Ilomata International Journal of Tax & Accounting
P-ISSN: 2714-9838; E-ISSN: 2714-9846
Volume 6, Issue 1 January 2025
Page No. 60 -74

Tax Impact Analysis in The Telecommunications Industry among Southern African Countries

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Received : October 25, 2024
Accepted : January 17, 2025
Published : January 31, 2025

Citation: Mpofu, Q., Swart, O., & Masunda, T. (2025). Tax Impact Analysis in The Telecommunications Industry among Southern African Countries. Ilomata International Journal of Tax & Accounting, 6(1), 60 – 74.
https://doi.org/10.61194/ijtc.v6i1.1471

ABSTRACT: Developing countries apply numerous sector-specific taxes to the telecommunications industry. This paper analyses the impact of multiple taxes on the telecommunications industry's performance among Southern African countries. The telecommunications industry in Southern African countries faces a significant tax burden due to numerous sector-specific taxes. These taxes vary from country to country and present a critical issue. The paper contributes by offering an in-depth discussion of the impact of multiple taxes on telecom industry performance, a topic that has received limited attention in existing literature. It assesses the tax policies comprehensively and proposes practical recommendations for regulatory authorities to navigate the associated challenges effectively. Previous researchers have not adequately addressed this issue due to the complexity and variability of tax regimes across different countries. A qualitative systematic literature review approach was utilized to establish the impact of multiple taxes on the telecoms in the Southern African region. The paper found that multiple taxes significantly increase costs, reduce investments, and slow down the expansion of telecom companies. Multiple taxes present substantial challenges for the telecoms industry in southern Africa, affecting costs, investments and consumer prices. The paper recommends tax incentives and regulatory stability to minimize these adverse effects, aiming to foster a more favorable environment for telecom companies to thrive and contribute to economic growth.

Keywords: Multiple taxes. Tax Burden, Telecoms Industry, Tax policies, Southern African countries

INTRODUCTION

The telecom industry is a cornerstone of economic development, playing a critical role in connecting communities, fostering innovation, and driving growth across various sectors (Jung, 2022); (Alex Ezeigweneme et al., 2024a) Therefore, digitization has been identified as a key driver of productivity and economic development, with the mass adoption of telecommunication networks and high-speed internet connectivity undoubtedly lying at the core of the digital revolution (Jung & Melguizo, 2022). The fact that a third of the world population still lags behind technological use, policymakers, especially in developing countries, are prioritizing the development and launching of suitable frameworks and national digital agendas to spur the

development and adoption of digital technologies by consumers, enterprises, and governments, thus facilitating closing the digital divide and accelerating the economic impact of digitization. Nevertheless, as the market penetration rate for customers is still relatively low, it has a significant potential to grow. In 2017, the average percentage in Africa was over 45 percent, but in other developing nations, it was over 60 ([GSMA], 2018)

According to (Sawadogo, 2022), Southern Africa's telecoms sector has also experienced remarkable growth over the past two decades, participating in regional economic development and market efficiency. Regulatory reforms, technological advancements, and an increasing demand for digital services have driven this. As nations within this region continue to embrace digital transformation, the demand for robust telecom infrastructure and services has surged (Adewara et al., 2023). The expansion of mobile networks, the proliferation of internet access, and the introduction of innovative products and services have all contributed to the sector's success. Resultantly, the region's governments have recognized the strategic importance of telecoms, not only as a key enabler of socio-economic development but also as a significant source of revenue Oladele (2024). However, a complex and burdensome tax environment has increasingly hampered the industry's potential to contribute to sustainable development. The imposition of multiple taxes on telecoms operators, ranging from import duties, consumer taxes, corporate and employment taxes, regulatory fees, industry-specific levies, and excise taxes, presents significant challenges that could undermine the sector's ability to fulfill its role as a driver of economic progress (Slemrod, 2019); (Tuerck et al., 2007)

The Southern African Development Community (SADC) is a regional economic community comprising 16 Member States: Angola, Botswana, Comoros, Democratic Republic of Congo, Eswatini, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, United Republic of Tanzania, Zambia, and Zimbabwe. However, this study will concentrate on five countries (Zimbabwe, Zambia, Mozambique, Botswana, and South Africa). The justification for using a sample of these five countries is the need for a representative study with practical considerations, ensuring the research is impactful and feasible.

Much research has been done on how taxes affect the telecom sector, especially in developing nations. Numerous scholarly investigations have highlighted the significance of a steady and foreseeable fiscal landscape in stimulating investment and inventiveness inside the industry, Matheson & Petit (2021).

One report from the (GSMA, 2015)for example, highlights how tax rates that are too high or too variable might deter investment, resulting in inferior network coverage, higher consumer pricing, and slower uptake of new technologies. The empirical study by Matheson & Petit (2017) which demonstrates a negative association between high taxes and the uptake of telecoms in developing nations, lends credence to this viewpoint.

Scholars have also examined the difficulties that the various forms of taxation in Southern Africa present to the region's telecoms sector. According to (Ndung'u, 2019) analysis of the effects of taxes on mobile operators in sub-Saharan Africa shows that the region's operators face a disproportionately high tax burden due to various levies that surpass those imposed on other companies. Researchers believe that a tax climate like this might discourage investment in vital

infrastructure, restrict the introduction of new services, and ultimately impede the digital transformation of the area (Sebele-Mpofu et al., 2021)

In addition, the imposition of various taxes has been a focal point of discussion and debate, potentially hindering the industry's development, Matheson & Petit (2021). Multiple taxation in the telecommunication sector is a topical issue and is still under-researched. This research seeks to analyze and investigate the tax burden and implications of various taxations in the telecoms industry in Southern African countries. The goal is to evaluate the taxation policies on the performance and sustainability of the telecoms sector in the identified countries and develop potential solutions. The article further contributes to the practical aspect of the incidence of the tax burden in the sector by offering a valuable examination of the consequences of the existing structure and model of taxes as they relate to the telecommunication industry, and this can support policymakers in appraising their policies to enhance sector performance in the long term.

Types of Taxes Imposed on the Telecoms Industry

Many taxes, fees, and levies characterize the fiscal environment in which the telecom industry operates. These include but are not limited to, corporate income tax, pay as You Earn (PAYE), value-added tax (VAT), sales tax, excise duties, import duties as well as sector-specific charges, which include spectrum fees, numbering fees, initial license fees and in some jurisdictions Universal Service fees Alm (2021). This results from the highly fragmented state of the telecoms sectors, which is caused by the disparate national tax and regulatory regimes.

The findings of Faccio & Zingales (2017) state that the management of the telecoms industry comprises fees collected by the National Telecommunication Regulatory Agency, in addition to regular and unique taxes managed by the Ministry of Finance (MoF). The two entities might even compete with one another when it comes to taxing Mobile Network Operators (MNOs) activities. Furthermore, the "digital divide" is lessened by the Regulatory Agency's (RA) independence, yet its complete depoliticisation negatively impacts the RA's ability to successfully regulate and create information infrastructure. As a result, operators in this industry face complexity and a tax burden due to the range of specific taxes and regulatory fees levied by the Telecoms Regulatory Authority as well as the Ministry of Finance (Jung, 2022). While taxes and regulatory fees are intended to generate public revenue and regulate the industry, their cumulative effect has raised concerns among industry players, policymakers, and analysts about their potential to stifle investment, reduce profitability, and ultimately slow the sector's growth. Moreover, the complexity and variability of tax regimes across Southern African countries add another challenge. Mobile Network Operators (MNOs) must navigate different market tax laws and compliance requirements (Michael, 2014); (Kgonare, 2017).

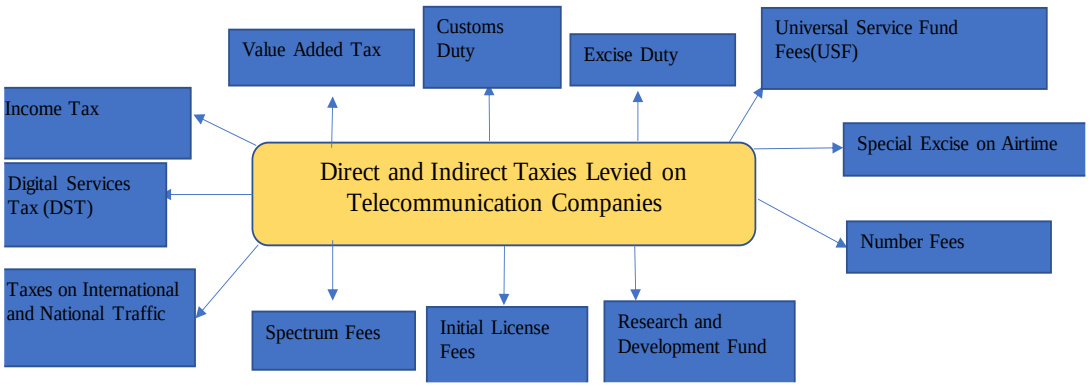

Figure 1: Taxes levied on Telecommunication companies in African Countries Source: Author's Compilation

According to Matheson & Petit (2017), developing country governments impose relatively heavy tax burdens on telecom companies, usually among their largest taxpayers. In affirmation, the government tends to view the sector as a booming sector, and mobile phones are especially a lucrative sub-sector that is easy to tax due to the increasing turnover of transactions and the formal nature of such transactions by both formal and informal enterprises. Literature reveals that telecom companies are subject not only to standard income, consumption, and trade taxes but also to a variety of sector-specific taxes such as Corporate Income Tax (CIT) or VAT surcharges, service and handset excises, and elevated customs charges on capital equipment. In addition, there may also be substantial regulatory charges, such as operator license and spectrum fees, number fees, and Universal services fund (Matheson & Petit (2021), Anon (2018) Sector-specific taxes on telecoms average approximately 30 percent of tax payments from the sector (GSMA 2019), but in some countries, they account for more than 50 percent. Altogether, taxes and regulatory charges on the telecom sector can yield more than one percent of the gross domestic product (GDP).

Matheson & Petit (2017) adduce three existing primary reasons why governments in developing countries pursue the telecoms industry for sector-specific taxes. First, there is a tremendous desire for telecom services, fuelling sector expansion and revenue growth. Furthermore, economies of scale and the restricted quantity of spectrum licenses in each market restrict competition by increasing the possibility that mobile phone companies will make earnings or "rent." Following that, authorities in emerging economies typically depend on revenue taxes on big, formal-sector companies (like financial institutions and telecom providers) and consumption taxes like excise duties or VAT. This is because these nations typically have poor tax systems. Previous studies on the taxation of the telecommunication sector by (Jung and Katz, 2023) mainly focused on indirect taxation, such as VAT, excise taxes, and unique mobile network taxes, such as fees or surtaxs on SMSs, sim cards, and incoming international calls. However, in studying the tax burden of multiple taxes on the telecommunication sector, this study considers all direct and indirect taxes a firm must pay to operate its mobile network license. These include direct taxation such as CIT and some indirect taxes, which unambiguously increase the production cost and service provision of mobile phone services. Consequently, some telecom companies do not consider VAT, and the final consumer bears some expenses collected by the firm. However, the choice remains subjective given the potential incidence of any tax on the consumer price. Therefore, assessing the tax burden faced by the telecoms industry in Southern Africa and exploring its implications for industry

stakeholders and broader economic outcomes is critical for the following reasons. Firstly, this article contributes to the theoretical literature on the tax burden and impact of multiple taxes on the telecoms industry's performance among Southern African countries. Secondly, this paper seeks to provide evidence to policymakers on how multiple taxes affect service adoption, pricing, and investment decisions. Policymakers can adopt this paper when making informed decisions that foster growth. Thirdly, to the accounting profession: the paper offers valuable insights for professionals in the telecoms industry in terms of tax planning and compliance. In addition, understanding the impact of multiple taxes on financial performance can improve the accuracy and transparency of financial reporting in the telecoms sector.

Unpacking Multiple Taxes

Businesses often pass on the cost of multiple taxes to consumers, resulting in higher prices for goods and services, hence the pass-through effect. This may result in lower demand, especially in areas where prices are sensitive, and make it more challenging to obtain necessities like telecoms) Gillwald et al. (2018). According to Lichter et al. (2021), several taxes can reduce profit margins, which deters businesses from investing in growth or innovation. This is particularly true in capital-intensive sectors with significant upfront expenses, such as telecoms. Multiple taxes, as noted by (Slemrod, 2019) Encourage businesses to change their activities to minimize their tax liability rather than to maximize profits, which causes economic distortions. This can lead to inefficient resource allocation, where companies may choose less productive investments simply because they are taxed at a lower rate. Moreover, a sector's many taxes may have a regressive effect, raising issues with equity in the end Lichter et al. (2021). This implies that several taxes may occasionally have a regressive impact, disproportionately affecting those with lower incomes who spend a larger share of their income on taxable goods and services. This is especially troubling in critical industries like telecoms, where access is crucial for economic participation.

According to Adewara et al. (2023) multiple taxation is a phenomenon that describes an income that is subjected to tax more than once, often by two or more different authorities in a way that may be unfair or illegal. It can also refer to the imposition of more than one type of tax on a single entity or transaction (SARS, 2024) Sutherland (2023). Furthermore, SARS (2024) avers that illegality and unfairness distinguish multiple taxation from double taxation. The former often have the characteristics of being unfair and illegal. A multiplicity of taxes connotes paying similar taxes on the same or substantially identical tax base. This can involve different levels of government (e.g., federal, state, and local taxes) or various types of taxes, such as income tax, VAT, excise taxes, property taxes, and sector-specific levies. In telecom industries, multiple taxes can include regulatory fees, license fees, and other charges targeted explicitly at the sector Matheson & Petit (2021). Multiple taxes should be distinguished from numerous taxes, which means many but different taxes on different tax bases.

Okunogbe & Santoro (2023) adduce the multiple taxations concerning a company or individual in a situation where the same profit or income, respectively, which is liable for tax in a country, has been subjected to tax by another tax authority in that same country or outside. In such situations, relief is usually granted to that taxpayer for the earlier tax paid or to which he may be liable. SARS (2024)submits that multiple taxation could be counterproductive if it is excessively applied.

Notably, taxation is the life wire of government expenses from which a responsible government provides for the welfare of its people, GSMA, (2018). In addition, the issue of the power to impose tax should not be allowed to degenerate into desperate extortion, usurpation and illegitimate exploitation of the public by the said government (Jung & Katz, 2022). It can be concluded that the multiplicity of taxes is one of the country's major problems. Corporate entities and individuals often complain about the ripple effects associated with it.

Organization for Economic Co-operation and Development [OECD] (2019) avers that general corporate taxes, sector-specific taxes, excise taxes, customs charges, and import taxes are the different categories into which multiple taxes in the telecommunication industry fall. VAT and CIT are examples of general corporate taxes applicable to telecoms firms' revenue or profit like they are to other industries. Sector-specific taxes, such as spectrum fees, license fees, and regulatory costs, are levied with a specific focus on the telecoms sector ((GSMA, 2015)For example, spectrum fees are the costs of using radio frequencies necessary for wireless communication. Those granted licenses are required to pay a once-off initial license fee for the use of the license and subsequently monthly remit a percentage of a levy on the gross turnover of operators in the ICT sector.

In the context of the telecoms industry, multiple taxes indicate the several taxation levels enforced on telecoms providers and services. In affirmation, the Postal and Telecommunications Regulatory Authority of Zimbabwe [POTRAZ] (2022) adduces that such taxes might influence everything from service pricing to infrastructure investment, significantly impacting the financial viability of telecoms firms. Therefore, assessing these taxes' combined effect is crucial to ensure they do not impede the growth and spread of telecom services. This is especially true for emerging regions like Africa, where the charging of multiple taxes may adversely affect pricing, cost structures, and quality of service.

METHOD

This paper analyses the impact of multiple taxes among telecom companies in the Southern Africa region. The researchers adopted a qualitative systematic review approach, providing valuable overviews and integrating knowledge of various taxes and their impact on the economic growth of the telecoms industry. A systematic literature review ensures that a research phenomenon undergoes in-depth analysis, synthesis and rigour. This cannot be achieved through reviewing and analyzing research findings from Snyder (2019). In agreement, Mpofu (2021) articulates that a systematic review approach focuses on identifying, evaluating thoughtfully, and synthesizing all literature on the topic instead of a narrative approach, where the summary is done for many studies. Taking a leaf from the studies by Mpofu (2021) and Snyder (2019), Researchers followed a highly standardized research protocol to identify and select relevant studies and evaluate them in quality and relevance. This enabled researchers to delve into the multiple-specific taxes by selected countries in Southern Africa and the challenges associated with these identified taxes. Also, the standardisation of the systematic research protocol increases credibility, trustworthiness, and confirmation of the results (Mpofu & Nemashakwe, 2023)

Conducting an in-depth analysis across all 16 SADC countries would require substantial resources, time, and logistical coordination. Conversely, focusing on five countries makes the study more

manageable, allowing for a deeper, more comprehensive analysis without sacrificing quality. The countries under study include Zimbabwe, Mozambique, Botswana, Zambia, and South Africa and were chosen for their strategic and economic significance. The World Bank (2019) states that the largest economy in the continent is South Africa, which has a big say in regional telecom regulations. The distinct economic issues that Zimbabwe, Mozambique, and Zambia present render them valuable case studies. In addition, Botswana's stable economy and administration offer a counterpoint. This selection provides information about the region's prospects and challenges. Also, these five nations differ significantly in terms of market circumstances, governance, and regulatory frameworks. Examining them enables investigating the effects of several taxes on the telecom sector in various settings, potentially yielding more broadly applicable results for other SADC nations. The chosen nations, particularly those in SADC, have varied influence over regional affairs. Examining the effects of various taxes in these nations may yield information that directly affects the development of regional policies and frameworks for telecoms, which might positively impact the SADC area. Since data gathering and analysis are essential to this research, concentrating on just five nations allows for more efficient resource allocation and guaranteed access to data and dependability. The results from this research will be strengthened by the fact that these nations probably have additional complete and readily available information on taxes and telecoms.

Databases such as Google Scholar, Elsevier, Science Direct, Springer, and Scopus were searched for relevant literature. The key terms used during the search process were: "Impact of multiple taxes, challenges associated with multiple taxes in the telecoms industry, Types of taxes imposed in the telecoms industry, and so on." It was necessary to unpack these themes so that recommendations could be given to regulatory bodies and other key stakeholders. The exclusion and inclusion criteria of papers were based on the publication year, language and journal databases, and relevance to the study. The researchers reviewed papers written using English instruction and published in the last 10 years. Only peer-reviewed journals published in the databases were used. Also, authoritative reports and working documents were accessed from development units such as the World Economic Forum (WEF), United Nations, OECD, IMF, etc. Moreover, researchers included only articles accessed in full text.

RESULT AND DISCUSSION

This section presents the paper's results and provides detailed discussions on the impact of multiple taxes on financial performance and economic growth among telecom companies in the Southern Africa region.

Taxes impact on telecom infrastructure development

The telecoms industry in Southern African countries, including Zimbabwe, South Africa, Zambia, Botswana, and Mozambique, has been negatively and significantly impacted by multiple taxes. The effects on operations differ depending on each nation's unique tax laws, prevailing economic conditions, and regulatory frameworks. Higher operating costs, poorer profit margins, a delay in the development of infrastructure, and higher consumer pricing are some of the impacts Foster et al. (2023) & (GSMA, 2017) Below is a detailed analysis. Extant literature underscores the need for tax reform in these countries to balance revenue generation with promoting investment and accessibility in the telecoms sector. Multiple taxes lead to increased costs, reduced investment, slower expansion, consumer impact, and so on. These effects are explained in detail below.

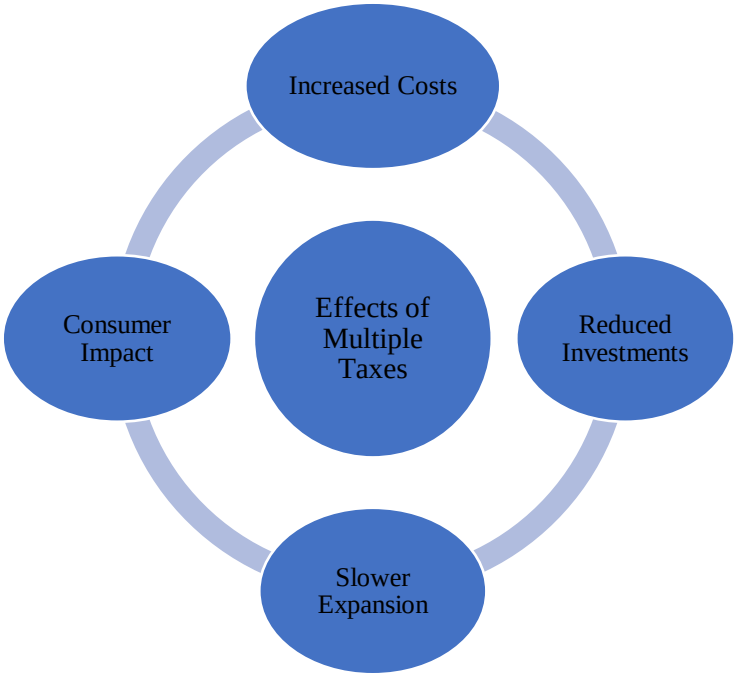

Figure 2: Effects of Multiple Taxes (Source: Researchers' compilation)

Increased Costs

As mentioned above, multiple taxes imposed on the telecoms sector in Southern African nations result in a substantial tax burden by raising operating costs, making adherence more difficult, discouraging investment, restricting consumer accessibility, and eventually hindering the expansion of the economy Okunogbe & Santoro (2023). The idea that taxes are essential but that the present tax arrangements in the region might be ineffective in maximizing the advantages of having a more vibrant and inclusive telecoms industry is supported by academic research Matheson & Petit (2021). In addition, (GSMA, 2015) adduces that the operating cost for telecoms firms is significantly increased by introducing several taxes, such as VAT, excise fees, and sector-specific levies (nominal amount based on some activity measures such as minutes, data, and SMS). Research studies have indicated that costs are often passed on to consumers in Southern Africa, leading to higher telecom service prices. In the ICT sector in Africa, particularly in Southern African countries, for instance,

Gillwald et al. (2018) point out that several taxation levels raise the cost of services, which lowers consumer demand and restricts digital inclusion. These complex tax structures require significant administrative resources to manage.

It can be concluded that the multiple taxes have significant implications on capital expenditures and operational costs. Capital expenditures are payments made for goods or services that are recorded or capitalized on a company's statement of financial position rather than expensed on the income statement. Spending is essential for companies to maintain existing property and equipment and to invest in new technology and other assets for growth. In addition, taxes on capital equipment, such as elevated customs charges, increase the cost of importing necessary infrastructure components like towers, cables and switches. On the other hand, operational costs and an ongoing tax on services and corporate income can reduce the funds available for maintenance and upgrades.

Reduced Investments

It is generally known that multiple taxes harm industry-level investment. They reduce investments, hampering the growth of many companies and leading to low profit margins. Matheson & Petit (2017) attest that high tax burdens can reduce the profitability of telecom companies, making them less attractive to investors. This means that investors may be wary of committing funds to markets with unpredictable or high tax rates, leading to reduced capital for infrastructure projects. In addition, heavy tax burdens raise the cost of capital, which reduces investment and could increase output prices (Alex Ezeigweneme et al., 2024)In affirmation, taxes reduce investment by expanding the user cost of capital. As a result, the effect of taxes leads to risk aversion, which reduces investors' confidence, attracts low investments, and yields low profit margins.

Slower Expansion

Multiple taxes also have significant implications for network coverage and technology upgrades. According to Matheson & Petit (2021) high taxes can limit telecom companies' ability to expand their networks, particularly in rural or underserved areas where the return on investment is lower. In addition, the rollout of new technologies like 5G can be delayed if companies are burdened with high taxes, as they may prioritize maintaining existing infrastructure over investing in new technology.

Consumer Impact

Lastly, the paper looks at the consumer impact of the multiple taxes in the telecom industries among the five countries under the study. Excise taxes are often imposed on telecom services, particularly mobile phone services and internet usage (GSMA, 2015). These taxes are usually passed on to consumers, increasing the cost of these services. As a result, this can reduce the affordability and accessibility of telecom services. In addition, customs charges may also apply to telecom businesses when they import technology and equipment required to run their networks. These responsibilities raise the capital expenses related to network modernization and extension. The Universal Service Fund (USF), which is intended to finance the expansion of telecom services to

underserved areas, is mandated in many nations for telecom companies to make contributions. Despite their good intentions, these contributions cost operators extra money Gillwald et al. (2018)

It also follows those high taxes lead to a digital divide (Cirera et al., n.d.). This implies that the increased costs can exacerbate the digital divide, particularly in low-income areas where consumers are sensitive to price changes. Research by Nene & Moraka (2023) underscores that excessive taxation in developing regions can undermine efforts to increase digital access and economic inclusion. The telecoms sector is a key driver of broader economic growth in Southern African countries, (Fink et al., 2002). Nonetheless, the multiplicity of taxes can impede the industry's growth and, in turn, its potential to support wider economic prosperity. The high tax rates severely limit the telecoms industry's ability to spur economic growth, which results in less-than-ideal GDP growth and employment creation. The following table presents the types of taxes imposed on the five countries under the study.

Table 1: Taxes imposed on the countries under study (Source: Researchers' Compilation Comparisons of taxes-imposed country-by-country Zimbabwe)

Country Name	Type of taxes imposed
Botswana	Corporate income tax: 22% - Value Added Tax (VAT): 12% (Increased to 14% in 2021) - Universal Service Fund (USF) Levy: 1% of gross revenues - Spectrum Fees: Considered moderate but still a significant cost
Mozambique	Corporate income tax: 32% - Value Added Tax (VAT): 17% - Custom Duties: High duties on improved telecom equipment - Regulatory Fees: High spectrum and licensing fees
South Africa	Corporate income tax: 27% (as of 2022) - Value Added Tax (VAT): 15% - Universal Service and Access Fund (USAF) Levy: 0,2% of annual turnover - Spectrum Fees: Substantial costs associated with spectrum licenses
Zambia	Corporate income tax: 35% for telecommunication (higher than other sectors) - Value Added Tax (VAT): 16% - Excise duties: 17,5 on mobile services - Regulatory fees: High fees imposed by the Zambia Information and Communication Technology Authority (ZICTA)
Zimbabwe	Corporate income tax: 24,72% (as of 2021) - Value Added Tax (VAT): 15% - Licence fees and spectrum charges: high and often unpredictable - Universal Service Fund (USF) Levy: 1,5% annual gross revenue

Zimbabwe has a heavy tax burden on the telecommunications industry, including a 15% VAT on mobile airtime, a 5% excise duty on airtime sales, a 25% tax on handsets, and various levies on mobile money transfers. (Makochekanwa, 2020)adduces that high excise taxes and VAT have increased telecom businesses' operating expenses, frequently passed on to customers, lowering service demand. The POTRAZ said in its 2021 annual report that the high and numerous taxes

have deterred investment in network growth, especially in rural regions. A decrease in service accessibility is also noted in the research; mobile penetration rates fell from 90.5% in 2017 to 84.1% in 2020. In conclusion, the taxes have increased costs for telecom companies and consumers, hindering infrastructure development and making services less affordable. The high tax burden has also strained the financial health of telecom operators, limiting their ability to invest in network upgrades. This makes it challenging for telecom companies to invest in rural infrastructure, resulting in poor connectivity. Also, high tariffs and economic instability further exacerbate the issue, making it difficult to maintain and expand rural networks.

South Africa

South Africa imposes various taxes on the telecommunications sector, including corporate income tax, value-added tax (VAT), and spectrum license fees. (Makibela, 2020) cites that the country also has a digital services tax to capture revenue from digital transactions. According to Gillwald and Mothobi (2018) in South Africa, telecom businesses' profitability has been stretched by the high tax burden, especially the spectrum fees and USAF levy, resulting in lower profits and less investment in 5G and fiber-optic infrastructure. Prices for consumers have gone up because of the more significant cost structure. Data costs in South Africa rank among the highest in the region, according to a 2021 report by Research ICT Africa, partly because of the country's heavy tax burden. Additionally, the effectiveness of telecom operations has decreased due to increasing administrative costs brought on by the requirement to comply with numerous tax regimes. The study also considered the impact of tax policies on rural connectivity. According to Faccio & Zingales (2017) Taxes on telecom services and equipment can increase the cost of deploying infrastructure in rural areas. This can make it less attractive for telecom companies to invest in these regions, leading to slower expansion and limited connectivity. Considering the above, the tax burden can increase operational costs. However, South Africa's relatively stable regulatory environment and advanced infrastructure support continued investment and growth in the sector.

Zambia

From Table 1, Zambia has a corporate income tax rate of 35% for the telecoms sector, replacing the previous dual tax rate system. The country also exempts telecom equipment from VAT on imports to attract investment. The high corporate tax rate can deter investment (GSMA, 2018), but the VAT exemption on telecom equipment helps reduce costs and encourages infrastructure development. This balance aims to make rural connectivity projects more feasible. (GSMA, 2015)affirm that the high corporate tax rate, combined with VAT and excise duties, has significantly reduced profit margins for telecom companies in Zambia, leading to a slowdown in investment, particularly in rural areas. The ordinary consumer now finds telecom services more expensive due to high taxes on mobile services, which has reduced mobile penetration rates, which fell from 83.5% in 2018 to 77.2% in 2021. According to the ZICTA annual report for 2021, the high tax burden has made it more difficult for telecom businesses to invest in infrastructure, which has slowed the adoption of cutting-edge technology like 4G.

Botswana

Contrary to the above findings for South Africa and Zimbabwe, the tax burden in Botswana is relatively moderate compared to other Southern African countries. Table 1 shows that Botswana's telecommunications sector is subject to corporate income tax, VAT, and spectrum license fees. The government has also implemented a harmonized model for determining service tariffs. (Lesetedi, 2020) attests that there has been a modest increase in consumer pricing because of the combined effect of USF taxes and VAT, with mobile data charges increasing by 5% between 2019 and 2021. Rural telecoms infrastructure has benefited in part from USF funding. However, telecom companies have stated that the charge lowers their net revenue, making it more difficult to finance network expansions independently. Some telecom providers in Botswana have expressed concerns about potential competitive disadvantages when compared with businesses in nations with lower tax rates, notwithstanding the country's moderate tax rates. In conclusion, Botswana's relatively moderate tax burden and supportive regulatory environment have enabled steady growth in the telecom sector, and investments in broadband infrastructure have improved service quality and coverage. Even though Botswana has a relatively moderate tax burden, the cost of extending services to rural areas remains high Adewara et al. (2023)This is due to the geographical challenges and the need for significant infrastructure investment. To address the challenges, the government of Botswana is actively working on expanding connectivity through initiatives aimed at connecting rural villages and reducing tariffs for consumers.

Mozambique

In Mozambique, (Chavula, 2019) found that increasing operations expenses have resulted in more expensive pricing for customers. A mixture of high VAT, CIT, and customs taxes on telecom equipment causes these costs. The development of network infrastructure has slowed because of the high cost of importing equipment because of customs duties, especially in rural areas where the return on investment is already low. Managing numerous regulatory fees has challenged telecommunications firms operating in Mozambique. These fees take a substantial chunk of their earnings and restrict their ability to invest in new technologies such as 5G and 4G (GSMA, 2015). It can be inferred that the high cost of devices and services, exacerbated by taxes, limits access to telecommunications, particularly in rural areas. This means that the high cost of services relative to income levels makes it difficult for rural populations to afford telecom services. However, ongoing investments in ICT infrastructure, supported by international grants, aim to improve connectivity.

CONCLUSION

Considering the above, it is apparent that most nations compel telecommunications operators to pay various taxes and levies, which usually include general taxes that apply to all businesses in the economy and sector-specific taxes or levies that result in multiple taxes from telecommunications operators. Research has shown that primary networks are concentrated in cities for financial motives related to provider expenses and client demand. Service providers primarily focus on commercially desirable cross-border links and intra- and inter-urban markets. Because they reside

outside of these networks' coverage areas, a sizable section of the rural population currently does not profit from this competition, and operators, whether government-sponsored or private, seem to have little interest in expanding services to more remote rural areas.

A percentage of the monthly gross income of each licensed operator is contributed to the Universal Service Fund, which has been established in many countries. The purpose of this grant is to extend services to remote areas. It's unknown how much assistance this Fund has been able to provide to these areas. Furthermore, compared to systems for service provision driven by commerce, experience with such funds in other Sub-Saharan African nations suggests that this mechanism has had little success. A percentage of the monthly gross income of each licensed operator is contributed to the Universal Service Fund, which has been established in many countries. The purpose of this grant is to extend services to remote areas. It's unknown how much assistance this Fund has been able to provide to these areas. Furthermore, compared to systems for service provision driven by commerce, experience with such funds in other Sub-Saharan African nations suggests that this mechanism has had little success.

Governments might incentivise the private sector to lower taxes and levies (such as universal service fees) for operators who construct backbone networks in unprofitable areas as long as the operators meet predetermined goals. Operators will be directly incentivised to serve rural areas by setting targets for universal service coverage, which will also help promote universal service access. This may be done competitively, where only a few companies would be eligible for the levy reduction and need to submit a bid, or it could be available to all companies. The telecoms sector will witness a rise in investment due to the lower tax burden connected with these "pay-or-play" plans, encouraging innovation and growth.

The legislative framework for Information Communication Technology, referred to as (ICT) regulation, needs to be visited in these countries to ensure that the tax laws align with the current digital space. Most tax laws are rarely updated, may be outdated and not applicable to the prevailing ICT environment, and do not accommodate rapid technological change and emerging competition. Resultantly, this erodes revenues from operators, which could otherwise be used to enhance the sector through infrastructure development. Therefore, regulators must embrace change and avoid the old-fashioned practice of believing that high and multiple taxes drive economic growth and increase revenue.

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