whether or not Swaziland can accommodate other players.

4.6.4 *Factors that influence telecommunications pricing*

The research is primarily concerned with the pricing of telecommunications services in Swaziland, therefore, it was of paramount importance to study factors other than competition that may or may not influence the same as discussed in the literature review section. Therefore, question ten sought to find out from the respondents the different ingredients that may affect telecommunications pricing. Responses from the respondents from the telecommunications companies responded to this question basing their

responses on their respective pricing strategies, while the respondents that were not affiliated to any telecommunications companies gave their own perspective on the factors that come to play in the pricing of telecommunications services.

All the respondents identified two main forces that may influence the pricing of mobile telecommunication services; *external* i.e. *market forces* and *internal forces*. The respondents from the telecommunications segment all agreed that unless they had a different motivation, they would not price their services above those of competition, at the very least they would match them. The major factor in the internal forces as identified by the respondents in this segment is profitability.

One respondent on this issue of pricing and profitability responded as follows,

> So the first consideration of course is profitability and then the second one is competition. We've got our 50% market share here, we are leaders in almost all the countries where we operate except Mozambique, it's very important for us not to lose market share.

Profitability came out to be the main driving force from all respondents in the segment. Over and above the factors outlined above, one respondent summed up their pricing structure into three strategies; matching strategy, premium pricing strategy or undercutting strategy.

Another respondent mentioned that pricing comes in three ways; pricing for access, a pricing structure that charged consumers for being registered in a network without considerations of usage, the second one being pay per use, meaning that a user is charged on how much they use which speaks to the number of minutes used in calling, the number of sms' sent out, etc., lastly fixed pricing where users are required to pay a fixed amount say on a monthly basis without being restricted on usage.

Respondents from the segment with no affiliation to telecommunications companies felt that the pricing of mobile telecommunications followed the basic costing structures of goods and services.

4.6.5 *Competition, innovation and pricing of telecommunications services*

The literature studied revealed that competition in the telecommunications sector did not only drive prices down also increased benefits both in internal efficiencies and externalities. Therefore questions five, nine and eleven were crafted so as to gather information based on the experience of the respondents and the companies they were affiliated to on how competition enhances firm and country innovativeness among other things.

The respondents where asked why South Africa, in spite of having more than four operators, still had comparatively higher voice and data tariffs. Although this question was to a greater extent set within the context of mobile telecommunications companies in South Africa, this did not provide a handicap to the respondents based in Swaziland since they are conversant with the South African market. A prelude question, probing the conversance of the Swazi based respondents with the market dynamics in South Africa was posed, whereby all the respondents responded to the affirmative.

Seven of the respondents (about 88 per cent) first refuted the suggestive background of this question saying that mobile prices (voice and data) have materially dropped in South Africa, a situation highly attributable to the introduction of competition. Cell C was cited as the major driver of competition in South Africa, as one respondent coins it, “who has been the biggest driver of competition? It’s been Cell C.”.

Another respondent said;

> That’s (the assertion that competition has not driven voice and data prices down in South Africa) so debatable, if you look at

> the past two years on average the effective price of data comes down by 30 per cent year on year and there is no indication that this is going to slow down, so competition does drive prices down, it is the speed at which the prices come down though

Although noting and crediting Cell C as the major competition driver, all seven respondents admitted that there has not been a substantial shift in subscriber figures from the other networks to Cell C, this was attributed mainly to Cell C's coverage not being satisfactory and to the fact that Cell C to an extent roamed on other networks. The respondents believed that the subscriber base was not shrinking especially with the main players in South Africa, MTN and Vodacom. This they believed is backed by the fact that lesser inactive numbers are being deactivated from the network and number porting to Cell C was not as prevalent.

All seven respondents suggested that the trend with South African consumers was to subscribe to two or three networks so as to derive maximum utility from all the networks especially exploiting promotion and discounts.

One respondent however felt that the major players in the market were resorting to anticompetitive behaviour when they lured customers with short term promotions and discounts only to revert back to their higher tariffs thereafter through what literature refers to as "bargain-then-rip-off (low to attract business, high to extract surplus)" (Klemperer, 2006, p. 3).

The respondents were asked how they would describe the impact of the Mobile Virtual Network Operator (MVNO). Two respondents based in Swaziland, except for the MTN-Swaziland respondent, felt they could not respond well to his question because they had not been exposed to this kind of business model.

The main takeaway from this discussion is that the MVNO does not really enhance competition or have a significant impact on pricing. Five respondents felt that an MVNO is basically an extension of another network, therefore, it inherits all the attributes that the mother network has including issues of quality

of service. Furthermore, the respondents MVNOs can only thrive in cases where there is excess capacity whereby the excess capacity may then be given to an MVNO to utilise. It was felt that the capacity issue was a concern in South Africa as it were. One respondent said, “There is hardly any room for MVNO’s in South Africa, Virgin Active has failed”

Only one respondent believed that the MVNO business model can be used to enhance competition in the sector, the respondent believed MVNOs need careful and proper direction for them to be profitable. The respondent felt that the differentiating factor with MVNO’s is its target market.

Asked on the issue of innovation and competition, all eight respondents agreed that competition encourages innovation in more ways than one. A theme that came out strongly in this discussion was that competition encouraged innovation beyond the technological aspects, also in terms of positioning and pricing of products. As one respondent said “innovation is a key ingredient towards finding a competitive advantage, you have to be a step ahead of your competition for you to survive and the only way is to constantly innovate”.

4.6.6 *Regulatory Role*

Question eight and fifteen were crafted so as to extract the importance of the role played by a conducive regulatory environment. These questions addressed aspects that could and should be carefully addressed by regulators in different countries. In the case of Swaziland, it means that even if competition were to be introduced at this stage, what role should the regulator play in terms of the promulgation of sound and proper legislation to ensure that prospective entrant(s) do not succumb to pressure from the incumbent and subsequently close shop.

4.6.7 *Role and relevance of the fixed line model*

Question six and seven were crafted so as to understand the role and relevance of the fixed line business model in the context of higher mobile penetration and competition. The Swaziland Post and Telecommunications Corporation (SPTC), the provider of the fixed line services in Swaziland, is under major threat because of mobile penetration. This threat is compounded by the existing Joint Venture Agreement between SPTC and MTN-Swaziland which prohibits the former from venturing into services and products that would pose competition to those of MTN-Swaziland. These questions further sought to gain an understanding on whether or SPTC can provide some form of competition to MTN-Swaziland.

4.7 Summary of the results

Tariff data and other telecommunications statistics such as mobile-cellular densities used in the chapter were sourced from the International Telecommunications Union's publications and reports. Swaziland was compared with other economies using the tariffs and statistics obtained hereof.

The comparison was done as follows;

- Mobile cellular telephone subscriptions per 100 inhabitants
- Cellular-mobile tariff comparisons, using;
    - Raw voice data
    - ITU mobile-cellular sub-basket

From the application of the qualitative content analysis on interviews carried with the 8 respondents, the following themes were extracted;

- The 10-year-exclusivity period that MTN-Swaziland being a bad (policy) decision by the government of Swaziland.

- The mobile telecommunications market do not allow for natural monopolies and therefore MTN-Swaziland should not be regarded as one
- A second entrant into the Swazi market can be viable, however a proper regulatory playing field has to be in place
- Competition does encourage innovation and the reduction of prices
- The role of the regulator as being one of the most important in terms of encouraging and sustaining competition through ways such as the neutralisation of asymmetries that may exist between the incumbent and the new entrant, infrastructure sharing, etc.

5 CHAPTER 5 DISCUSSION OF THE RESULTS

This chapter presents the discussion, analysis and interpretation of the results. The chapter is divided into two main sections. The first section discusses the results of the comparative study conducted with data obtained from the ITU where Swaziland's mobile telecommunications tariffs are compared with the rest of the SADC countries. The second section is a discussion from the semi-structured interviews whose results are presented in Chapter 4. Themes emerging from the results in Chapter 4 are consolidated and discussed.

The aim of the research was to investigate the monopoly pricing of telecommunications services in Swaziland. However the researcher took it a step further and investigated the prospects of competition in the sector. This was done to provide a solution to the monopolistic pricing if the findings reveal a distortion compared to other countries in the SADC region.

The results are also discussed with the aim of establishing congruity and contrasts with the literature review discussed in Chapter 2.

5.1 Mobile-cellular telephone subscriptions per 100 inhabitants' comparisons

The results of the mobile-cellular densities reveal that Swaziland is lagging behind when compared to other countries in the region. In the time series presented, Swaziland ranked sixth position in 2004, dropping to position nine in 2013, ahead of only 5 countries. Although the lag may not solely caused by lack of competition, it (the lack of competition) remains a strong factor in this regard.

Worthy of note is that in 2013, leading the SADC countries in the cellular densities is Botswana, which according to Minges (1999), was the last country together with Swaziland to adopt mobile telephony in 1998. Botswana started off with two providers while Swaziland started with one.

The findings reveal that except in two years; 2008 and 2009, Swaziland had cellular-mobile density less than the average of all the countries. At the beginning of the time series under investigation, 10 countries (including Swaziland) out of 15 had a mobile cellular density less than 20. As of the year 2013, 4 countries in the region had mobile cellular densities of less than 50.

Unlike the conventional teledensities that are portrayed by fixed lines, cellular densities have often been criticised in literature as not reflecting a true measure of mobile telephony adoption because unlike the former, they report subscriptions instead of individual handsets gadgets or subscriber identity module (SIM) individual ownership (Aker & Mbiti, 2010). This phenomenon clearly explains why Seychelles, Mauritius, South Africa, Botswana and Namibia individually have mobile cellular subscriptions per 100 inhabitants which are over 100. These figures when interpreted as they are, suggest that cellular ownership in this countries is more than 100 per cent, whereas, as Sutherland (2009) contends, a 100 per cent figure of cellular ownership is not feasible, taking into account population segments that are typically not expected to have (or be able to use) phones. Such segments include; those that are too poor, too young (or too old), prisoners or those who voluntarily elect not to use cellular services.

These constraints, notwithstanding, mobile cellular density numbers “can be used as one indicator of relative market shares and can provide a sense of the overall growth of the market” (Sutherland, 2009, p. 11). Therefore, the use of cellular mobile densities in the discussions in this paper may not be compromised by the lack and shortfalls of this measure since the discussions here are mainly on the crude growth of mobile telecommunications across the countries being compared to Swaziland.

The findings, other factors notwithstanding, are in line with the literature reviewed. While acknowledging that there is a strong positive correlation between the increase of mobile telephony coverage in Africa with population density, Aker and Mbiti (2010) and Buys, Dasgupta, Thomas, and Wheeler

(2009), also mention that there are other country-specific factors such as GNI per capita, technology and industrialisation levels and the level of competitiveness in the mobile telecommunications sector. Many studies however do suggest that competition is a major factor, especially in developing countries (Abu & Tsuji, 2010). ITU (2014) acknowledge that the poor uptake of ICT and mobile services is also attributable to the price of the service which in turn, is also influenced by competition.

Gruber (2001) argued that the speed of diffusion and adoption increased with the number of mobile telecommunications firms. Gruber (2001) further asserts that simultaneous entry in mobile markets is more effective than sequential entry in the context of speeding up diffusion. These facts therefore (partly) explain the glaring differences Swaziland and Botswana (after the countries had mobile telephony introduced in the same year) have in the diffusion of mobile telecommunications and also why Swaziland has been leapfrogged by the three other countries within a decade with regard to mobile-cellular diffusion. The findings therefore are in line with the literature reviewed.

5.2 Comparison of raw voice tariff data

This section discusses the results from the comparison of tariff data across the sampled countries i.e. SADC countries with the exception of Zimbabwe and the Democratic Republic of Congo. The prices from these countries are taken as is without considering any of the factors identified in literature that may influence the pricing hereof. Such factors include, but are not limited to, the Gross National Income per capita and population density. This comparison of prices for instance does not take into consideration how technologically advanced a country is. as Mitchell and Vogelsang (1991) observed that massive technological advances can, through cost reduction positively impact on telecommunications prices.

Over the five year period, Mauritius appears to be by far the country with the cheapest mobile services. Apart from the fact that Mauritius, according to

Telecoms (2015) has a competitive mobile telecommunications market with three operators; Emetel LTD., Mahanagar Telephone (Mokoze) Mobile and Orange, Mauritius has the oldest operations in the region (and the Southern Hemisphere) which were introduced by the launch of analogue TACS by Emtel in 1889 (Minges, 1999). The low prices can be attributable to both factors.

Although over this period, Swaziland has not been the highest in terms of mobile telecommunications prices, overall, it is among the highest in the region. According to the peak, on-net tariff data, the best ranking in the five years for Swaziland was in 2008 where Swaziland ranked eighth highest out of the 12 countries. The raw tariff data also reveals that, Swaziland's worst performance was in 2010 when it ranked third highest in the region. Apart from the years 2008 and 2010, within the five years Swaziland has always been fifth highest. This effectively means that, using peak, on-net tariff data, for four out of five years, Swaziland had been above the 58^{th} percentile in terms of being expensive in comparison with the participating countries.

The off-peak, on-net tariff data (Appendix F) reveal that Swaziland is among the most expensive countries in this category in the region, being third and fourth highest respectively three times (in 2008, 2010 and 2011) and two times (in 2009 and 2012).

According to Telecoms (2015), all the countries in the region have at the very least, two mobile telecommunications operators with the exception of Swaziland who has a monopoly. With all other things equal, although not being the most expensive in the region, the findings do confirm what the studies in the literature review revealed, that competition in the mobile telecommunications market was associated with the decline in prices. Such studies include those of Valletti and Cave (1998), Choi, Lee, and Chung (2001) in the United Kingdom and Korea respectively. The study by the ITU (2014d) which used the Herfindahl-Hirschman Index (HHI) as a tool to measure the level of competitiveness in the mobile telecommunications between the years 2008 and 2013, established an

association between low telecommunications prices and the increase in competition which is also in line with the findings.

ITU (2014, p. 108) mentions that “effects of competition in driving prices down and fostering innovation have been most apparent in the mobile-cellular market, where low prepaid prices became a key enabler for the mass uptake of mobile-cellular services observed in the developing world”.

5.3 ITU Basket Methodology comparison

In 2013 ITU basket methodology, again Mauritius emerged as the country with the cheapest mobile-cellular prices with its monthly mobile-cellular plan of USD 6.09 per month or PPP$ 9.85 per month competing with top countries from the developing world.

In 2013, Swaziland’s monthly mobile-cellular plan is USD 16.92, making it the 5th most expensive economy out of the 13 participant-countries in the region, with South Africa being the most expensive in terms of ITU’s cellular basket plan.

The ITU also expresses mobile-cellular prices as a percentage of the different countries’ Gross National Income per capita. This is done so as to provide an in-depth understanding of mobile-cellular services from a demand-side perspective (ITU, 2014). In essence, the GNI p.c. speaks to the affordability of services from country to country. The GNI p.c. in USD for the SADC countries used in the comparison varies from USD 270 (for Malawi) to 12,530 (for Seychelles). The GNI p.c. figures exhibit a high dispersion from country to country in the region. In terms of the affordability, as revealed by the 2013 ITU data, Swaziland is ranked 7th out of the 13 countries with a mobile cellular percentage of GNI p.c. of 6.59 per cent, the country with the best percentage is Mauritius again, with 0.79 per cent. This effectively means that as of 2013, according to the ITU data, there were 6 countries whose mobile-cellular services were more affordable the Swaziland’s in the SADC region.

The GNI p.c. affordability measure is somehow greatly affected by the (low) income levels of the countries, for instance in 2013, Malawi had a GNI p.c. of USD 270 with a corresponding affordability measure of 56.29 per cent, compared to Swaziland who had a GNI p.c. of USD 3080. The lower income levels from the different countries tend to skew the mobile-cellular statistics. An example is made by ITU (2014) with Kenya which despite having one of the most vibrant mobile markets in Africa, with the twelfth cheapest prices in US$ in the entire world, they still represented 5 per cent of GNI p.c. in 2013 because of the country's low income level, compared to Swaziland's 6.59 per cent.

Despite the distortions presented by the disparities in income levels, Swaziland is presented as not performing well when the affordability aspect is introduced in the mobile-cellular comparison. This perspective however does not necessarily relegate Swaziland to be among the worst performers in the region, a phenomenon which may be attributable to the Swaziland's income level being fairly higher than the other six countries that Swaziland outperforms. As the studied literature affirms, the introduction of competition would see Swaziland perform better than it currently does. A case in point is Botswana who also rolled-out mobile services at almost the same time as Swaziland in 1998, with the former starting off with two providers while Swaziland had one, MTN-Swaziland.

Another dimension of note in the issue of national income and affordability is that the literature reviewed establishes a causal chain relationship as identified by Gruber (2001) between telecommunications (competition) and economic development. Telecommunications trigger economic development; economic development in turn facilitates better telecommunications services in a country. This therefore, would suggest that the GNI p.c. of Swaziland would have been positively impacted upon had the ingredients of telecommunication been explored fully, such as competition in the sector which in turn, would have lowered the affordability percentage, regardless of how modest this impact would have been.

The graph in Appendix F shows a comparison of the countries using the Purchasing Power Parity (PPP) in US Dollars as calculated by the ITU (2014). The ITU (2014) suggests that the use of the PPP conversion factors helps eliminate price and exchange-rate inconsistencies thus expressing the measure of a cost of service with regard to purchasing power similarities across countries. In this comparison, Swaziland is ranked third most expensive after Malawi and Lesotho.

5.4 Extended exclusivity period

The discussion on the Government of Swaziland's decision to award MTN-Swaziland a ten year exclusive licence was condemned outright by all the respondents. The common theme derived from this discussion was that this period was counter-productive in every possible way, at least at national level. The segment composed of telecommunications operators suggested that it would have been a wise decision to award simultaneous entry for at least two operators who would have, for instance, jointly invested in the roll-out of infrastructure. One respondent from this segment was of the view that it would have even made more economic sense to award a simultaneous entry for two operators while inviting a neutral provider to be responsible for the infrastructure which these two operators would have shared. This he noted, would have eased off the investment burden on both operators and lessened the time period for which a Return on Investment had to be realised.

Meanwhile the other segment having no affiliation to a telecommunications provider was of the sentiment that, despite the fact that, in hindsight the ten-year exclusivity not being good one, they felt that it could have been necessitated by agreements between Swaziland and MTN to allow the latter to recoup start-up costs associated with, for instance, infrastructural rollout. The respondents from this segment felt that despite the allowance in time to recoup start-up costs, ten years was very long especially because it inevitably extended beyond the initial decade, subsequently giving rise to barriers to entry for prospective entrants.

The discussions under this issue were in line with the literature reviewed which provided evidence from other countries where exclusivity periods granted incumbents first-mover advantages. Atiyas and Doğan (2007) suggested that first-movers in the mobile telecommunications sector will often exhibit first mover advantages and such advantages are further exacerbated by the length of the incumbency period.

Although individually discarding the prospects of being attracted to enter the Swazi mobile market because of the extended exclusivity that MTN-Swaziland has enjoyed, the telecommunications companies segment agreed that their basis of the lack of attraction is purely on the economic side of things. However, all the respondents alluded to the fact that the market has to be opened up for competition, MTN-Swaziland's incumbency period notwithstanding.

5.5 Natural Monopoly in telecommunications and whether or not MTN-Swaziland exhibits characteristics of one

As per DiLorenzo (1996)'s argument about the concept of natural monopolies being a myth and whose evidence being that which cannot be traced back in history, what emerged from the discussions under this issue, except for the one respondent, is that natural monopolies in mobile telecommunications do not exist. Bringing the MTN-Swaziland's situation into context, it was agreed by the majority of the respondents that it would be folly for the government or anyone to declare the monopoly a natural one. The sentiments shared by seven of the eight respondents are contrary to what Mosca (2008) suggested, whose argument was that the size of the market and the existence of barriers to entry as a result of economies of scale enjoyed by incumbents is likely to give rise to the occurrence of a natural monopoly. Although the mobile market in Swaziland is highly characterised by both these factors that Mosca (2008) makes mention of, according to a majority of the respondents the importance of the introduction of competition in the sector cannot be overemphasised.

The argument about the size of the market is not a strong one, according to the respondents, at least not strong enough to deter or prevent the introduction of competitive elements in the sector. Furthermore, MTN-Swaziland may have a subscriber base of more than 800,000 out of a population of just over a million, the issue against this statistic is that subscriber base statistics are not a true measure of actual subscription and therefore may not be representative of the general populace. Three respondents argued that a single consumer may have more than one sim-card, for instance, in the case where one would want to exploit discounts and privileges on both prepaid and post-paid products. Furthermore, it was discussed that the time for an inactive mobile number to be deregistered from a network is long. These factors, they argued would exaggerate subscription figures and not necessarily give a true picture of the dynamics on the ground.

The respondents felt that regulatory interventions and carefully orchestrated modes of entry into the Swazi market can help mitigate the impact of the exclusivity period and the economies of scale the incumbents are currently enjoying. Therefore the overarching theme drawn from this discussion is that MTN-Swaziland may be a monopoly currently, but that does not necessarily means that the market is forever *doomed* to this monopoly as subscribers and proponents of natural monopolies would suggest.

Contrary to one's natural expectations about MTN-Swaziland's perception on whether or not competition would be needed in the mobile sector, MTN-Swaziland was not defensive but objective in their response. MTN-Swaziland. like the other six respondents of the eight, alluded to the fact that the market to compete for in Swaziland may be small in size, however this dynamic does not render MTN-Swaziland's monopoly a natural one.

5.6 Viability of another entrant entering the Swazi market

MTN-Swaziland's exclusivity and monopoly has to ultimately be punctured by the introduction of another player in the Swazi market at least as suggested by

all the respondents but one. The market cannot be left alone as it is, because “it is only right for the mobile market to be competitive” as one respondent observed. The findings suggest two factors that may be critical for companies looking into entering the Swazi market at this stage; economic viability and strategic alignment.

Not only does literature refute natural monopolies’ prospects in the mobile telecommunications industry, Gruber (1999) goes on to suggest that until the year 1999 there had never been a precedent of company failure in the telecommunications market. However, despite the inherent benefits that more competition bring to consumers in the mobile telecommunications sector the market risk is also likely to increase. Therefore, with the proper structures that may preclude competition in place, mode of entry, together with the correct proportions of competitive elements in place, the research established that a second operator may not only thrive but may continue to be profitable in the long run.

5.6.1 *Entry informed by economic viability*

Although the respondents from the mobile telecommunications company segment categorically and respectively stated that much as their companies do not see an economic attraction to enter the Swazi market, at least at the time the research was conducted, the general consensus drawn from the discussions was that, with proper structures, including proper and relevant legislation, conducive regulatory environment, suitable incentives and other competition ingredients a second operator may thrive and be profitable in the long run. Seven of the respondents in the study believe that a second operator may achieve a healthy bottom line in the long run if proper structures are in place. One of the pro-competition structures suggested by five of the respondents is infrastructure sharing.

The five respondents suggested that before a second operator is introduced the infrastructure currently owned by MTN-Swaziland and SPTC should be handed

over to a third party to operate and rent out to participating mobile telecommunications, this the respondents felt would be help lessen the advantage MTN-Swaziland has already. One of the respondents though acknowledging that infrastructure sharing would be a good move, was sceptical about whether MTN-Swaziland would let go off what he termed their flagship and competitive advantage. The respondents felt that it would be the onus of the regulator to ensure that such a move is adopted. This is in line with Meddour et al. (2011)'s suggestion that for the benefits of infrastructure sharing to be materially exploited, operators would have to sacrifice their infrastructural control and allow competition to be on service offerings.

5.6.2 *Entry Informed by company's strategic direction*

Another theme that emerged in the discussion of the viability of a new entrant is that a company may move into the Swazi market for strategic reasons, more than those of profitability. The common denominator extracted from the discussions is that, strategy in this context may be twofold; firstly a company may move into Swaziland because of a geographic footprint the company may be pursuing or because its strategy is to target those markets not covered by incumbents, markets such as those in the rural areas.

An example of Vodacom South Africa was made, a company that has operations in South Africa, Lesotho and Mozambique, among other countries in Africa. These countries are within close proximity to Swaziland, it was therefore felt that a move into Swaziland would not be a costly one for Vodacom or other providers in the region. Over and above the proximity argument it was felt that a company may move to capture an untapped market that had either been neglected by MTN-Swaziland or a market where MTN-Swaziland is not able to effectively support. One respondent, while stressing the point the point of why a second operator can thrive given the current situation in Swaziland, noted the existence of a gap that MTN-Swaziland fails to address, for instance poor reception in some parts and the high rate of dropped calls in others. This gap,

she noted, would be what the prospective operator would leverage on as a mode of entry.

5.7 Competition, innovation and pricing of telecommunications services

The findings reveal a substantial congruency between what the bulk of literature reviewed stands for, in the issues of competition, its effect on innovation, firm productivity and the pricing of telecommunications services. All respondents seem to agree with Matthews (2002)'s assertion that competition is indeed an ordering phenomenon in society. One respondent decried the poor quality of service as offered by MTN-Swaziland in terms of bad reception, especially in areas not so far from the major cities, the rate of drop calls, etc. She suggested that it is a situation that competition can '*order*' and correct.

Vickers (1995)and Li and Xu (2002) confirm what the findings have revealed by asserting that internal firm efficiency is greatly improved by the introduction of competition and that competition is associated with a relatively higher factor of productivity. This concept was affirmed by the respondent from MTN-Swaziland who conceded that competition would help employees strive to be more productive as opposed to the complacency that is currently aplenty among the members of staff.

The issue of the role of the regulator, prominently featuring in every discussion, also came out when this issue was under this discussion. The findings revealed that the regulator should not only ensure that competition is introduced but should make it a point that capable and reputable companies are lured into the Swazi market. Respondents suggested that the regulator should put all incentivising mechanisms out in the open when an invitation for another player is made. An example of an incentivising scheme the findings suggested, was the use of asymmetric regulations to neutralise the asymmetries MTN-Swaziland may have over an entrant. The findings revealed that asymmetric

price regulation should also be considered by the regulator. For instance, the termination rates for both the incumbent and entrant are regulated differently.

Another theme of paramount importance was the discussion on the mode of entry for the prospective entrant. The findings reveal how competition is introduced, especially considering the amount of time MTN-Swaziland has been operating in monopoly was crucial. However, the MVNO model did not come out to be a plausible option from a majority of the respondents with the feeling that it would just be an extension of the existing monopoly since it would have to partner with MTN-Swaziland. An MVNO would typically roam on MTN-Swaziland's infrastructure and source wholesale minutes and resell to a specialised set of users.

Contrary to the studies by Kim and Park (2004) and Ulset (2002) on the usefulness of an MVNO in the context of enhancing competition, the findings reveal that it would not necessarily be the case with Swaziland. The parallel drawn between the findings and the literature studied is that, as suggested by Meddour, Rasheed, and Gourhant (2011), for the utility of an MVNO to be fully explorable, the model has to be in markets where the network has been substantially rolled out. The contrast between the findings and literature are not glaring because of the situation in Swaziland in terms of network coverage. If anything, MTN-Swaziland still has limited capacity.

In line with the literature reviewed, the findings reveal that the introduction of competition in the mobile telecommunications sector may improve innovations, technological and otherwise in Swaziland. The findings further reveal that competition may be used as a vehicle to bridge the technological gap Swaziland is lagging in at a regional and international level. The fundamental lack of e-government services, m-development and other related services were attributed to the lack of competition in the telecommunications sector in Swaziland.

The findings further reveal that competition in the mobile telecommunications markets does drive prices down. It was established that although the pricing of telecommunications services had many other inputs, competition was a major

determinant on the pricing of the same. As noted by Wallsten (2004) monopolies are not motivated to price their products and services lower than firms in a competitive market. The findings (from the respondents) reveal that the MTN-Swaziland's voice and data tariffs were higher because of it being a monopoly.

The reduction of telecommunications prices brought about by competition will not necessarily mean that Swaziland will forego the quality of services being offered thereof. In line with the observation by Boylaud and Nicoletti (2000), the findings show that instead, while companies are in pursuit of a greater market share, quality is one of the aspects on which the companies would want to differentiate.

As Laffont and Tirole (2001) suggest, the findings reveal that if competition were to be introduced in Swaziland, operators will lower prices, increase innovation initiatives among other benefits. Through the semi-structured interviews conducted, the study was able to confirm that MTN-Swaziland may raise prices higher than what would generally be accepted because there is no inherent fear of losing customers to competition.

5.8 The Role of the regulator

The role of the regulator came out as the most critical theme throughout the discussions. The findings reveal that, (if) competition is to be ushered in, in the mobile telecommunication sector, the onus primarily rested on the regulator. The regulator was cited as the most fundamental entity that should not only ensure a smooth transition from the current monopoly but also ensure that the right operator is awarded the licence to operate and be incentivised to strive despite the current odds as presented by the extended exclusivity MTN-Swaziland enjoys. The findings reveal that the regulator should not only start being active after an operator has been awarded a licence, but should make sure that the field is attractive enough to lure good operators and level enough for fair play.

Throughout the whole literature and the discussions from the semi-structured interviews, the common issue emerging strongly was that, although competition is good and that Swaziland needs and was ready for competition, a proper regulatory framework was requisite. Atiyas and Doğan (2007), in their study of the Turkish mobile industry - which at the time was constituted of two players that had substantially rolled infrastructure across Turkey - suggest that for effective competition, the authorites had to design proper regulatory tools that would address interconnection, national roaming and number portabilty, among others. This, Atiyas and Doğan (2007), believe would neutralise the first mover advantages MTN-Swaziland enjoys and may continue enjoying with the introduction of another player.

What also emerged from the interviews is that Swaziland was at a better advantage since countries have undergone a whole regulatory revolution in the past years and that Swaziland did not need to reinvent the wheel but to learn from experiences in other countries and build on those. Another respondent whose company has operations in Lesotho, a Least Developed Country, with two operators, suggested that the regulator in Swaziland can learn from the one in Lesotho whose work was applauded by the company in ensuring that the sector ran smoothly.

As observed by Frisanco, Tafertshofer, Lurin, and Ang (2008); Kibilda and DaSilva (2013) on mobile telecommunications companies, MTN-Swazilands' business model is also one that posesses strong traits of vertical integration. MTN-Swaziland to a greater degree controls every aspect of their supply chain. This may prove to be a major hindrance to competition if unmonitored and unregulated. The current situation would mean that a new entrant would have to compete based on facilities which would obviously mean that MTN-Swaziland would have the upper hand, for years.

The findings reveal that for maximum competition, the operators in Swaziland should compete and differentiate themselves based on their service offerings. Meddour et al., (2011) and other writers in literature suggested that standalone

operators should sacrifice control over their network for appropriate competition benefits to manifest themselves. The respondents suggested that prior to the issuance of a new licence; the regulator should ensure that infrastructure is transferred to a third party.

5.9 Conclusion

The research employed a two-pronged approach in addressing the research questions. The first approach involved comparing pricing across the SADC countries, so as to study the pricing of mobile telecommunications in Swaziland as given by MTN-Swaziland, a monopoly, against the other countries in the SADC region. Swaziland remains the only country in the region whose mobile telecommunications market is a monopoly. The other countries in this region at the very least, have two operators in this sector. The second approach sought to provide a corrective recourse if the pricing exhibited some form of distortions due to the monopolistic influence.

Although not the worst performing market, Swaziland is also not among the best performers in the region in the context of mobile telecommunications, their pricing and adoption. In the context of competition and telecommunications pricing, the study was able to establish to a much greater extent, parallels with the discussions under the literature review section.

The literature review did not however suggest or generate expectations that Swaziland would have emerged as the worst performer in the pricing of mobile telecommunications in the region. This is because, as the literature studied revealed, there are a lot of country-specific inputs and factors that affect the general pricing of telecommunications services, such as; population density, income levels, technological advances, years of incumbency operations, among others.

In a perfect world, Swaziland's pricing would have been comparable to other economies that had similar profiles and demographics as Swaziland. However

due to the absence of perfect comparability, the SADC countries provided a better option. Despite them being located in the same geographic region, the disparities are enormous. A case in point is the difference between the highest 2013 GNI p.c. and the lowest. In 2013 Malawi had a GNI p.c. of US$ 270 while Seychelles had a GNI p.c. of US$12,530. Mauritius, on the other hand, had a GNI p.c. of US$ 9300.

The application of qualitative content-analysis as per Elo and Kyngäs (2008)'s model to the interviews unearthed a wealth of insights within the context of mobile telecommunications, particularly with the Swaziland situation.

One of the main themes that emerged was that Swaziland should not be left as a monopoly on grounds that it is natural monopoly; the findings concurred with writers in the literature review such as Gruber (2001, p. 2) who in reference to the natural monopoly argument said; "For many decades the design of market structure in the telecommunications industry used to rely on the natural monopoly argument. For mobile telecommunications it was already weak from the outset and has become completely untenable".

Other themes that came out of the content analysis were ways in which competition can be encouraged, sustained and fully exploited especially in the context of national economic development. The role of the regulator, in this regard, also came out strongly from ensuring that a suitable operator is lured and further ensuring a proper transition from the market's current state to the desired competitive level.

6 CHAPTER 6 CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

The purpose of this chapter is to provide a summary of the fundamental conclusions based on the findings of the study, propose recommendations and make suggestions for future research. The first section of this chapter discusses the conclusions, a discussion that subsequently leads to the proposal of recommendations and finally provides suggestions for further research.

6.2 Conclusions of the study

As discussed in Chapter 1, the main purpose of the study was to investigate monopolistic pricing of telecommunications in Swaziland, focusing on the mobile telecommunications sector. Studies and individual countries over the years have more than affirmed the causal (chain) relationship between telecommunications and economic growth. However, as other writers suggest, such benefits may not be fully realised if the telecommunications playing field is not evened out and a proper trajectory of the sector not clearly defined with the necessary elements for growth. One of such salient elements in the telecommunications space is competition. Studies have also revealed that not only does competition drive prices down, other benefits of competition include catalysing national innovation and progress, Porter (1999, p. 842) argues that, “telecommunications, transportation, energy and other sectors, all provide vivid examples of the power of competition to unleash innovation and drive unheard rates of progress… no company and no country can afford to ignore the need to compete”.

As stated earlier, the main aim of the study was to provide an analysis of the mobile telecommunications pricing in Swaziland and then further study the prospects of introducing competition in the sector. Through the use of ITU-sourced data over the periods between and including 2008 and 2012, comparing with other countries in the region the study’s main conclusion in the

pricing of mobile telecommunications service in Swaziland is that although Swaziland by virtue of being the only monopoly in the sector, is not particularly the most expensive in the region, nor does it rank with the cheapest countries. It is however seemingly gravitating towards being ranked with the most expensive countries, when studying the data from in the study.

From the comparison of raw tariffs between the years 2008 and 2012, both peak and off peak on net, it can be concluded that Swaziland is one of the worst performers, after being positioned out of the top five (worse performing bracket) only once in 2008, it is a clear indication that the pricing of mobile telecommunications is not at its best in Swaziland. When the affordability aspect was introduced for 2013 prices, Swaziland falls halfway in the ranking. The conclusion that can further be drawn from these statistics is that despite the Swazi prices not being extremely high, comparatively, by all measure though, they are not the lowest of prices. This dimension, as the literature has revealed, can be corrected by the introduction of competition in the country.

From the study of the SADC mobile telecommunications adoption rate, it is evident that Swaziland will continue to be outshone by other countries. If the current status quo remains as is, however, this is not to suggest that preceding trends are predictive of future projections in the context of mobile telecommunications adoption in the region. Swaziland is lagging behind in terms of mobile telecommunications adoption. Over the decade between the years 2004 and 2013; Swaziland was leapfrogged by three other economies in the region over this decade from being ranked sixth in 2004 to ninth in 2013. The main conclusion that may be drawn in this regard is that although other elements may also have been at play, the lack of competition in the sector also explains the slow uptake. A case was made of Botswana, a country who issued out (two) mobile licences on the same year Swaziland did, in 1998, Botswana is seen to be making much more significant strides compared to Swaziland.

Although as discussed in the study, the measure of '*mobile-cellular per 100 inhabitants'* used may not necessarily reflect a true picture of the adoption rate

of mobile telecommunications services, they do however suffice in the study of telecommunications growth.

Following on the fact that the findings do not portray a good picture on the issue of pricing of telecommunications services in Swaziland, something which literature would attribute to the lack of competition, the prospects of introducing another player in the market were studied.

With respect to MTN-Swaziland being granted a 10-year-exclusivity period, from the interviews, the overarching conclusion in this regard is that, it was a bad policy decision by the government of Swaziland. The research findings revealed that it could have been an oversight on government's part which may have been motivated by the justification that through the longer exclusivity period, MTN-Swaziland would be able to recoup start-up costs.

Despite the barriers to entry that may seem to have been brought about by the monopoly and the extended exclusivity period by MTN-Swaziland, the findings do reveal that the situation can still (and needs to) be corrected. There is a need for the market to be opened up to yet another player, a sentiment that completely dismisses the notion that MTN-Swaziland may be a natural monopoly, something which is in agreement with the literature studied, that the concept of natural monopolies was non-existent in mobile telecommunications.

While discussing the different modes of entry that may be explored while in pursuit of introducing competition into the market, the main conclusion that can be drawn is that a proper mobile operator has to be introduced for competition to be effective. At the very least, a partnership in the form of a merger with SPTC would have to be forged. The findings revealed that the MVNO business model would not necessarily be the suitable vehicle in this pursuit, not at the current stage at least.

Another important conclusion drawn from the study is that without a well-functioning regulatory body, attempts to usher in and sustain competition would be futile. The study coincides with the recent establishment of a regulatory body

whose main mandate is to ensure that the market is performing at its optimum level. Throughout all the interview sessions the prevailing theme from all respondents was the need for a capable and independent regulatory body. One of the respondents suggested strategic partnerships with other regional regulators and to learn best practices from the same.

6.3 Recommendations

From the results of the tariff data comparison done between Swaziland and the rest of the SADC countries to the perspicuous semi-structured interviews findings and also drawing from the substantial congruence that all these findings shared with the literature reviewed, it is clear how the mobile telecommunications sector in Swaziland should be projected going forward. Elements of competition should be introduced into the sector to enhance and fully explore economic development leverage.

Furthermore, proper incentivising schemes should be available for new entrants, not only to ensure that the new entrants thrive but that they also remain profitable. Such schemes include putting in place systems that would ensure that asymmetries that would exist between MTN-Swaziland and a new entrant would be neutralised, this speaks to; for instance, number portability and interconnection regulation such asymmetric termination costs.

It is also recommended that since MTN-Swaziland is at an advanced stage in terms of infrastructural rollout across the country, MTN-Swaziland should surrender its grip on infrastructure (through for instance, selling it to a third party) and have firms compete on service offerings rather than facility (infrastructure) competition. This effectively means that a third party should be in charge of the physical infrastructure network and in turn rent it out to participating firms.

6.4 Suggestions for further research

The countries used in the comparison were confined to those within the SADC region. However, as has been noted in the study, geographic proximity does not necessarily imply that the demographics would be similar. This is evident from the wide range of GNI p.c., figures which range from USD 270 to 12,530. It is therefore suggested that future research should compare countries with similar GNI p.c. and population densities, among others. Finding perfect matches to compare with would be ideal but researchers should also be fully cognisant of the fact that there are always going to be some trade-offs, for instance the GNI p.c. figures may be similar but the institutional structures from country to country may be very different. These, as other writers allude, also have an impact on the rollout and pricing of services in countries.

One other recommendation for further research is a national study that would investigate how MTN-Swaziland - a monopoly - and its quality of service has contributed to the economic development of Swaziland, taking into account for instance, the two-way causal relationship that exists between telecommunications and economic development. This study would for instance, investigate economic development factors such as employment contribution at a macro level and further study issues such as income patterns and purchasing power for MTN-Swaziland services at a micro level.

REFERENCES

Abraham, R. (2006). *Mobile phones and economic development: Evidence from the fishing industry in India*. Paper presented at the Information and Communication Technologies and Development, 2006. ICTD'06. International Conference on.

Abu, S. T., & Tsuji, M. (2010). The determinants of the global mobile telephone deployment: An empirical analysis. *Informatica Economica, 14*(3), 21-33.

Ahn, H., & Lee, M.-H. (1999). An econometric analysis of the demand for access to mobile telephone networks. *Information Economics and Policy*, 11(3), 297-305.

Aker, J., & Mbiti, I. (2010). *Mobile phones and economic development in Africa*. Center for Global Development Working Paper(211).

Alleman, J., Hunt, C., Mueller, D., Rappoport, P., & Taylor, L. (1994). *Telecommunications and economic development: Empirical evidence from Southern Africa.* Paper presented at the 10th biennial international telecommunications society meeting, Sydney.

Armstrong, M., & Wright, J. (2009). Mobile Call Termination*. *The Economic Journal, 119*(538), F270-F307.

Atiyas, İ., & Doğan, P. (2007). When good intentions are not enough: Sequential entry and competition in the Turkish mobile industry. *Telecommunications Policy, 31*(8), 502-523.

Baer, W. S. (1995). Telecommunications infrastructure competition: The costs of delay. *Telecommunications policy, 19*(5), 351-363.

Barbour, E. S. (1997). Privatization and Strategic Alliances in Latin American Telecommunications: Legal and Contractual Issues that impact the Business plan. *NAFTA: Law & Bus. Rev. Am., 3*, 65.

Barrantes, R., & Galperin, H. (2008). Can the poor afford mobile telephony? Evidence from Latin America. *Telecommunications Policy, 32*(8), 521-530.

Bayer, J. (2010). Customer segmentation in the telecommunications industry. *Journal of Database Marketing & Customer Strategy Management, 17*(3), 247-256.

Boylaud, O., & Nicoletti, G. (2000). *Regulation, market structure and performance in telecommunications*. OECD Economics Department Working Paper No. 237. Available at SSRN: http://ssrn.com/abstract=238203 or http://dx.doi.org/10.2139/ssrn.238203

Buys, P., Dasgupta, S., Thomas, T. S., & Wheeler, D. (2009). Determinants of a digital divide in Sub-Saharan Africa: A spatial econometric analysis of cell phone coverage. *World Development, 37*(9), 1494-1505.

Castro Martins, M. L. (2003). International differences in telecommunications demand. *Information Economics and Policy, 15*(3), 291-303.

Choi, S.-K., Lee, M.-H., & Chung, G.-H. (2001). Competition in Korean mobile telecommunications market: business strategy and regulatory environment. *Telecommunications Policy, 25*(1), 125-138.

Clemons, E. K., & Weber, B. W. (1994). Segmentation, differentiation, and flexible pricing: experiences with information technology and segment-tailored strategies. *Journal of Management Information Systems*, 9-36.

Collier, D. (1993). The comparative method. POLITICAL SCIENCE: THE STATE OF DISCIPLINE II, Ada W. Finifter, ed., American Political Science Association.

Cronin, F. J., Parker, E. B., Colleran, E. K., & Gold, M. A. (1991). Telecommunications infrastructure and economic growth: An analysis of causality. *Telecommunications policy, 15*(6), 529-535.

Cronin, F. J., Parker, E. B., Colleran, E. K., & Gold, M. A. (1993). Telecommunications infrastructure investment and economic development. *Telecommunications policy, 17*(6), 415-430.

Depoorter, B. W. (1999). Regulation of natural monopoly. *Encyclopedia of Law and Economics,* Part V-Regulation of contracts.

Dey, I. (2003). Qualitative data analysis: A user friendly guide for social scientists. London: Routledge.

Dholakia, R. R., & Harlam, B. (1994). Telecommunications and economic development: Econometric analysis of the US experience. *Telecommunications policy, 18*(6), 470-477.

DiLorenzo, T. J. (1996). The myth of natural monopoly. *The Review of Austrian Economics, 9*(2), 43-58.

Dowd, K. (1992). Is Banking a Natural Monopoly? *Kyklos, 45*(3), 379-392.

Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of advanced nursing, 62*(1), 107-115.

Ezziane, Z. (2005). Charging and pricing challenges for 3G systems. *Communications Surveys & Tutorials, IEEE, 7*(4), 58-68.

Fink, C., Mattoo, A., & Rathindran, R. (2002). An assessment of telecommunications reform in developing countries. *World Bank Policy Research Working Paper*(2909).

Fink, C., Mattoo, A., & Rathindran, R. (2003). An assessment of telecommunications reform in developing countries. *Information Economics and Policy, 15*(4), 443-466.

Forestier, E., Grace, J., & Kenny, C. (2002). Can information and communication technologies be pro-poor? *Telecommunications policy, 26*(11), 623-646.

Forsyth, J., Gupta, S., Haldar, S., Kaul, A., & Kettle, K. (1999). A segmentation you can act on. *The McKinsey Quarterly*, 7.

Frisanco, T., Tafertshofer, P., Lurin, P., & Ang, R. (2008). *Infrastructure sharing and shared operations for mobile network operators from a deployment and operations view.* Paper presented at the Network Operations and Management Symposium, 2008. NOMS 2008. IEEE.

Gala, P. (2008). Real exchange rate levels and economic development: theoretical analysis and econometric evidence. *Cambridge Journal of economics, 32*(2), 273-288.

Galal, A., & Nauriyal, B. (1995). Regulating telecommunications in developing countries: outcomes, incentives, and commitment. Washington, DC: The World Bank.

Ganesh, S., & Zorn, T. E. (2011). Running the race: Competition discourse and broadband growth in Aotearoa New Zealand. *Media, Culture & Society, 33*(5), 725-742.

Garbacz, C., & Thompson Jr, H. G. (2007). Demand for telecommunication services in developing countries. *Telecommunications policy, 31*(5), 276-289.

Gibbert, M., Ruigrok, W., & Wicki, B. (2008). What passes as a rigorous case study? *Strategic management journal, 29*(13), 1465-1474.

Gillen, D. (1994). Peak Pricing Strategies in Transportation; Utilities; and Telecommunications. *Curbing Gridlock: Commissioned papers, 2*, 115.

Graneheim, U. H., & Lundman, B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse education today, 24*(2), 105-112.

Gruber, H. (1999). An investment view of mobile telecommunications in the European Union. *Telecommunications Policy, 23*(7), 521-538.

Gruber, H. (2001). Competition and innovation: The diffusion of mobile telecommunications in Central and Eastern Europe. *Information Economics and Policy, 13*(1), 19-34.

Hammersley, M., & Atkinson, P. (2007). *Ethnography: Principles in practice.* London: Routledge.

Hausman, J. A., & Ros, A. J. (2012). Correcting the OECD's Erroneous Assessment of Telecomunications Competition in Mexico. *CPI Antitrust Chronicle*.

Hermalin, B. E. (1992). The effects of competition on executive behavior. *The RAND Journal of Economics*, 350-365.

Hoernig, S. (2007). On-net and off-net pricing on asymmetric telecommunications networks. *Information Economics and Policy, 19*(2), 171-188.

Höffler, F. (2007). Cost and benefits from infrastructure competition. Estimating welfare effects from broadband access competition. *Telecommunications Policy, 31*(6), 401-418.

Horn, H., Lang, H., & Lundgren, S. (1994). Competition, long run contracts and internal inefficiencies in firms. *European Economic Review, 38*(2), 213-233.

ITU. (2012). *Measuring the Information Society* (Vol. 4). Geneva Switzerland: Telecommunication Development Bureau.

ITU. (2013). YEARBOOK OF STATISTICS Telecommunication/ICT Indicators 2003-2012.

ITU. (2014). *Measuring the Information Society Report*. Geneva Switzerland.

ITU. (2014a). *ICT Facts and Figures 2014*. Available from ITU Retrieved 6 August 2014 http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx?utm_source=twitterfeed&utm_medium=twitter.co.jp

ITU. (2014b, 13 December 2013). ITU. Retrieved 8 June 2014, 2014, from http://www.google.com/publicdata/explore?ds=emi9ik86jcuic_&ctype=l&strail=false&bcs=d&nselm=h&met_y=i992&scale_y=lin&ind_y=false&rdim=world&idim=world:Earth&idim=country:JP:KR:FR:DE&ifdim=world&hl=en_US&dl=en&ind=false&icfg#!ctype=l&strail=false&bcs=d&nselm=h&met_y=i911&scale_y=lin&ind_y=false&rdim=country&idim=country:AO:BW:CD:LS:MG:MW:MU:MZ:NA:ZA:SZ:TZ:ZM:ZW:SC&ifdim=country&tstart=960436800000&tend=1339128000000&hl=en_US&dl=en&ind=false

ITU. (2014c, December, 2013). *Key Data Facts Of The World, ITU*. Retrieved 8 June 2014, 2014, from file:///C:/Users/Samkelo/Downloads/Mobile-wireless2012.pdf

ITU. (2014d). *Measuring the Information Society Report*. Retrieved 26 February 2015, 2015, from http://www.itu.int/en/ITU-D/Statistics/Documents/publications/mis2014/MIS2014_without_Annex_4.pdf

ITU. (2015, 4 March 2015). *About ITU.* Retrieved 24 February, 2015, from http://www.itu.int/en/about/Pages/history.aspx

Kaserman, D. L., & Mayo, J. W. (1994). Cross-Subsidies in Telecommunications: Roadblocks on the Road to More Intelligent Telephone Pricing. *Yale J. on Reg., 11*, 119.

Kelly, T. (2002, November 2002). COMPETITION POLICY IN TELECOMMUNICATIONS: BACKGROUND PAPER. Retrieved 10 October 2013, from http://www.itu.int/osg/spu/ni/competition/background/Final%20background%20paper.pdf

Kibilda, J., & DaSilva, L. A. (2013). *Efficient coverage through inter-operator infrastructure sharing in mobile networks.* Paper presented at the Wireless Days (WD), 2013 IFIP.

Kim, B. W., & Park, S. U. (2004). Determination of the optimal access charge for the mobile virtual network operator system. *ETRI journal, 26*(6), 665-668.

Klein, M. & Gray, P. (1997). Competition in Network Industries : Where and How to Introduce It. World Bank, Washington, DC.: World Bank. https://www.wdronline.worldbank.org/handle/10986/11597

Klemperer, P. (2006). *Network Effects and Switching Costs: two short essays for the new New* London: Palgrave.

Kwoka Jr, J. E. (1993). The effects of divestiture, privatization, and competition on productivity in US and UK telecommunications. *Review of Industrial Organization, 8*(1), 49-61.

Laffont, J. J., & Tirole, J. (2001). *Competition in telecommunications.* Boston: MIT press.

Lan, Y. (2001). Explosion of purchasing power parity. Working paper 01/2001. Perth: University of Western Australia, Dept. of Economics.

Levin, R. C., Cohen, W. M., & Mowery, D. C. (1985). R & D appropriability, opportunity, and market structure: new evidence on some Schumpeterian hypotheses. *The American Economic Review, 75*(2), 20-24.

Levy, B., & Spiller, P. T. (1994). Institutional Foundations of Regulatory Commitment: A Comparative Analysis of Telecommunications Regulation, The. *JL Econ. & Org., 10*, 201.

Li, W., & Xu, L. C. (2002). *The impact of privatization and competition in the telecommunications sector around the world*. Darden Business School Working paper No. 02-13 Available at SSRN: http://ssrn.com/abstract=364140or http://dx.doi.org/10.2139/ssrn.364140.

Li, W., & Xu, L. C. (2002). The political economy of privatization and competition: cross-country evidence from the telecommunications sector. *Journal of Comparative Economics, 30*(3), 439-462.

Lijphart, A. (1971). Comparative politics and the comparative method. *The American Political Science Review, 65*(3), 682-693.

Lijphart, A. (1975). II. the comparable-cases strategy in comparative research. *Comparative political studies, 8*(2), 158-177.

Littlechild, S. C. (2006). Mobile termination charges: calling party pays versus receiving party pays. *Telecommunications policy, 30*(5), 242-277.

Long, T., & Johnson, M. (2000). Rigour, reliability and validity in qualitative research. *Clinical effectiveness in nursing, 4*(1), 30-37.

Madden, G., & Coble-Neal, G. (2004). Economic determinants of global mobile telephony growth. *Information Economics and Policy, 16*(4), 519-534.

Madden, G. G. & Savage, S. J. (1999). Telecommunications productivity, catch-up and innovation. *Telecommunications Policy, 23*, pp. 65-81.

Martin, S. (1993). Endogenous firm efficiency in a Cournot principal-agent model. *Journal of Economic Theory, 59*(2), 445-450.

Matthews, R. (2002). Competition archetypes and creative imagination. *Journal of Organizational Change Management, 15*(5), 461-476.

Meddour, D.-E., Rasheed, T., & Gourhant, Y. (2011). On the role of infrastructure sharing for mobile network operators in emerging markets. *Computer Networks, 55*(7), 1576-1591.

Minges, M. (1999). Mobile cellular communications in the Southern African region. *Telecommunications Policy, 23*(7), 585-593.

Mitchell, B. M., & Vogelsang, I. (1991). *Telecommunications pricing: theory and practice.* Cambridge: Cambridge University Press.

Morse, J. M., Barrett, M., Mayan, M., Olson, K., & Spiers, J. (2008). Verification strategies for establishing reliability and validity in qualitative research. *International journal of qualitative methods, 1*(2), 13-22.

Mosca, M. (2006). *On the origins of the concept of natural monopoly*. Quaderni del Dipartimento di Scienze Economiche e Matematico-Statistiche dell'Università del Salento-Collana di Economia, 2006(92/45).

Mosca, M. (2008). On the origins of the concept of natural monopoly: Economies of scale and competition∗. *The European Journal of the History of Economic Thought, 15*(2), 317-353.

MTN, S. (2013, 9 August 2013). *MTN Home*. Retrieved 9 August 2013, from http://www.mtn.co.za/AboutMTN/Pages/MTNGroup.aspx

Noll, R. (1999). Telecommunications reform in developing countries. *AEI-Brookings Joint Center for Regulatory Studies Working Paper*(99-11).

OECD. (2014). *OECD telecommunication price baskets*. Retrieved 12 June 2014, 2014, from http://www.oecd.org/sti/broadband/price-baskets.htm#

Peitz, M. (2003). On access pricing in telecoms: theory and European practice. *Telecommunications Policy, 27*(10), 729-740.

Peitz, M. (2005). Asymmetric access price regulation in telecommunications markets. *European Economic Review, 49*(2), 341-358.

Petrazzini, B. (1996). *Global Telecom Talks: A Trillion Dollar Deal* (Vol. 44): Peterson Institute.

Porter, M. E. (1999). Michael Porter on competition. *Antitrust Bull., 44*, 841.

Ragin, C. C. (1989). *The comparative method: Moving beyond qualitative and quantitative strategies*. Los Angeles: University of California Pr.

Ragin, C. C. (1994). Introduction to qualitative comparative analysis. *The comparative political economy of the welfare state, 299*, 300-309.

Rodini, M., Ward, M. R., & Woroch, G. A. (2003). Going mobile: substitutability between fixed and mobile access. *Telecommunications policy, 27*(5), 457-476.

Röller, L.-H., & Waverman, L. (2001). Telecommunications infrastructure and economic development: A simultaneous approach. *American Economic Review*, 909-923.

Ros, A. J. (1999). Does ownership or competition matter? The effects of telecommunications reform on network expansion and efficiency. *Journal of Regulatory Economics, 15*(1), 65-92.

Sheppard, E. (2000). Competition in space and between places. *A companion to economic geography*, 169-186.

Sibandze, S. (2013, 25 October 2013). FIXED WIRELESS PRODUCTS A SOLUTION TO SWAZILAND'S ECONOMIC GROWTH. *Times of Swaziland* Retrieved from http://www.times.co.sz/business/92611-fixed-wireless-products-a-solution-to-swaziland%E2%80%99s-economic-growt.html

SPTC. (2012). *Annual Report 2012*. Mbabane Swaziland Swaziland Post and Telecoms.

Staranczak, G. A., Sepulveda, E. R., Dilworth, P. A., & Shaikh, S. A. (1994). Industry structure, productivity and international competitiveness: The case of telecommunications. *Information Economics and Policy, 6*(2), 121-142.

Stork, C., & Gillwald, A. (2014). Link between termination rates and retail prices in Namibia, Kenya and South Africa. *Telecommunications Policy, 38*(8), 783-797.

Sutherland, E. (2009). Counting mobile phones, SIM cards & customers. *Sim Cards & Customers (September 5, 2009)*.

Sutherland, E. (2014). Telecommunications in the Kingdom of Swaziland. *Communicatio, 40*(4), 376-399.

Telecoms, A. (2015). *Africa and Middle East Telecom Week*. Retrieved 01 February 2015, 2015, from http://www.africantelecomsnews.com/

Ulset, S. (2002). Mobile virtual network operators: a strategic transaction cost analysis of preliminary experiences. *Telecommunications Policy, 26*(9), 537-549.

Valletti, T. M., & Cave, M. (1998). Competition in UK mobile communications. *Telecommunications policy, 22*(2), 109-131.

Vickers, J. (1995). Concepts of competition. *Oxford Economic Papers*, 1-23.

Wallsten, S. (2003). Privatizing Monopolies in Developing Countries: The Real Effects of Exclusivity Periods in Telecommunications. *AEI-Brookings Joint Center for Regulatory Economics, working paper*, 03-17.

Wallsten, S. J. (2004). Privatizing monopolies in developing countries: the real effects of exclusivity periods in telecommunications. *Journal of Regulatory Economics, 26*(3), 303-320.

Wallsten, S. J. (2001). An econometric analysis of telecom competition, privatization, and regulation in Africa and Latin America. *The Journal of industrial economics, 49*(1), 1-19.

Wallsten, S. J. (2004). Privatizing monopolies in developing countries: the real effects of exclusivity periods in telecommunications. *Journal of Regulatory Economics, 26*(3), 303-320.

Wellenius, B. (2000). *Extending Telecommunications beyond the Market: Toward universal service in competitive environments*.

WorldBank. (2013, 15 August 2013). *Swaziland Data*. Retrieved 15 August, 2013, from http://data.worldbank.org/country/swaziland

APPENDIX A:

OECD BASKET METHODOLOGY

	To Fixed	On-net	Off-net	TOTAL	Call distribution by time of day (%)
Call Distribution (%)	17	56	26	100	100
Calls	5.2	16.9	7.9	30	
Peak	2.4	7.8	3.6	30	
Off-Peak	1.5	4.9	2.3	8.7	29
Weekend	1.3	4.2	2	7.5	25
Duration (minutes per call)	2	1.6	1.7		
Duration (total minutes of calls)	10.4	27	13.4	50.9	N/A
Peak	4.8	12.4	6.2	23.4	46
Off-peak	3	7.8	3.9	14.8	29
Weekend	2.6	6.8	3.4	12.7	25
Calls	30 Calls per month				
SMS	100 sms per month (50 on net, 50 off net)				

Source: (ITU, 2014d) based on the OECD Basket methodology

APPENDIX B:

CONSISTENCY MATRIX

Monopoly pricing of telecommunications services in Swaziland					
Sub-problem	**Literature Review**	**Hypotheses or Propositions or Research questions**	**Source of data**	**Type of data**	**Analysis**

Monopoly pricing of telecommunications services in Swaziland					
Sub-problem	**Literature Review**	**Hypotheses or Propositions or Research questions**	**Source of data**	**Type of data**	**Analysis**
The main problem was to analyse the effects of monopoly on the pricing of telecommunication services with particular focus on the mobile telecom services and whether or not other players can enter the market and effectively compete	Aker, J., & Mbiti, I. (2010) Dholakia, R. R., & Harlam, B. (1994) Röller, L.-H., & Waverman, L. (2001) Cronin, F. J., Parker, E. B., Colleran, E. K., & Gold, M. A. (1991) Abraham, R. (2006) Forestier, E., Grace, J., & Kenny, C. (2002)	Prospects of other players entering the Swazi mobile telecommunication market or if MTN-Swaziland is a natural monopoly	Interview questions and schedule	Transcribed interviews	Content Analysis

Monopoly pricing of telecommunications services in Swaziland					
Sub-problem	**Literature Review**	**Hypotheses or Propositions or Research questions**	**Source of data**	**Type of data**	**Analysis**
The first sub-problem will be to analyse the effects of monopoly on the pricing of mobile telecom services.	. Fink, C., Mattoo, A., & Rathindran, R. (2002). Boylaud, O., & Nicoletti, G. (2000). Petrazzini, B. (1996)	Assess the effects of monopolistic operations on the pricing of mobile telecommunications services in Swaziland.	Data sourced from ITU electronic Database	Electronic, numerical	Comparative

Monopoly pricing of telecommunications services in Swaziland					
Sub-problem	**Literature Review**	**Hypotheses or Propositions or Research questions**	**Source of data**	**Type of data**	**Analysis**
The second sub-problem was to investigate the prospects of other players entering the Swazi mobile telecommunication market or if MTN-Swaziland is a natural monopoly.	Li, W., & Xu, L. C. (2002) Wallsten, S. J. (2004) Wellenius, B. (2000) Barbour, E. S. (1997) Noll, R. (1999)	Are the any effects of exclusivity periods granted to Telecommunications providers	Interviews	Transcribed Interviews	Content Analysis

APPENDIX C:

RESEARCH INSTRUMENT

SEMI STRUCTURED INTERVIEW GUIDE – Used for Vodacom, other interview guides followed the same structure with some customisation based on the respondent and the organisation so represented.

1. Prior to the awarding of MTN-Swaziland the 10-year exclusivity licence that commenced in 1998, the Swazi government had opened up the invitation to mobile telecom providers, to your knowledge did Vodacom respond to the invitation.
    a. MTN- Swaziland was subsequently granted a 10-year exclusivity license in 1998, which expired in 2008. How would you describe this decision by government with regards to the decision being a barrier to entry for prospective mobile telecoms providers in the country 15 years later?
2. What are the factors that your company considers before expanding to a different country, and how would you describe the reasons for not expanding into Swaziland, a neighbouring country especially after the initial contractual period granted to MTN elapsed?
3. Contrary to widely held perceptions that the size of a market is a key consideration for a mobile operator to invest in a country – how would you explain the fact that Lesotho has two operators?
4. Do you subscribe to the concept of natural monopoly in mobile telecommunications; would you regard MTN – Swaziland's monopoly as being a natural one?
5. It is commonly accepted that competition leads to reduced tariffs. However, South Africa in spite of having 4 operators still has comparatively higher voice and data tariffs – how would you explain the reasons for the comparatively higher prices in SA? The entry of Cell C

and 8ta has not material resulted in reduced prices in South Africa – How would you explain that.

6. Most African countries still retain state owned fixed line operators and this has been cited as hindrance to competition – what is your opinion?
7. Is the fixed line business model still relevant in the context of higher mobile penetration?
8. How would you explain the impact of infrastructure sharing as an enabler of competition?
9. How would you describe the impact of the MVNO model (Mobile Virtual Network Operator) on prices and competition?
10. How would you describe the key considerations that Vodacom takes into account when developing a pricing model on both voice and data?
11. In what ways has competition encouraged innovation in your company if at all?
12. From your experience would you say competition is a catalyst for national economic development and firm productivity?
13. Apart from the direct economic benefits enjoyed by the countries in which you operate from your company and its peers what other initiatives do you have to help with national economic development
14. It is reported that when your took on the leadership position as Managing Director of Vodacom Lesotho, the subscriber base stood at 270,000, a figure that was also reported to have more than doubled by the time you left for the DRC, would you attribute such an increase to customers switching from Econet Telecom or new markets.
15. How would you describe the quality of the independent regulators in Sub-Saharan Africa both in terms of skill and the promulgation of progressive legislation?

APPENDIX D

TRANSCRIBED INTERVIEW EXAMPLE

Interviewer: Thank you once again Godfrey for your availability, I mean I know your schedule is a tight one and like we have alluded to, you're the best person for this kind of task at hand. Godfrey Mbingo is the Managing Director Vodacom, DRC and formerly Managing Director of Vodacom Lesotho. He has vast experience working in South Africa as well making him the most ideal person for this particular task. So maybe one thing that we have to do is to confirm that this is an MBA research so it's governed by the WITS ethical framework so whatever we discuss will be solely for the research and if there's anything beyond that your consent would duly be sought. And maybe getting onto the questions, this is just a guide we may deviate from the guide we may move in whatever direction, we may take it to whatever direction you feel comfortable with, but this is just a guide that we'd probably have to go by. And then getting on to the questions, prior to the awarding of the MTN exclusivity license are you well aware of what happened there and the Swaziland government had obviously opened invitations to all providers, to your knowledge did Vodacom respond to the invitation?

Interviewee: Thank you Samkelo, as I said my name is Godfrey from Vodacom, I've been there, now it's my 8th year, I'm going for 9. Going to the issue of MTN's exclusivity lapsing and the opportunity opening up. I am not sure if we actually saw that, but from a Vodacom perspective we started enquiring when we heard that the license was expiring and I was actually one of the guys who was working on the project. We started enquiring I think in 2007 and we had opportunities to meet with the regulator, Mr Nathi Dlamini who was also the CEO of SPTC. It was kind of ironic in the sense that the regulator was also the player so that made it a bit complicated for us but we had some really constructive discussions. So when the government opened up a bit later, formally opened the invitation, I do not think we participated because from the

early discussions we had we realised that the opportunity has significantly shrunk and if you have to prioritise expansion opportunities that Vodacom has, we realised that Vodacom going to Swaziland was not supposed to be a top priority for us.

Interviewer: And then thank you for that response but like rolling back to '98, to you knowledge, had the application been made before it was awarded to...

Interviewee: Ya, actually Vodacom applied together with MTN and actually Vodacom lost the license to MTN. Yes I know pretty well about that one. Because it's interesting the person who was running Vodacom international by then was our Deputy CEO his name was Bambaphansi Andrew Mthembu and he's actually he's a South Africa-Swazi and he had been educated in Swaziland so he knew the environment there pretty well as well. But Vodacom lost the license to Swaziland MTN for whatever reasons Swaziland decided to basically have a monopoly as opposed to having multiple players in the market.

Interviewer: So post the ten year period, you then as Vodacom think it wouldn't be a viable decision to expand to Swaziland

Interviewee: Yes it is not, it is not because you look at Swaziland its one million people. You look at after 10 years MTN had penetrated roughly two thirds of the market so you were left with roughly a third and if you look at the third that you were left with, it's the least economically viable so you can't build a network just for three hundred and something thousand people. We know that people are going to switch from Vodacom to MTN but you need to give them very, very compelling reasons to switch. And the switching costs from the Vodacom perspective would be too high so again if there were no other markets or there were no Uganda's, there no Nigeria's, there were no Madagascar's and there were no Ghana's and so on and so forth we would have gone to Swaziland but this thing boils down to prioritization so that's why we couldn't go to Swaziland.

Interviewer: Because there's a whole lot of things that have taken place, well one of them we've talked about being the expiry of the exclusivity licence and

they've also set up a regulator, an independent regulator because previously it was with SPTC as we have alluded to so now it is with the they are still trying, it's not fully fledged but they are still trying so I think without necessarily pre-empting things there would probably be policies and legislation that would actually would really encourage competition and probably that would really wouldn't make Vodacom per se a bad what's this, an entrant that would be at a disadvantage for instance we would talk about infrastructure sharing, we'd be talking about regulating your on- off net tariffs and the like. So even with those prospects in mind still Vodacom wouldn't really, although we are taking much...

Interviewee: For me Mr. Lushaba it's too little too late, too little too late. Again if I were to prioritize, think about this, like Vodacom now we are trying to buy Neotel, would I rather buy Neotel or would I go invest in Swaziland? I would go for Neotel; it may say it gives you a much, much better return. Are we saying we are never going to go to Swaziland, you can't say never, I'll give an example. What if the government decides to sell SPTC for us possibly that could be an interesting angle but again we need to make sure that the infrastructure we get there from the player, the price we pay for it, the revenue they make and the synergies that we can get with the network here in South Africa and also in Mozambique would make sense. I cannot see Vodacom going to Swaziland as a pure green field operator even if they make the legislation totally paralysed, pro competition, ya, I can't see it. At least now it's in the future.

Interviewer: I'm sorry Mr Mbingo we had to dwell on this one because I think it's really what's important with regards to the research. So even if for instance now South Africa there's this whole thing of providers shying away from owning infrastructure, they would rather offer services and then like have another agent that will be responsible for infrastructure so if a case would be for instance in Swaziland that US Towers, there's this company some, their infrastructure is sold to some independent body or independent company, still or maybe you'd then weigh your options from there?

Interviewee: Again the issue of selling your infrastructure to third parties. As your first choice you don't want to do that because when you own the infrastructure and you've paid off the infrastructure that becomes your competitive advantage. We've got almost 9000 sited here in South Africa. Somebody like Cell C have got maybe 4000 also, or 3000 sites I can't remember exactly so if Vodacom takes its towers and sells them say to American Towers or to Helios or whosoever, those guys would then say those 8000 towers Cell C we can also rent space for you. Telkom mobile, we can rent space for you. Ya, so then all of a sudden your coverage advantage is usurped. You level the playing field. So the people who like selling towers are the people who are not leading the market. Or at least then if you've got operators that are more or less the same size then from a consolidation perspective it makes sense you are able to reduce costs and so on an so forth so if for instance it was MTN and Vodacom here, as a Vodacom person I would say I'm okay with that one because I know what I will get or what I will give is the same as what I would get but now I'll give 8000 sites to only get 4000 from Cell C, no, so basically giving the idea of infrastructure sharing it's a good model because it reduces costs but if you've got a serious market leadership and you have invested in that and you've paid that, if you give that away you are giving away your competitive advantage. And we do not believe at Vodacom it's really a wise thing to do. Again, things change but the position at the moment it's not. You go to countries like Tanzania, yes we've got a different deal there, we sold our towers to Helios ya, but again if you look at Tanzania you've got three operators that are more or less the same size, you've got Airtel, you've got Vodacom then you've got TIGO, they are more or less the same size and again if you look at the cost of running the network in those countries its much higher than here in South Africa because what tends to happen is straight forward thing is the electricity grid, the power grid it is not as extensive as here. People can complain about Eskom they must wait until they go to other African countries to see what a, how useless the utility guys are. Power utility guys are. So the sites are running on generator 24/7. You have to pay for the generator, not one; you need to pay at least two of them because you must have

redundancy. Ya, and you have to put batteries, power batteries and some of the countries are very silly they even tax the batteries that you put there. So the costs you easily looking at like in places like Congo $5000, $6000 a month just for a single site so it makes sense then to start to share the sites there

Interviewer: …and also looking at the players

Interviewee: The players as well, the players are more or less the same size. Because it's the small guys who mostly want the infrastructure to be shared

Interviewee: You're actually, what you are saying actually I agree because I've done interviews with the other providers as well so I'm have different perspectives.

Interviewee: And then maybe briefly Mr Mbingo, what other factors that your company would actually consider before expanding to a different country. You've talked of, well that's probably an MNA what's this, project but then what are the actual factors?

Interviewee: I think the bottom line is when you are going to a country are you going to make money. When all is said and done, are you going to make money because as I said, you can go to America and ... And lose money or you can go to Botswana and be a MASCOM and make money so the first thing is wherever you go are you going to make money. What normally helps you make money its one, its market availability. So how many people are not penetrated. That's the first thing and then secondly you look at the number of players. Where there tends to be fewer players there tends to be an opportunity. I know it may sound like I'm contradicting Swaziland, but remember in Swaziland we are talking about 1 million people, if it was a monopoly, 10 million people, 60%, 70% penetration we would still go because the propensity or the absolute numbers about the people who will basically switch is high. Globally, whether its consumer behaviour, not everyone will switch. So you find that 20-25% of the people will switch so 20-25% of 8 million is a serious number compared to 800 000. So we will consider the level of penetration, we would consider the

level of competition like faced with high tariffs fewer operators will go to those places because we believe that we can reduce the tariffs. We look at the legislation. Legislation is extremely important for us because we do not want to be surprised. The telecom business is a very, very expensive business. It is very, very capital intensive, it takes a lot of money. And unfortunately it's not like putting money in the bank, when you are not happy with the guys running the country you can take your money out. You cannot uproot the base station, you cannot uproot the data centres

Interviewer: Once they are there...

Interviewee: Once they are there you are stuck. So we need to make sure that the laws are sober, the laws, there's rule of law, there's transparency, there are proper regulators and of course then we will also look at like countries like Swaziland for instance because there's the geographic proximity that will be an advantage and also countries that we tend to understand. Like it would be very difficult for us to go and run an operator in Russia, you can't just do it like that, you can't just rush to Vietnam and say I'm going to be running an operator there, so you also need to understand the market that you are going to be serving. So that's why we tend to go for the places where you are more familiar with

Interviewer: So is it a matter of, with those issues that we have actually outlined, is it a matter of ticking checkboxes and then looking at what there is, is there a situation where you forego other

Interviewee: Ya, you do need have to tick every item in the checklist but you have to do the checklist at the end of the day. But other factors weigh more than others. Like in a country like Congo, the rule of law in Congo is not there but Congo has got 75 million people, ya, when we went to Congo, there were hardly there were on1 or two operators, penetration was single digit. Today we are almost going for 10 million customers in Congo we are making over $400 million in ten years. And know what, it is almost 10 million customers but we are under

40% penetration and the population is growing and Congo has got 24 trillion dollars in natural reserves, ya. Ok the fact that they are not being exploited is another story but again if you do your checklist, population yes, are there natural resources yes, population growth yes, penetration yes, rural flow of course, no, costs of doing business no, political stability no. But you concluded that at the end of the day you have to weigh everything and then decide

Interviewer: And have your trade-offs here and there

Interviewee: And sometimes you are also asked by the government to go to these countries, not really forced, the government will say SA considers Congo to be a strategically important country so as a government we really want to solidify our relationship with this country so what can business do? One of the best ways that when you've got interests, business interests, creating jobs, creating jobs for the Congolese, paying tax to the government then those kind of factors also help the SA agenda, government agenda. Because remember telecoms are licensed businesses, at the end of the day the licence do not belong to us, it has been given to us but gets renewed after a period, ten years, or twenty years or fifteen years, it gets renewed. So the government is a very important stakeholder in the telecom industry.

Interviewer: The home government or…

Interviewee: Both governments because like SA, Vodacom SA the license is issued by the Zuma government. Congo the license is issued by the Kabila government. So if Kabila has got a good relationship with Zuma he'd have Vodacom's in both sides.

Interviewer: Okay no, err, the next question would be with regards, I think Swaziland would be crushed to hear what you are saying because like there have been informal calls in Swaziland, calling for Vodacom.

Interviewer: Mainly because it is a one of the biggest players in South Africa, like social sites are inundated with calls for Vodacom so that's why I'm saying Swazi consumers would really be crushed.

Interviewee: But remember the door is not closed as I said. The government can decide and say guess what, we are selling SPTC because personally I do not agree that the government should be owning companies 100%, why should they?

Interviewer: But SPTC is more of a parastatals

Interviewee: But I'm saying why is it supposed to be owning them

Ya, I think they should have a stake because they should have a say but I don't think they should own it 100% because most parastatals that are 100% owned by government are very inefficient And its counter growth and what is worse when they go through difficult time, who bails them out It's the taxpayer.

It's the government, so that's the same money that should be going to building hospitals, paying teachers better blocking potholes on the roads, and so on and so forth. So the money is being misdirected. Look at SA airways here, how much they've been bailed out by the taxpayers, are you trying to tell me that that money if it went to build schools, improve hospitals, improve roads. I'm not saying government shouldn't be owning SAA it should but not 100%

Interviewer: And then you've operated in Lesotho and it contrary to perception that the size of a market is key like you've been reiterating that whole point that Swaziland, has, the size of the market is not really enticing you to investing there. But how would you explain the fact that Lesotho has 2 operators and I think both are actually doing well

Interviewee: Well relatively. If you have to juxtapose Lesotho against Swaziland, when Vodacom Lesotho went there, it was 1996. When Econet were allowed there, I think it was 2002. And when Vodacom Lesotho was there, it wasn't a monopoly. So there's a six year difference but again that was the 90's

so even by then Vodacom hadn't done a lot. When Econet came 2002 or year 2000 I can't remember, the level of penetration was much lower than when MTN Swaziland stopped being a monopoly. So possibly I would, I stand to be corrected. I think in Lesotho when Econet came, penetration was single digit. When MTN's license stopped being a monopoly, penetration in Swaziland was over 50%. So 90% was left in Lesotho, less than half was left in Swaziland

Interviewer: So it's not necessarily similar dynamics...

Interviewee: What messed up Swaziland again...

Exclusivity period...Was poor policies where they put a monopoly...

Interviewer: But then the justification was that they wanted the company to recoup their start-up costs but we've had countries for instance like Turkey where they had like 2, it was wrong as well but you'd have two operators granted licenses.

Interviewee: It was a false logic to justify the beneficiary of those people who had the deal, false logic. Because trust me, MTN is very smart, so is Vodacom is very smart, there's no way that they would have destroyed their business models, they would have shared infrastructure for instance

Interviewer: And then now that we are post exclusivity period would you then render, firstly, do you believe in natural monopolies in the mobile sector.

Interviewee: I don't believe in monopolies anywhere they don't help. Yes, but with the concept now, the concept of natural monopolies Maybe explain to me what is a natural monopoly

Interviewer: Where probably it's only profitable for only one player to provide services Like in electricity, like water.

Interviewee: I agree, even though electricity is bankrolled by the state, we cannot even say that it is profitable when it is seriously bankrolled by the state. But I hear you, electricity sectors I agree because there are industries where a

normal investor would not get into because of the time frame, as I said in electricity you need a long term view and only the government has got appetite for that. So naturally it will become a monopoly. But Telecom, no.

It's not natural, it's orchestrated, because if at the beginning, now it is natural because they've made it impossible for anyone to get into the market.

Interviewer: So right now you don't think anyone can actually, you don't think it can be profitable for another player to come in?

Interviewee: Anyone who wants to be a serious player and goes there as a green field operator can't make it. The only way you can make money in Swaziland I believe, I haven't done all the proper research of course, it's just prima facie analysis, if you can acquire SPTC. That's the only way but again it must be given a mobile licence, a technology neutral license then you can provide converged services.

Interviewer: Okay and then do away with joint venture agreements obligations that exist now?

Interviewee: I don't know what those agreements are but at the end of the day you have to basically put fibre to the enterprise, you need to provide fibre to schools, to hospitals, you need to provide mobile services, you still have to consider providing the fixed line but I think the fixed mobile, I'd say propositions combined.

Interviewer: So it could be the both fixed mobile and…?

Interviewee: Ya, and then you provide fibre as well, international breakouts, you provide data centres,

Interviewer: Err, with SPTC its actually tricky because SPTC has a 41% stake on MTN and at the same time they have this joint venture agreement where they wouldn't have to be seen to be having products that compete directly with MTN and then I just don't understand why they would compete with MTN

because they would kill themselves, they would be cannibalising their source of income.

Interviewee: Again I'm going back to bad policies; I'm going back to bad policies. I am not against SPTC owning what I would call a strategic interest in MTN even though I wouldn't prefer it. Ya, it's not where I would like to be in the first place. But when you start saying they can't compete, that's wrong, you must allow them to compete. For me the most successful relationship I've seen in these things is Telkom South Africa and Vodacom. Telkom SA used to own 50% of Vodacom for a long time. But guess what, they were our bosses. I think the 50% was too much by the way but that's the past. But we were able to compete like hell with each other. Like hell, until Telkom, whatever wisdom they had, decided to sell. Look at where Telkom is today. The small guy, the Vodacom people the newborn wanted to dethrone the older guy, Telkom, and Telkom was saying not going to allow this small guy, the new guy, the baby to beat me. We were able to push each other so why can't SPTC and MTN be like that?

Interviewer: At the same time avoiding any form of collusion?

Interviewee: No, no they can't, that's why there should be a regulator. So when now if SPTC is the regulator, I know now it has changed, it just becomes very difficult. Going back Mr Lushaba, bad policies, bad policies.

Yes, and it's a pity because we now have to suffer from such policies, I mean we, the people like I was telling you that are shouting for Vodacom, Vodacom, they can't really have Vodacom because of those bad policies that were implemented. And then coming back home we have four operators, basically four operators but I've heard that there is like fifteen of them but there's four main operators. But then there's still competition relatively for San market you'd say that there is good competition. But then the prices are still relatively high or would you agree with the fact that voice and data

No, the prices in SA for voice are very high but have come down a lot, they've come down a lot. Like, your standard tariffs were sitting around eh, R2.85 to over R3.50, R3.60, but today you've got tariffs sitting on 99c.

Interviewer: Would you attribute that to competition?

Interviewee: Its competition, its Cell C, Cell C has really pushed very hard. But the data prices have gone down even more, the data price in SA are not high. I can bet you on that one, check any analysis. And remember the problem people make, you've got mobile data then you've got fixed line data. The fixed line data where Telkom is a monopoly or maybe a duopoly with Neotel, those prices are very high. But when you look at what Cell C, Vodacom, Telkom Mobile, MTN are offering on the mobile data, very, very competitive, possibly one of the best in Africa. And the prices there have gone down significantly, they have far, they have more than halved in the last 3 years, 4 years or so and again it's because competition and who has been the biggest driver of competition? It's been Cell C.

Interviewer: So you think it's something that Swaziland is actually missing out on, that whole concept of competition.

Interviewee: Ya, it's missing, the prices in Swaziland are very high, you pay...

Because of the lack of...Yes, it's very, very high, data is very high

Interviewer: And then most African countries still have their fixed I think we've also touched the fixed line operations and then it has also been cited as a hindrance to competition what would be your opinion on that one?

Interviewee: Yes, it is

Interviewer: It is a hindrance?

Interviewee: Because no what one they, a couple of things for instance, they'll say I want to monopolise international breakouts, international traffic then what they do they put high prices to make international calls. Then if there are fewer

international calls, of course there's going to be smaller international trade. They also charge high rates for international traffic coming to the country, again discouraging people. Classical thing Mr Lushaba, one factor about India call centres, one of the main reasons why India is able to have a very, very call centre is not just because the Indians are paid low salaries but it's because to make phone calls in India, it's bloody cheap. The termination rates are in the 1c 2c so if you've got a call centre in India, you have to take the call out of India to America, it costs you almost nothing. If America is calling somebody in India, to receive that call through the Indian borders the American almost nothing, then they put it there.

As opposed to...

If you make transiting calls through your borders expensive, you are effectively killing the call centre business. Look at Swaziland, I don't know what the rates are in Swaziland, but here the rates are high. Termination costs here are they still at 80c,

No now they've gone down to 40c but that's national. But there's no way that the international will be lower than the national. Its logic. So at least you are looking $4c, that's very high. If the Indians are looking at 1c, at 1cthe Americans are at 2c, 1c there, the Canadians are around there as well, the Chinese are there as well It is, and it's also a big hindrance to economic development of that country. Because think about this, A country like Swaziland, English speaking, high unemployment, you could easily put a call centre, even the South African companies here you'd put a call centre there. Ya, you manage for them then you get scale but you can't get scale if you don't have cheap calls

Interviewer: So it forms some sort of barrier. But then the fixed line model do you think it's still relevant to the context of higher mobile penetration?

Interviewee: Yes the fixed is still in the future,

You know why Mr Lushaba, the future is data. The laws of physics, they will tell you that the best way to basically beam data, the big volumes of data is through fibre optic, it is not through microwave. So it can't be said to be irrelevant.

However, the current operators we have now, they need to build their infrastructure. They need to build fibre and most of them are not doing it

You've got SEACOM, you've got all these things are coming but it's a relatively new but they have to start doing something. At the moment they're not doing and remember you need to get the value chain right because you can have the undersea cables but to move the traffic from the coast to Jo'burg you need to have the fibres and once it's at the data centres in Johannesburg it has to the customer premises and also the customer the, user, the end user should also be educated about the power of fibre. So it's a whole value chain.

Interviewer: So then the fixed line model you'd then say it's still going to be there but in terms of data not really in terms of voice.

Interviewee: Yes but again voice and data is really converging. You and I were talking earlier on hangout ya, but I'm...

Interviewee: But the conventional, the traditional type of voice, you'd say...

Interviewer: I think traditional voice is still going to be there but it's going to shrink. But easily if I was sitting at home, and I had a fixed line operator that works, id have been pumping my call through my wifi at home and I wouldn't have to come here and see you

Interviewer: On infrastructure sharing, what's your view on that as an enabler of competition?

Interviewee: It is a big enabler; it empowers the small guy...

...but if I'm a leading operator, why would I surrender my competitive advantage

Because that's your flagship. And guess what, I paid for it. It's not like that I got lucky, I paid for it Why throw investments and time, ya, however the small guys can basically come together and also build theirs, it's ok. We're not going to stop them from doing that.

Ya, it would help, I know the environmentalists hate, the environmentalists want the best quality phone calls but they don't want base stations to be built. So my views, I will not surrender it, I support infrastructure sharing where it does not compromise my competitive advantage.

Interviewer: How would you describe the impact of MVNO on prices and competition?

Interviewee: They are also good but again to have MVNO's you need to have excess capacity. So which means you should build a lot of infrastructure and then you don't have enough users in it and then you have to give it to an MVNO. However, MVNO's for them to be viable, the guys they are leasing the infrastructure from are supposed to be able offer them competitive rates and in markets where the operators are super efficient, and there's no excess capacity, there's no room for MVNO's. There is hardly any room for MVNO's in South Africa, Virgin Active has failed, even Cell C its still like a hybrid MVNO because they are roaming on Vodacom's network. Telkom mobile you can also argue it's a virtual MVNO because they are roaming on MTN. Cell c has been losing money for ten years now, more than ten years Telkom is going to be losing it even for more, unless they change tact.

If I had, if it was my money, I would not invest in an MVNO in South Africa or even in Swaziland. Unless the government, you see if the government built the infrastructure, and then gave people MVNO, I'd understand

Ya, but now its fully MTN's

For instance now you've got infrastructure and you've got people like Infracom here in South Africa, so the Infracom can even lease the infrastructure to

people, some of them would be MVNO's ya, but again, they will not have the last mile so

Interviewer: So it's not really a viable model

Interviewee: Yes I don't see it

Swaziland is even worse, even South Africa is still struggling

Interviewer: What are the key considerations that Vodacom takes into account when developing a price model for voice

Interviewee: First and foremost its profitability, we are not in the business of losing money because price wars destroy companies. I know it's almost like a drug, you feel high but when it is over you have to face reality, you've got bills to pay, ya, so guys that say we don't bank minutes, we bank cash, because when you drop prices, you pump more usage, you see more minutes in your network, but don't take those minutes to the bank, you take cash. So the first consideration of course is profitability and then the second one is competition. We've got our 50% market share here, we are leaders in almost all the countries where we operate except Mozambique, it's very important for us not to lose market share. So they are three things in pricing you can do. You've got what we call the matching strategy, premium pricing strategy or undercutting pricing, or undercutting strategy. In layman's term, its either you are very cheap or you are reasonable compared to other people or you are expensive. So Vodacom's view is we always try to match the main players. Like in SA if you've got MTN as your main player, you cannot afford to be more expensive than MTN, at least match those ones

And then what you go but then you realise there are more smaller guys who are undercutting like Cell C and Telkom mobile, then you segment, then you've got offers for them but the key thing on your consideration, do not destroy value, so segmentation is another consideration. A guy who can pay R3.00 a minute without worrying about, why should a millionaire be paying 30c when he can

pay R3.00 a minute and he won't even be feeling it. Do you think the millionaire is going to switch from Vodacom to cell c because he is trying to chase 30c, no, that's why segmentation is important.

Interviewer: Like in terms of your LSM:

Interviewee: Your LSM's your lower LSM's they tend to be more on prepaid, they tend to be more in the rural areas, they tend more to be in the townships and rural areas and then you basically have got a different price for them. That's why you also find that you've got what you call regional pricing/like we've got the 'yebo for less' from Vodacom or the MTNZone.

Interviewer: But then moving away from that Mr Mbingo, there've been like, well rumours that you are colluding with MTN like in terms of pricing, there's unofficial collusion for instance there's that issue of termination costs where apparently before Cell C got into the game, apparently the termination costs, what's this

Mobile termination rates

Yes, mobile termination rates were far lower than when Cell C and Telkom mobile got into the whole sphere apparently then you raised those costs.

I don't know, that was in the '90s isn't it? I don't know but all I can tell you is the R1.25 per minute which has been an MTR ever since, if you look at the costs of the network by then. It is possible that the rates between MTN and Vodacom were actually not reflecting the cost so then when they were doing the study they realised that no, no ,no guys, we are stupidly subsidizing this, can you please put the true value to it

Ya, I wasn't there but I'd be surprised if shareholders that we have would allow us to do something as illegal as that. Ya, I don't think so, I believe if I look at it with today's eyes, R1.25 per minute for a call in 2001 in 2000 even in the late, early 90s does it make sense? I think it makes sense. R1.25 for a call today does it make sense? no, because we have been in the market for 20 years,

we've paid off the infrastructure, we've got scale so we are making decent money so why should we still be at that level.

Interviewer: But even then there's word that, what's this, the dropping of the R1.25 wasn't really Vodacom or MTN's initiative it was the, ICASA.

Interviewer: Yes, it shouldn't be Vodacom because we don't regulate ourselves.

Interviewer: So if it wasn't regulated you'd have probably kept it there

Interviewee: We would keep it high, that's why you need a referee in every game.

Yes, and not a referee and a player.

Interviewer: It is reported that when you took leadership as MD Vodacom Lesotho the subscriber to the 270000 I'm not sure of its figures, I don't have like a proper referencing for those figures. But it's reported that it's around that figure. But it was also reported that it more than doubled by the time you left for the DRC, that also I don't have like formal references of those sources. And would you attribute, well firstly is it accurate or is it somewhat accurate?

Interviewee: Yes I more than doubled the subscriber base there. I think I almost doubled the revenue there but I increased the profit a bit significantly there, ya, so we had a good run in Lesotho at 80% market share

Interviewer: Okay, so but then the, was it, would you attribute it to switching of customers or...

Interviewee: No, no, no It was just untapped, No, it was penetration. I would argue its possibly 90% penetration, only 10% switching. Because that also actually relevant in our case because I would have asked then if it were possible to make those customers from one provider to your provider and what would stop you in Swaziland so it was just untapped market. Yes, speed, speed, speed and also right propositions. I'll give an example, in Congo I came

in 2009, we were like 3.4 million customers. Now we were at like 9.3 million, In 4 years almost triple. But then even then it's untapped?

Interviewer: Okay, but then if you can have like, if you can turn around a company to that particular direction, don't you think given the dynamics in Swaziland you would probably the same tactics to swing it to your favour given the chance?

Interviewee: It's too much work for too little money, opportunity cost, opportunity cost, that's where Swaziland is failing, opportunity cost

Interviewer: The last question Mr Mbingo, how would you describe the quality of the independent regulators in the Sub-Saharan Africa both in terms of skill and the promulgation of legislation?

Interviewee: We've got good ones, we've got governments, just like their governments. Yes, you've got bad governments, you've got bad governments. I think I've worked only with 3 regulators, I rate the regulator in Lesotho to be the best regulator. I think Swaziland can learn a lot from them. But again it also depends on the leadership

Interviewer: Political leadership or firm leadership?

Interviewee: I would say both but even the leadership of the regulator, ya, political leadership because some countries like in Swaziland I don't think the regulator has got much powers, I think they have got powers until they basically have to make a tough political call, that's when there's a problem. Almost everywhere, but its more in Swaziland. Because even in Lesotho there'll be political intervention if the guys start doing stuff that doesn't make sense but you face that in Swaziland more than in Lesotho because of the different government that you have. But even taking aside the politics, every country needs a regulator and I think most of the regulators are reasonable but from my experience the regulator in Lesotho is the best regulator I've ever worked with.

Interviewer: Yes, and then the skill thereof and, the promulgation of progressive legislation, how would you describe it in the context of the role of the regulator?

Interviewee: I think most of the guys you find the Regulator are educated people, smart people, maybe sometimes not experienced but because there are templates all over the world, even if you are too sure is you're basically going to hire some consultants to help you and over and above that you've got the consultation process with the operators. So it very difficult to come out with a stupid policy unless you want the stupid policy, I think just for me to conclude this I do not believe the market in Swaziland can accommodate another green field operator without market failure. However, I do believe that the market in Swaziland can grow more if the legislation is improved, totally paralyzed and I think the easiest way to grow is to allow SPTC to compete effectively against MTN. And also allow MTN to compete effectively against SPTC. By that I'm not saying SPTC should stop owning MTN. They can still own each other but they can still push each other. I'll make an example of Vodacom and Telkom, they would push each other like hell, and guess what we were able to grow, maybe 41% is too high though because 41% is too high, maybe it should be 25%, I don't know. Or, they can give it to another international operator. SPTC, then we can see. The government must not own a controlling stake.

Yes, the hiring of the board is political. Yes, so you need to basically open it up. But still even with all the monopoly, I think MTN has done a very good job in Swaziland in making money for the shareholders and also in driving penetration. I know they're expensive, but guess what, maybe that's the only thing I can fault them on but I really think they've done a reasonably good job. But when all is said and done I don't think MTN has done a bad job.

Interviewer: Relatively?

Interviewee: Yes relatively, because it's so easy to rest when you are a monopoly but guess what, they've really tried not to act like one, except on their pricing.

Interviewer: Well Mr. Mbingo, that brings us to the end of our interview thank you very much for your time and the insights that you have so eloquently shared. Wishing you all the best in your career and future endeavours.

APPENDIX E:

RULES APPLIED IN THE COLLECTION OF MOBILE CELLULAR PRICES BY THE ITU

1. The prices of the operator with the largest market share (measured by the number of subscriptions) should be used. If prices vary between different regions of the country, the prices refer to those applied in the largest city (in terms of population) or in the capital city.

2. Prices should be collected in national currency, including taxes.6

3. Prices refer to prepaid plans. Where the operator offers different packages with a certain number of calls and/or SMS messages included, the one that comes closest to the 30 calls and 100 SMS included is used. In countries where prepaid subscriptions account for less than 2 per cent of the total subscription base, postpaid prices may be used. In this case, the monthly subscription fee, plus any free minutes, will be taken into consideration for the calculation of the mobile-cellular sub-basket.

4. If per-minute prices are only advertised in internal units rather than in national currency, the price of the top-up/refill charge is used to convert internal units into national currency. If there are different refill prices, then the 'cheapest/smallest' refill card is used.

If different refill charges exist depending on the validity period, the validity period for 30 days (or closest to 30 days) is used.

5. Prices refer to a regular (non-promotional) plan and exclude special or promotional offers, limited discounts or options such as special prices to certain numbers, or plans where calls can only be made during a limited number of (or on specific) days during the month.

6. If subscribers can chose “favourite” numbers (for family, friends, etc.) with a special price, this special price will not be taken into consideration, irrespective of the quantity of numbers involved.

7. Prices refer to outgoing local calls. If different rates apply for local and national calls, then the local rate is used. If charges apply to incoming calls, these are not taken into consideration.

8. If prices vary between minutes (1st minute = price A, 2nd minute = price B, 3rd minute = price C), the sum of the different prices is divided by the number of different prices (for example: price per minute = (A+B+C)/3).

9. If prices vary beyond three minutes, the average price per minute is calculated based on the first three minutes.

10. If there is a connection cost per call, then this is taken into consideration in the formula for the mobile-cellular sub-basket, based on 30 calls.

11. If there are different off-peak prices, then the one that is the cheapest before midnight is used. If the only off-peak period is after midnight, then this is not used. Instead, the peak price is used.

12. If there are different peak prices, the most expensive one during the daytime is used.

13. If there are different weekend prices, the price that applies Sundays during the daytime is used (or the equivalent day in countries where weekends are not on Sundays).

14. If there is no weekend price, the average peak and off-peak price that is valid during the week is used.

15. If peak and off-peak SMS prices exist, the average of both is used for on-net and off-net SMS.

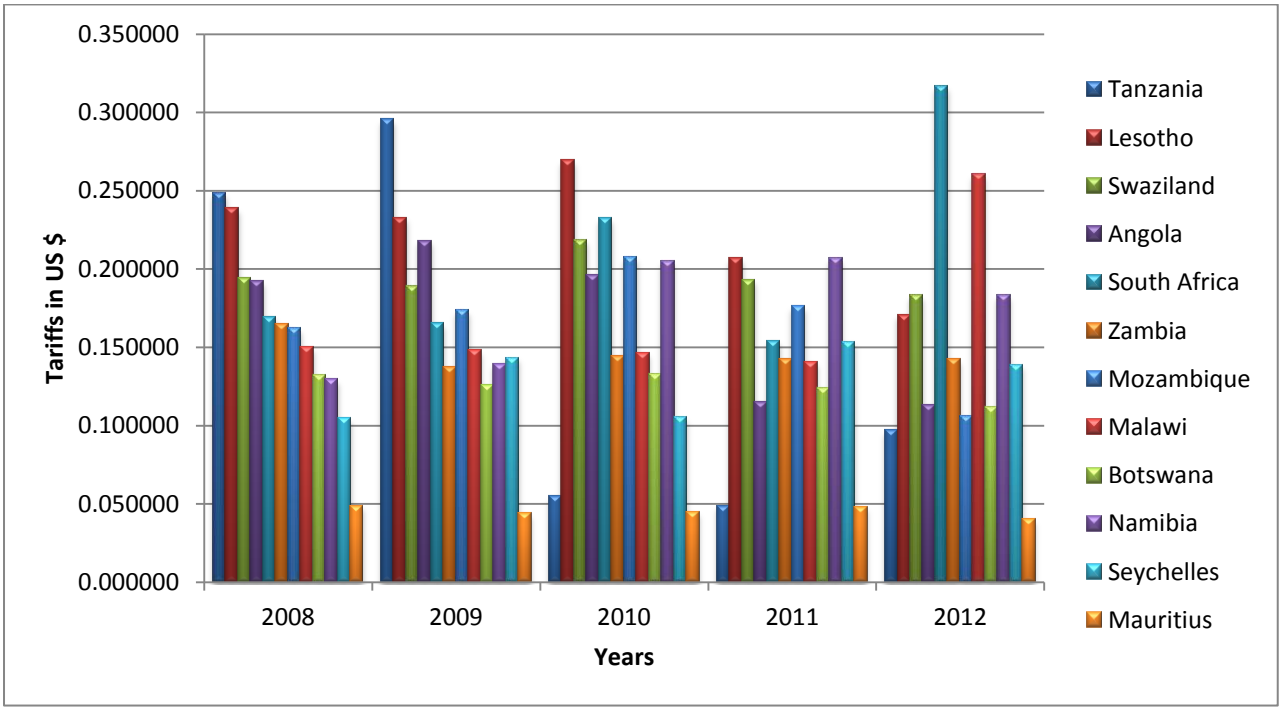
16. If calls are charged by call or by hour (and not by the minute), the mobile-cellular sub-basket formula will be calculated on the basis of 30 calls or 50.9

minutes. Similarly, if calls are charged by call or by number of minutes for a specific network/time of the day, this will be taken into account for that particular network/time of the day.

17. Where monthly, recurring charges exist, they are added to the sub-basket.

Sourced from ITU (2014d)

APPENDIX F:


0.350000
0.300000
0.250000
0.200000
0.150000
0.100000
0.050000
0.000000
Tariffs in US $
2008
2009
2010
2011
2012
Years
Tanzania
Lesotho
Swaziland
Angola
South Africa
Zambia
Mozambique
Malawi
Botswana
Namibia
Seychelles
Mauritius