Mozambique Growth Diagnostic Study

Final report

Chris Canavan
Camila Arroyo
Sheyla Enciso

November 2023

Table of contents

Abbreviations

AfDB African Development Bank
AGOA African Growth and Opportunity Act
AIAS Administração de Infraestruturas de Abastecimento de Água e Saneamento
ARENE Autoridade Reguladora de Energia
ASTI Agricultural Science and Technology Indicators
BAU Balcão de Atendimento Único
BOM Bank of Mozambique
BEE Business-Enable Environment
CAGR Compounded annual growth rate
CAR Capital Adequacy Ratio
CFM Caminhos de Ferro de Moçambique
CHL Chile
CIP Centro de Integrigade Publica
CIT corporate income tax
CMI Chr. Michelson Institute
CMR Cameroon
COI Complexity Outlook Index
COMTRADE Common Format for Transient Data Exchange
CPI Investment Promotion Center
CTA Confederation of Economic Associations
DU Delivery Unit
ECI Economic Complexity Index
EDM *Electricidade de Moçambique*
EIB European Investment Bank
EIU Economist Intelligence Unit
ENRC Eurasian Natural Resources Corporation
EPA Economic Partnership Agreement
EU European Union
DUAT Direito de Uso e Aproveitamento dos Terras
FAO Food and Agriculture Organization
FDI Foreign Direct Investment
FIPAG Fundo de investimento e Património do Abastecimiento de Agua
FPA Fornecedores Privados de Agua
FRELIMO Frente de Libertação de Moçambique
FTE full-time equivalent
FUNAE Fundo de Energia
GDP Gross Domestic Product
GHA Ghana
GII Global Innovation Index
GNI Gross National Income
GVC Global Value Chains
GoM Government of Mozambique
HIPC Highly Indebted Poor Country

HCB Hidróelectrica de Cahora Bassa
IBNET The International Benchmarking Network
ICT Information and Communication Technologies
IDA International Development Association
IDR Issuer Default Rating
IFC International Finance Corporation
IFPRI International Food Policy Research Institute
IFZ Industrial Free Zones
IGC International Growth Center
IIM Mozambican Manufacturing Enterprise Survey
ILO International Labor Organization
IMF International Monetary Fund
INE Instituto Nacional de Estatística
IOF Inquérito sobre Orçamento Familiar
IPP Independent Power Projects
ISS Institute for Security Studies
LAYS Learning Adjusted Years of Schooling
LDC Least Developed Country
LNG Liquefied natural gas
LPI Logistics Performance Index
LSCI Liner Shipping Connectivity Index
LSE London School of Economics and Political Science
MCC Millenium Challenge Corporation
MEF Ministério da Economia e Finanças
MFN Most-favored nation
MIT Ministry of Industry and Trade
MIMO Monetary Policy Interest Rate
MIREME Ministerio dos Recursos Minerais e Energia
MOPHRH Ministry of Public Works, Housing and Water Resources
MZN Metical
NGO Non-governmental organization
NPL Nonperforming loan
OECD The Organization for Economic Cooperation and Development
OV Operation Vulindlela
PAE Pacote de. Medidas de Aceleração Económica
PARP Poverty reduction action plan
PCI Product Complexity Index
PFM Public finance management
PIT Personal Income Tax
PPP Purchasing power parity
PPPs Public-Private Partnerships
PQG - Plano Quinquenal do Governo
PWC PricewaterhouseCoopers International Limited
PWP Private Water Providers
RAI Rural Access Indicator

RENAMO Resistência Nacional Moçambicana
ROA Return on assets
ROE Return on equity
RWA Rwanda
R&D Research and development
SADC South African Development Community
SEZ Special Economic Zones
SDG Sustainable Development Goals
SME Small and Medium Enterprises
SOE State Owned Enterprise
SPEED Support Program for Economic and Enterprise Development
SPGC *Serviço Provincial de Geografia e Cadastro*
SSA Sub-Saharan Africa
SWF Sovereign Wealth Fund
TA Tribunal Administrativo
TZA Tanzania
TFP Total factor productivity
UGA Uganda
UN United Nations
UNCTAD United Nations Conference on Trade and Development
UNDP United Nations Development Programme
UNIDO United Nations Industrial Development Organization
UNICEF United Nations International Children's Emergency Fund
VAT Value Added Tax
WB World Bank
WBES World Bank Enterprise Survey
WDI World Development Indicators
WEF World Economic Forum
WHO World Health Organization
WTO World Trade Organization
WWBI Worldwide Bureaucracy Indicators
ZAF South Africa
ZMB Zambia

Acknowledgements

This report has been prepared by the Growth Co-Lab team composed of Chris Canavan (Manager of the project), Camila Arroyo (Policy Officer), Sheyla Enciso (Policy Fellow), Fernando Pino (Research Assistant), Tamara Godoy (Research Assistant), Angelica Trujillo (Research Assistant), Sam Molloy (Research Assistant), Prisha Bandari (Research Assistant), and Isa Chiconela (local economist consultant). The team has benefited from the support of USAID and SPEED project, particularly Helen Pataki (USAID Mission Director), Emilia Fone and Rosario Marapusse. The team also received key support from Ministry of Economy and Finance of Mozambique, particularly the Minister Ernest Max Elias Tonela, Director Enilde Sarmento, and Angelo Nhalidade, the IMF, particularly Alexis Meyer, the African Development Bank, particularly Cesar Abogo and Romulo Correa, in the coordination and facilitation of the study. The team also received crucial information in meetings with local stakeholders, including several public agencies, representatives from the private sector, international organizations, local think tanks, and representatives of the civil society.

Executive summary

Mozambique is among the poorest countries in the world, with a GDP per capita of US$492 USD (1354 PPP) in 2021, the fifth lowest in Sub-Saharan Africa (SSA). Nevertheless, it's large population, lengthy coastline along the Indian Ocean, key access to six landlocked countries, fertile agricultural land and the abundant mineral and energy resources create economic potential. Admirable success was registered between 2000 and 2015, when economic dynamism driven by its extractive industries made per capita income grow at 4.7% every year on average, double the rate recorded in comparable countries and SSA (2.2%). Since then, a series of domestic and external shocks have limited growth below the previous long-term trend. But even before stagnation set in, growth in Mozambique moved fewer people out of poverty than many other countries in the region, which worsened even more after 2015. The share of people living in poverty jumped from 48% in 2014/15 to 62.8% in 2020, according to most recent estimates by the World Bank, with large urban-rural and north-south gaps in access to basic services, with the rural areas in the north and center of the country lagging the furthest behind. Moreover, income inequality has worsened, reaching levels comparable to the most unequal countries in the world and region, such as Namibia and South Africa.

As such, Mozambique's development challenge has been to find ways to convert the described potential into growth, and especially into growth that is spread equitably across the population. This challenge is now more acute because of demography. Delayed demographic transition has resulted in still relatively high rates of population growth at 2.8% every year, which in turn requires the economy to expand fast enough to employ today's labor force and newcomers. However, labor has been unable to reallocate into more dynamic urban and peri-urban areas. 74.7% of the labor force still works in agriculture, livestock farming and fishing (INE, 2023), sectors that are largely dominated by small-scale, subsistence producers, with low and stagnant productivity and highly exposed to climate change. And although far fewer Mozambicans work in the services and industrial sectors, they have also recorded productivity losses over the last years.

This happened because sometimes impressive capital formation and foreign investment levels comparable to larger extractive economies such as Chile and South Africa were channeled to capital-intensive export industries with limited links to the rest of the economy. As a result, Mozambique's economy has not been able to generate employment, increase labor productivity, and become more sophisticated. What binding constraints hold back investment in more complex and diversified activities, activities that can harness Mozambique's natural resources in a way that promotes and sustains inclusive growth?

To address this question, this study deploys the Growth Diagnostics Framework (Hausmann, Rodrik, and Velasco, 2005) to prioritize reforms that address the most pressing constraints (immediate challenges) preventing growth. Essentially, under this framework investment and economic growth are determined by access to finance, the returns to investment, and the appropriability of these returns. In a world where production factors tend to be more complements than substitutes, the factor in the shortest relative supply – the most binding constraint – is the one with the highest estimated growth payoff and should be a priority for policy attention and government resources. This exercise is better conceived as an iterative process with active collaboration from domestic government, private stakeholders, and technical experts. As such, this study has held several interviews with 64 stakeholders, which has complemented data-driven insights and findings derived from econometric and statistical analysis that aims at reaching a common diagnosis with an internally consistent policy plan for Mozambique. Throughout this

report, we will refer to the immediate challenges as those that were identified as the most binding constraints to sustainable growth in Mozambique.

Growth Diagnostics findings

The lack of infrastructure (specifically roads) is constraining the diversification of the economy in Mozambique. Low levels of private investment to drive the sophistication and diversification of the economy may arise from low, although appropriable, expected returns. This is the case of Mozambique, where the poor infrastructure of the country is limiting the private profitability of investment. Specifically, road infrastructure availability is hindering economic development, especially for the agriculture and rural sectors. Mozambique's road infrastructure was built as a feeder system to serve the primary urban areas, but its quality and density have remained poor over the years, with 80% of the primary network unpaved and large maintenance deficits. These deficiencies, especially in rural areas, raise transportation costs, restricting the capacity of farmers, domestic firms, and large investors to access domestic and foreign markets, and developing backward and forward linkages along value chains. Simultaneously, it limits connections between rural areas and more dynamic economic centers in urban areas, restricting the development of an integrated internal market in the country, functioning instead as three economically independent regions. In the sector with the largest employment and potential to generate income, namely agriculture, it holds back the adoption of key modern technology (fertilizers, pesticides, improved seeds, mechanized equipment) necessary for productivity gains. Finally, deficient road infrastructure limits the capacity of workers to reallocate into higher value-added industries. And despite significant efforts since the early 2000s to overcome these challenges, public investment in roads has been hindered by lack of resources and state capacity to manage public infrastructure investment and maintenance programs.

Similarly, extensive red tape as a signal of poor regulatory quality creates an obstructive Business-Enable Environment (BEE) that hampers the firms' ability to grow and be more productive. The evidence suggests that red tape, and its extension to access land for productive use, reflect the government's overall inability to provide a good business environment. All procedures necessary to start a business, access public services, receive licenses, as well as the uncertain and punitive inspections raise monetary and non-monetary costs for existing and new firms, which may be behind the country's excessive levels of informality and the declining and relatively low share of middle-size enterprises. In 2021, Mozambique had around a 96% informality rate among its workforce and firms that operate unregistered reveal that the main reason behind is the time, fees and paperwork necessary to operate in formality and access to the economic benefits it grants. In a similar vein, land access is also marked by complex processes to register and transfer user rights, with large management pitfalls in the land administration agencies and the systems they employ. These distortions hinder private investment and sustain a feedback cycle with petty corruption, by which companies have discovered ways to circumvent regulatory and logistical obstacles and frictions in order to continue operations and investments.

On top of that, weak coordination among several public actors and a lack of accountability have also hindered the BEE of the country and the day-to-day operation of firms. During the interviews conducted on our fieldwork trips, many actors indicated that a lack of coordination among the government agencies is a substantial problem. Issues such as overlapping responsibilities and ineffective policy implementation have hindered the trust of private firms in the government's capacity to ensure a conducive business environment. Examples of the above are testimonies about the absence of a general plan to promote commercial and industrial access to services from network industries and the long waits to change service providers. The weak

coordination among public actors has also created doubts regarding the direction of government policies and its capacity to implement them. This has exacerbated the lack of trust in government and the reliance on different forms of micro corruption to deal with socially costly government action. Data indicates that the use of bribes and favors as guarantors for public services provision has become endemic in the country. Overall, poor regulatory quality and weak government coordination hamper the appropriability of investments necessary for a more complex and diverse productive economy.

Although access to capital is costly, our empirical analysis indicates that access to finance is not an immediate challenge and that the high cost of capital seems to be a consequence of large inefficiencies in the financial system, associated to what this study has identified as immediate challenges. Mozambique has a very high cost of capital, which does not respond to excess demand for credit nor to insufficient savings. While at an aggregate level domestic savings are low, they are partially offset by wide access to foreign finance. Moreover, financial depth and financial connectedness of the formal economy are average when compared to peers, with a better performance in microfinance and mobile money. The costly capital seems to be a consequence of large inefficiencies in the financial sector materialized in large spreads between lending and deposit rates, rising non-performing loans, a relatively high proportion of loans requiring collateral, and relatively high returns for the banking system. As it was described before, poor quality and density of road infrastructure and excessively burdensome red tape increase the costs of finding borrowers and the risks of originating and servicing loans in the financial system. Market power and more stringent requirements and regulations to counteract these inefficiencies have created a negative loop that further increases the interest rate and restricts the mobilization of funds to more credit-constrained firms that cannot post collateral, keeping otherwise productive firms out of the market.

While human capital is not an immediate challenge, improvements in education and in the processes of hiring highly qualified foreign workers are crucial for the diversification and complexity of the economy in the medium and long term. There is no question that greater human capital (for example, from better education, more effective on-the-job training, or highly skilled migrants) is needed for economic development. But the short supply of human capital in Mozambique does not appear to be holding Mozambique back today. We show evidence that the returns to most levels of education have been falling over time, and unemployment among those with secondary education is high – suggesting an excess of supply rather than a human capital deficit for this level of educational attainment. In complement, few firms cite a skilled workforce as a major constraint, and few firms offer their own training to compensate for insufficient public training. Besides, in Mozambique, years of schooling of the working-age population increased sixfold in the last three decades, and we observe a positive relationship with GDP per capita, but this positive relationship has weakened in the past several years. The sectors that have grown the most in Mozambique are not necessarily the ones that require large proportions of high skill workers, confirming that human capital is not a binding constraint for those sectors.

While this evidence indicates that human capital is not an immediate challenge for growth, this does not mean that efforts to increase the coverage and quality of education are unnecessary. According to the framework used in this report, in parallel to education policies that are already being implemented there must be an effort from the government to complexify the economy in such a way it can absorb the increased availability of human capital in the medium term. The more sophisticated and diversified the economy becomes, the higher the demand for more educated

labor and with appropriate skills will be, increasing the returns to schooling and leading to investments in education becoming more profitable.

The evidence on labor regulations also points to challenges for hiring foreign workers in Mozambique. The existing regulations demand that foreign companies adhere to domestic employment quotas, potentially leading to a scarcity of skilled workers and impacting foreign investment and overall business operations. Hiring qualified foreign laborers is another way to increase the supply of qualified human capital in the country, thus, the country can also make progress in alleviating these restrictions for companies in order to gain access to technical expertise.

We also find little evidence that private sector capacity to invest is constrained by macroeconomic instability. But this does not mean that there are not macroeconomic challenges for Mozambique. For a country of Mozambique's level of development, inflation is more or less in check, the fiscal balance is not unsustainable, monetary policy is conducted with reasonable discipline, and there is little apparent risk (at least at the moment) of a run on local banks or the central bank. Nevertheless, given the immediate challenges identified, the macroeconomic scenario and the government's ability to manage public resources becomes very relevant. The provision of public goods requires financial resources, in addition to the capacity to marshal these resources appropriately (e.g., by building and maintaining sound road infrastructure). How these resources are marshaled is constrained by macroeconomics. Macroeconomic challenges may arise in the next few years, if a natural gas export take off and contribute to an appreciation of the real exchange rate, which makes it more difficult for Mozambique's exports to become more diversified and complex. The government is well advised to prepare itself for those such a scenario. But growth will depend more on the quality and less on the quantum of public spending and investment.

Syndrome

Overall, the binding constraints (immediate challenges) identified create trouble for many enterprises, especially small ones, who are caught in traps that are difficult to escape (what economists would call stable but sub-optimal equilibriums). Yet these are the enterprises that can deliver higher labor productivity, more diversification, and more complexity, which in our view are the central components of sustained growth in per capita income and broad-based development.

At the root of these traps is the government's limited capacity to provide the tangible and intangible goods necessary for enterprises to capture profits from their investments, which is a prerequisite for firms to undertake the efforts to become more diverse and sophisticated.

These public goods are necessary for the economy to move into products (and export products, in particular) that are more complex. We find evidence of this syndrome in our identification of constraints to growth that are binding. Agriculture, which holds the potential for substantial increases in labor productivity, is held back because of inadequate road transportation. Mozambique's large informal urban sector has found effective ways to avoid regulatory burdens. Both sectors would benefit from these public goods – tangible in the case of agriculture (e.g., better roads) and intangible for informal firms (e.g., regulatory quality that creates the incentives to grow and rely on formal contractual relationships) – that only the state can provide.

Unless Mozambique can overcome this syndrome, by developing the capacity for the government to provide needed tangible and intangible public goods, it will be very difficult for the economy to produce and export goods and services that are more complex, which is a requisite for inclusive

growth. Enterprises in Mozambique are demonstrably adept at moving into new product spaces that are close to existing ones; they have the capacity of self-discovery, they can coordinate amongst themselves when necessary, and they can privatize quasi-public goods when they have the resources to do so and they can capture the returns to their investments in quasi-public goods. But they need government support to make the long jumps necessary to move into more complex products.

Policy implications

Road infrastructure recommendations:

- **A strategic action plan for the provision and maintenance of road infrastructure can begin with the designation of a high-level board.** This involves establishing a high-level board composed of independent individuals and institutions with diverse expertise. This board would prioritize and oversee the long-term strategic plan for road infrastructure, ensuring resource availability and protection from political influence. Board members should be indemnified, have clear mandates and term limits, and adhere to a code of conduct. Decision-making should be evidence-based, with input from stakeholders, and meetings should be transparent, making minutes and decisions public. The board should involve key government ministries and international institutions to enhance transparency, accountability, and adherence to global standards.
- **Implementation of the plan should be the responsibility of a delivery unit, overseen by the high-level board.** Delivery units (DUs) play a crucial role in ensuring the timely and efficient execution of high-priority projects, acting as a bridge between policy formulation and implementation. In the context of road infrastructure in Mozambique, a DU can contribute by leading project planning and design, collaborating with stakeholders, identifying risks, and ensuring technical feasibility. Additionally, the DU can monitor progress, assess contractor performance, and facilitate intra-government coordination by establishing a multidisciplinary team with project management skills. The DU's flexibility in organizational arrangements helps navigate unexpected challenges while minimizing disruptions. Lastly, the DU promotes learning through comprehensive post-implementation reviews, facilitating continuous improvement in subsequent projects.
- **A more robust PPP legal framework can help achieve the potentialities of this mechanism in the road sector.** Road infrastructure investment can be supported with a more active role of the private sector (for example, through public-private partnerships), especially when fiscal resources are constrained. Public-Private Partnerships (PPPs) offer a promising solution for addressing road infrastructure challenges, with the road and highway sector being particularly conducive to this approach. To leverage PPPs effectively, Mozambique should address legal framework challenges by ensuring transparency, risk allocation clarity, and alignment with international best practices.
- **Prioritization criteria are required for projects focused on reducing gaps in road infrastructure, maintaining poor quality roads, and promoting areas of potential agricultural growth.** The investment in roads should focus on connecting isolated regions with local markets and with the corridors that allow them to reach international markets. Besides, the insufficient funds for regular maintenance can lead to the deterioration of the road services over time. Prioritization criteria should also consider the maintenance and improvement of non-primary road conditions. Another prioritization criteria can consider the combination of a road provision policy with policies for productive diversification as proposed below.

- **The institutional framework for the road sector should be revised, to contend with the challenges of several actors sharing responsibility for road investment and maintenance, and the budgetary process.** The responsibility for Mozambique's road network should stop being dispersed among various institutions, as the lack of coordination among these entities leads to task duplication, corruption risks, and frequent decision-making changes. Moreover, the allocation of funds and the budgetary process should be revised to mitigate budget disparities between regional governments.

Red tape recommendations and government coordination:

- **Government services should be better coordinated and systematized.** Ongoing efforts to reduce business compliance costs, streamline registration processes, and digitize fee payments are crucial. It is essential to involve all relevant government agencies in the One-Stop Shop (*BAU*) for streamlined service provision, coupled with efforts to communicate BAU's benefits to businesses and train staff. Additionally, addressing the absence of public registers for laws, responsibilities of public servants and ministers, and implementing a national identification system is vital. The current fragmented identification system poses challenges in tracking individuals and businesses nationwide, leading to duplicated efforts, licensing issues, and opportunities for fraudulent enrollment in state benefits.
- **Government inspections should adopt a business-friendly approach without compromising labor and safety regulations.** Despite efforts to enhance efficiency and coordination, inspections, particularly for larger firms, remain frequent and uncertain. Following international best practices, inspection regulators should prioritize facilitating compliance and fostering industry growth. This involves adopting a cooperative approach, providing user-friendly channels for interaction with firms, and incorporating business concerns into policy refinements. Inspections should be risk-based, targeting resources efficiently, avoiding redundancy, while offering clear information, guidance, and advice, prioritizing support, simplicity, risk assessment, information sharing, clarity, and transparency for firms.
- **The Ministry of Industry and Trade (MIT) needs an effective, well-oriented action plan in the short term**. MIT should identify practical actions to monitor regulatory compliance, involving ongoing efforts to diagnose and address key deficiencies in business regulation and performance. MIT should enhance its technical capabilities for analytical work, ensuring effective implementation of government measures.
- **The Land Policy currently under reform can be improved in a few aspects**: Efforts should continue to simplify, shorten, and clarify regulations to access, transfer, and use DUATs. This can be done by differentiating processes according to land size or sector and implementing special regulations for smaller plots to enable private ownership while legitimate customary and smallholder land rights are protected. Crucially, the Government should find ways for DUATs to enable holders to use their rights as collateral for accessing formal credit.
- **Cross-cutting reforms on digitalization can contribute to transparency and accountability.** Specific and concrete actions are needed in digital connectivity, including digitizing core public processes like tax declarations and improving connectivity among government entities through the Government Network (GorNet). A digital transformation is recommended to boost firm productivity and enhance the provision of public services.

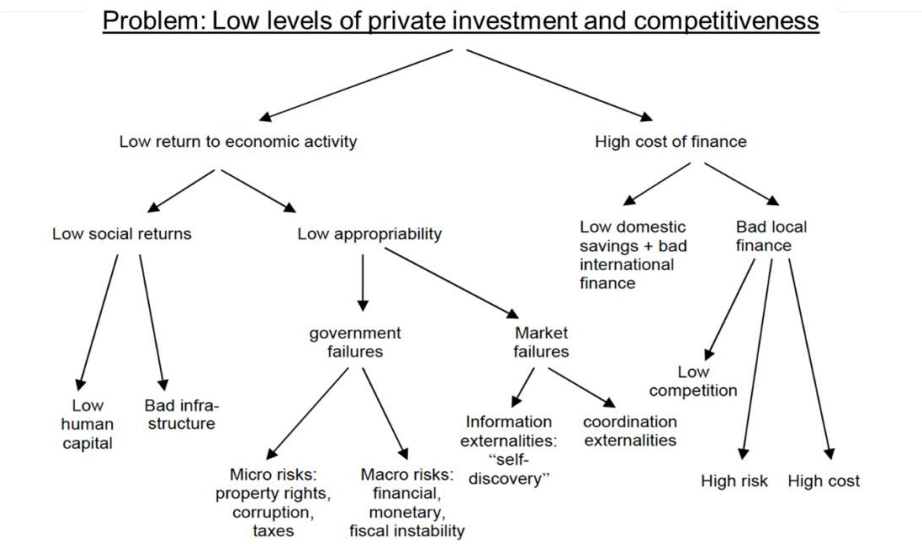
Fiscal space for immediate challenges: Mozambique has undertaken efforts for improving public finance management, revenue administration, natural resource management, governance, and fiscal transparency. All these efforts are commendable, and the Government should continue working to refine and implement them in order to generate fiscal space for the provision of public goods identified as the most immediate challenges in this report.

Target high-export growth potential sectors: We provide an initial roadmap based on the Economic Complexity framework, for the country to move towards diversification. To move beyond this export concentration, diversification should come from a combination of activities that already exist in the country and can be and new industries with significant potential to emerge. The more complex products that the country could scale up are: gold clad metals (stone sector), bricks, tiles and similar refractory ceramic constructional goods (stone sector), flourides (chemicals sector), wooden railways ties (agriculture sector), other rail locomotives (vehicles sector), corrugated paper and paperboard (agriculture), flat-rolled iron (metals), wooden frames (agriculture), and aluminum bars (metals). These products are an example of industries that exist in the country and that can be prioritized to increase the complexity of the export basket. On the other hand, the products that the country does not produce but the country could feasibly promote them are concentrated in the machinery, chemicals, metals, and electronics.

1. Methodology: Growth Diagnostics Framework

The Growth Diagnostic methodology hinges on several diagnostic tests applied from top to bottom on all production inputs organized in the Growth Diagnostic Tree (Figure 1). The tree is meant to be instructive, helping to organize the issues potentially constraining private investment, competitiveness, and overall inclusive growth in an economy. This methodology allows for the use of many economic disciplines and tools in a practical and place-focused way. The process allows for a focus on evidence rather than instincts and can help policymakers focus scarce resources on solving problems most critical to growth that may have been poorly understood prior to the exercise. It is sometimes the case that multiple constraints are critical and that the underlying forces that have allowed these constraints to fester are deeply related.

Figure 1: Growth Diagnostics Tree



Source: Hausmann, Klinger and Wagner (2008).

To identify the binding constraints – understood in this report as the most immediate challenges, the Growth Diagnostic methodology uses several diagnostic tests applied from top to bottom on all production inputs organized in the Growth Diagnostic Tree. Specifically, testing for the most binding constraint down the Tree relies on four principles of differential diagnosis:

- **The shadow price is too high:** A high "shadow price" indicates the relative scarcity of a factor in the economy. The "shadow price" test should seek to complement measuring scarcity via quantity, since low availability alone can be a signal of either low supply or low demand. Some inputs to production have a market price that can be measured, but certain factors face price controls or lack explicit prices. Hence, the definition of "shadow prices" may extend to the cost of safeguarding access to the factor or to the losses faced for lack of appropriate access to the factor.
- **Movements in the constraint produce movements in the objective function:** By definition, relaxing a binding constraint should increase the value of the objective function. In the context of growth diagnostics, relaxing a particular constraint should be associated with a payoff in growth, investment, or job creation. Similarly, tightening a particular constraint should cause a deterioration in the objective function. It should be noted that

for many factors the relevant statistics are not updated as frequently as the objective variables, hence it is not always possible to adequately pursue this test.

- **Agents less intensive in the binding constraint should be more likely to thrive (and vice versa):** Identifying the most successful sectors can provide valuable information about the constraints. Sectors that tend to be less intensive in the constrained factor should do comparatively well and be more prevalent within the economy. Conversely, those sectors most intensive in the constraint should do relatively poorly or be less prevalent. For example, if electricity is a binding constraint, sectors that rely heavily on electricity (e.g., manufacturing) might struggle in comparison to sectors that rely less on electricity (e.g., financial services).
- **Agents in the economy should be attempting to overcome or bypass the constraint:** If a factor is binding, private firms that rely on that factor exert significant efforts to overcome the constraint. The actions of relevant domestic stakeholders signal the constraints holding back economic progress, even if those constraints may not be voiced. For example, if firms are investing heavily in capacity to pump water, this is a signal that water may be a constraint to production. This type of test generally requires complementing quantitative analysis with carefully considered qualitative analysis, as standard statistical tools may not be geared at identifying the nature and frequency of these trends.

The study of growth in Mozambique and the empirical application of the mentioned principles is based on a comparative analysis that sheds light on any unusual evolution pattern in the country over time. To achieve this, the general method followed by the Growth Diagnostics Framework is to select similar countries that can serve as a collective counterfactual as well as aspirational countries whose commendable growth performance provides a benchmark or a target for policy improvements in Mozambique.[1] The final list included Cameroon, Ghana, Rwanda, Tanzania, Uganda, and Zambia, as well as Chile and South Africa.

Once the most immediate challenges are identified (binding constraints), the Growth Diagnostic exercise should focus on explaining why these issues have persisted and become an equilibrium. Reaching this level of understanding entails elaborating further hypotheses and testing their implications and how these different constraints interact. That is fertile ground for active collaboration with domestic stakeholders and technical subject matter experts on the ground. The result should be a process of collective thinking that is both dynamic and iterative, strengthens the robustness of the analyses, and gradually narrows the set of relevant hypotheses. That process may require multiple iterations until an acceptable level of convergence towards a consistent hypothesis is reached.

As a result, the Growth Co-Lab team complements this empirically based research strategy with a qualitative investigation, mostly through structured and semi-structured interviews with stakeholders in private businesses, financial institutions, academic institutions, public sector agencies, and civil society. These interactions inform the quantitative analysis, ensuring that the work enables a better understanding of the context and the most suitable approaches for future viable and relevant economic and public policies. For this end, by the delivery of the first report, the research team held several meetings with 64 stakeholders from government agencies, private

[1] See methodological details in Appendix 1: Peer countries.

firms, key international institutions, top-notch think tanks, and well recognized researchers in Mozambique.[2] The specific goals from interviews were:

- **Meetings with the public sector:** Interviews with different levels and sectors of the public sector help understand policies pursued in the last decades, their impact on economic development, and the government's plans and strategies. These meetings permit understanding the orientation of strategies and the problems agencies need to overcome.
- **Meetings with the private and financial sectors:** Interviews with representatives of businesses and industry groups help understand the major challenges and opportunities faced by firms and the perceived effects of government action on private activity. These interviews aim at viewing beyond broad narratives by observing production processes and understanding expansion goals and challenges. When feasible, these interviews take place at business operation sites and include business representatives involved in management and strategic decision-making.
- **Meetings with external experts:** Interviews with international institutions, think tanks, researchers, and social organizations help understand the local context, including cultural, social, economic, and political factors that influence development and growth in Mozambique, providing valuable information about the specific needs, priorities, and aspirations of less represented but directly affected communities. Topics of discussion are centered on qualitative information previously collected in meetings with the public and private sectors. Thus, these interviews can help uncover institutional and contextual factors that shape the development challenges and opportunities in particular areas.

Overall, this process aims at guaranteeing that the rigor of research can be directly transformed into practical policy lessons for all involved stakeholders. Moreover, it aims at creating the ground to facilitate the implementation of policy priorities by promoting their ownership, understanding, and agreement by local actors in Mozambique.

The Growth Diagnostics Framework culminates in the identification and prioritization of the most immediate challenges confronting the Mozambican government. The focal point of this prioritization lies in distinguishing binding constraints—those limitations that exert a more immediate impact—from others that do not hold such a designation. Consequently, the recommendations will be tailored to address these critical challenges necessitating immediate attention. It is essential to note that while the focus is on the pressing issues, it does not diminish the relevance of the remaining constraints; rather, it acknowledges that they represent challenges of a less immediate nature.[3]

[2] The LSE team met with a total of 64 stakeholders in 48 one-to-one or group meetings during the two trips to Maputo (July and November). The team also organized a policy roundtable, with 63 participants (in person and online) from 18 different institutions. See the list of meetings and actors in Appendix 2: List of meetings with stakeholders.

[3] This study employed as much available data from official sources in Mozambique as possible. It is an imperative, however, to expand the collection, systematization, standardization, and guarantee open access to a wider set of microdata for evidence-based policy in the country. Lack of data may lead to an incomplete understanding of the problem or issue that a policy aims to address. Without comprehensive data, policymakers may struggle to identify the root causes and potential solutions. It can also result in inaccurate or biased analyses (anecdotal evidence) and make it difficult to assess whether a policy is achieving its intended outcomes or if adjustments are needed.

2. Growth trajectory

Mozambique is among the poorest countries in the world. Real GDP per capita in 2022 was around US$581 USD[4] (1243 PPP[5]), significantly behind comparable natural resource-based economies and the average for sub-Saharan Africa (Figure 4, panel B). It is the fifth poorest country in the region, following Niger, the Democratic Republic of the Congo, the Central African Republic, and Burundi. It ranks 185th out of 191 countries on the UNDP's Human Development Index (UNDP, 2021).[6] Nevertheless, it has enormous economic potential.

It has a population of 32 million people, the 12th largest country in Africa. It has a lengthy coastline along the Indian Ocean. The Zambezi River represents untapped hydroelectric power in addition to the power it is already producing. There is fertile agricultural land throughout 36 million hectares, particularly in the northern and central portions of the country, and another 32 million hectares of natural forests. Four of Mozambique's six borders are with landlocked countries (Malawi, Zambia, Zimbabwe, and Swaziland), who must rely on transshipment across the country for access to waterborne transportation to global markets.

Mozambique is rich in mineral and energy resources. In 2020, aluminum exports accounted for 19% of total export values, and coal, titanium, gas, and electrical energy accounted for another 35% (Atlas of Economic Complexity, 2023). In 2010, large reserves of liquefied natural gas (LNG) were discovered in the offshore Rovuma Basin in Cabo Delgado and started investments in 2017 and 2019 for a value of US$30 billion (Coral South Floating and Golfinho/Atum). Mozambique now is the thirteenth country with the largest natural gas reserves in the world and third in Africa, especially with new discoveries in the Pande and Temane fields in central Mozambique.[7]

Mozambique's development challenge is to find ways to convert this economic potential into growth, and especially into growth that is spread equitably across the population.

Hopes were raised for such growth when the country won its independence from Portugal in 1975, ending more than four centuries of Portuguese control. But a fifteen-year civil war, pitting the Mozambique National Resistance (RENAMO) against the Mozambique Liberation Front (FRELIMO), dashed – or at least delayed – these aspirations.

The end of the civil war, in 1992, finally ushered in a period of sustained growth (see Figure 2), thanks to a felicitous combination of circumstances, including post-war reconstruction, market-oriented reforms after 1987[8], and especially the commodity supercycle for oil and metals. Following a gradual decline over the 1990s, the country's export unit value index more than doubled between 2002 and 2011 (UNCTADstat, 2023). Higher export prices attracted new investment and a higher quantum of exports. This boom spread to other parts of the economy,

[4] GDP per capita constant US$ 2015.

[5] Constant 2017 international $. Corresponds to current international dollars converted by purchasing power parity (PPP) conversion factor that adjusts for price level differences between countries, considering spatial price deflator and currency converters.

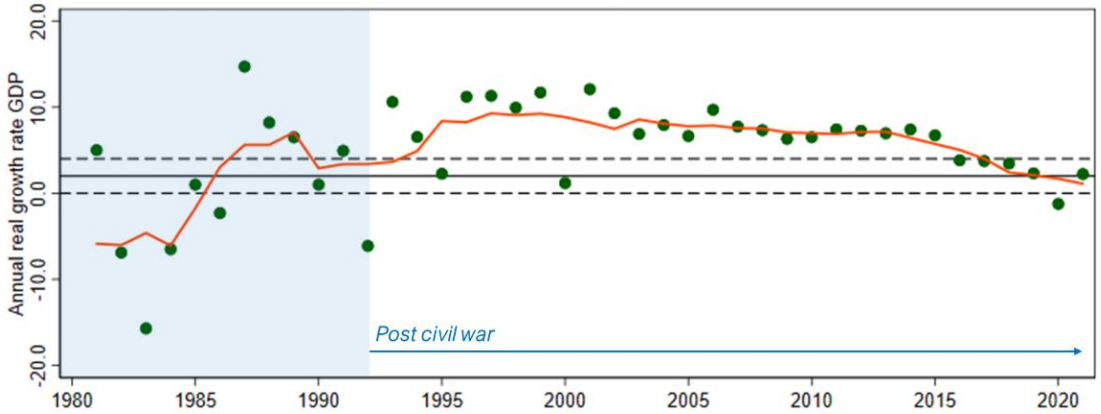
[6] The country is also classified as a Least Developed Country (LDC) (UN) and a Highly Indebted Poor Country (HIPC) (WB/IMF).

[7] The projects were expected to start operating in 2021 and reach full capacity by 2026. They are now expected to begin production in 2023. See IMF (2019a) Mozambique's Natural Gas Resources. Trade-offs and Opportunities, and IMF (2022) First Review Under the Three-year Arrangement Under the Extended Credit Facility. See also ICF (2012) The future of Natural Gas in Mozambique: Towards a Gas Master Plan – Executive Summary.

[8] Mozambique's government launched an Economic Rehabilitation Programme in 1987 with market-oriented policies supported by the IMF and World Bank, among other international institutions. See Adisson (2003).

through fiscal stimulus and greater internal demand for non-tradables like transportation and insurance. The discovery of new LNG fields brought further investment beginning in 2012. World energy prices were declining. Nevertheless, these finds raised hopes of high long-term growth.

Figure 2: Real GDP growth, annual and five-year moving average



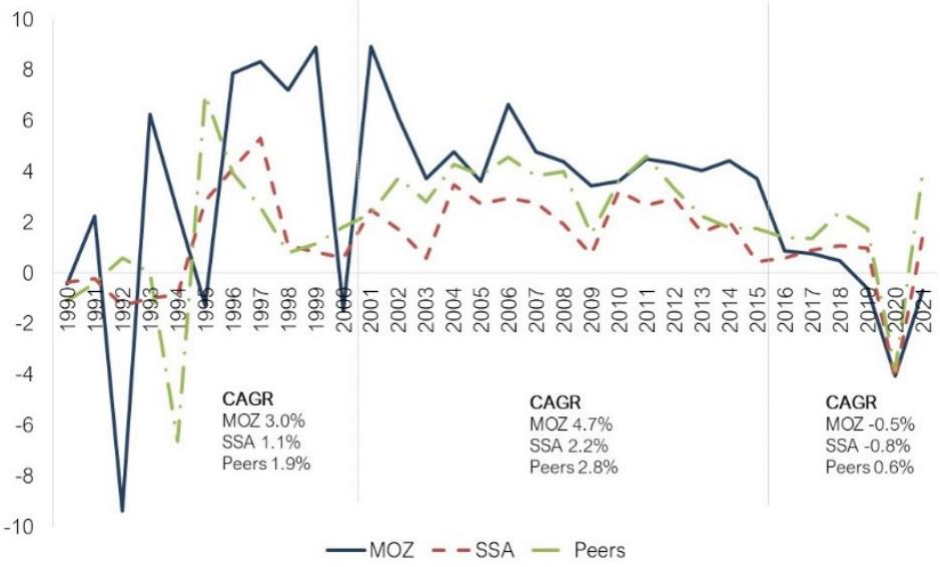
Notes: Green dots represent the yearly growth rate and the red line the five-year moving average. Source: WDI

Growth in the aggregate brought higher per capita income, which between 2000 and 2015 grew at a compounded annual growth rate (CAGR) of 4.7%, well above the average for comparable peers (2.8%) and more than double the average for Sub-Saharan Africa countries (2.2%) (Figure 3).

Two decades of growth ended abruptly in 2015 with a sequence of macroeconomic shocks. Export prices fell in 2015. In 2016 it was revealed that the government had secretly guaranteed US$ 2 billion of debt (equivalent to 10% of its GDP)[9] borrowed from international markets to set up three state-owned enterprises, allegedly used to build shipyards, develop tuna fishing and police the coast (Gebregziabher & Sala, 2022)[10] Capital inflows stopped, international lending to Mozambique froze, and the value of Mozambique's currency (the metical) collapsed. Then came the COVID-19 pandemic, which caused the economy to contract by 1.2 percent in 2020, the first contraction in three decades, and recover by only 2.3 percent in 2021, well below other low-income countries. Between 2015 and 2021, Mozambique's per capita income fell by 0.5%, close to regional peers (-0.8%) but significantly worse[11] (0.6%).

[9] Independent Evaluation Group – World Bank. See the following link.
[10] ProIndicus, Ematum, and Mozambique Asset Management are the SOEs that contracted loans with Credit Suisse and the Russian bank VTB, among others. Part of the financial adjustment included the decline of donor grants from 4% of GDP in 2014 to 2% between 2016 and 2019 (World Bank, 2021).
[11] The criteria for the selection of pairs are detailed in the Appendix 1: Peer selection.

Figure 3: Growth of real GDP per capita, Mozambique versus peers



Notes: Simple average of countries. SSA excludes Mozambique. The peer group is composed by South Africa (ZAF), Cameroon (CMR), Ghana (GHA), Uganda (UGA), Tanzania (TZA), Rwanda (RWA), Zambia (ZMB), and Chile (CHL).
Source: WDI.

Even before stagnation set in, growth in Mozambique moved fewer people out of poverty than in other countries in the region, which worsened after 2015. Those in poverty (as measured by the national poverty line) fell from 60% of the population in 2002/03 to 48% in 2014/15, to rise again to 63% in 2020 (strongly affected by the covid-19 pandemic). The latest rise in the poverty rate resulted in an even more pronounced increase in the number of poor, which moved from 13.1 million people in 2014/15 to 18.9 million in 2020. Similar trends can be seen in urban areas (where the poverty rate moved from 42% in 2002/03 to 32% in 2014/15 to end at 45% in 2020) and in rural regions (with poverty rates moving from 69% in 2002/03 to 56% in 2014/15 to end at 72% in 2020) (IFC, 2021)[12]. The World Bank (Baez et al., 2018) has estimated that a one percentage increase in GDP per capita in Mozambique reduced poverty by 0.3 percent, an anemic improvement compared to other countries (in Uganda the equivalent impact was a 0.95 percent fall in poverty). This modest elasticity in Mozambique was because income per capita improvements occurred mostly in the smaller urban population rather than in those living and working in rural areas.

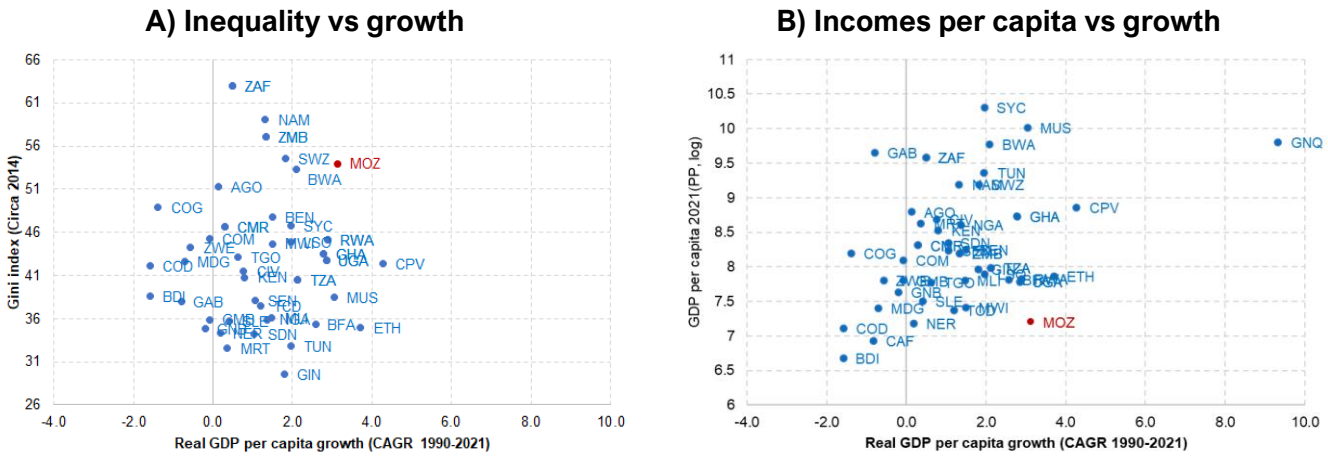
During the same period, income inequality worsened. Mozambique's Gini coefficient rose from 47 in 2002 to 54 in 2014, a level comparable to other highly unequal countries in the region, such as Eswatini (54.6) and Zambia (57.1), and close to the most unequal countries in the world, such as Namibia (59.1) and South Africa (63) (Figure 4, panel A).

Some of this inequality reflects the uneven presence of the state – and, by extension, the provision of state services – across different parts of the country (see Cruz et al, 2023). Access to some public services has improved, partially closing the urban-rural divide. The World Bank calculates that between 2000 and 2020, access to basic drinking water services increased from 24% to 63% at the national level, with bigger improvements in rural areas, where access increased from 5% to

[12] In its report, the World Bank warns that three-quarters of the data was collected during recurring lockdown periods during the pandemic. Therefore, the results should be viewed as transient, to some extent.

48%, than in urban areas, where access increased from 60% to 88%. For basic sanitation services, access increased from 11% to 37% – from 30% to 61% in urban areas and from 1% to 23% in rural regions. Less progress was made in electricity, where access rose from 8% to 31% overall, mostly due to gains in urban areas from 23% to 75%; access in rural areas only increased from 1% to 5%.

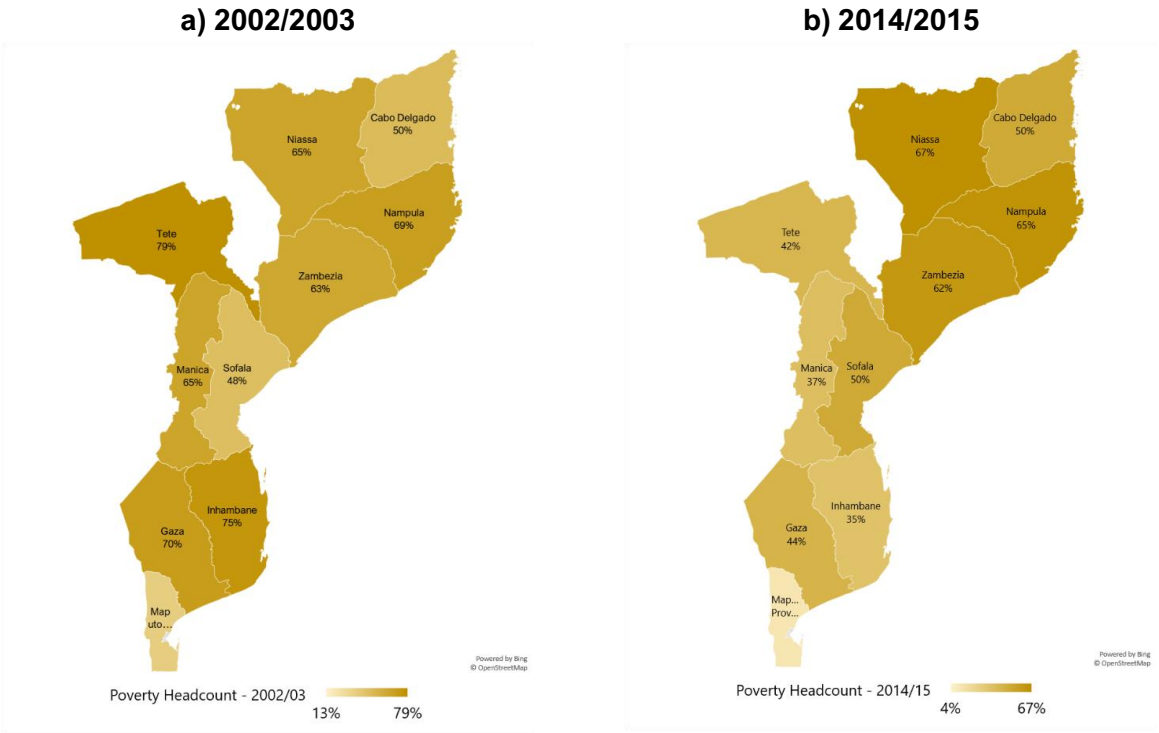
Figure 4: Current development level vs GDP growth in SSA countries



Source: WDI

Despite these improvements, regions such as Niassa, Nampula, and Zambezia still suffered poverty rates exceeding 60% as recently as 2015, whereas Maputo, the country's capital and primary metropolitan hub, had less than 4% (Figure 5).

Figure 5: Poverty Headcount rate by province, Mozambique



Source: Baez et al. (2018) using IOF-2002/03 and IOF-2014/15

In short, Mozambique's record on economic growth is mixed. The economy grew respectably for two decades following the end of internal hostilities, but largely because of transitory impulses (i.e., reconstruction, high global commodity prices); today Mozambique's economy is stagnating. And even when the economy grew, it did not lift very many boats: poverty fell only modestly before 2015, and income distribution worsened. To restore growth and broaden prosperity requires activating new economic forces; those that spurred growth in the past should be regarded as irrelevant, either because circumstances have changed (Mozambique is no longer rebuilding after a war) or because they are beyond the control of Mozambicans (commodity prices are set in global markets that Mozambique cannot influence); and also because these forces did a poor job of distributing the gains from growth equitably.

The growth challenge is made more acute because of demography. Since the start of the 1970s, fertility rates have fallen – from 6.7 births per woman to 4.7 in 2020 – but remain very high compared to other countries in the region. This decline was more than offset by a significant fall since the early 1980s in mortality rates of children under five – from 268 per 1000 live births to 71 in 2020[13]. As a result – and after a brief period of relative stability following the end of the war[14]–, the population has grown at an average annual rate of 2.8% since the turn of the century, more than the average of 2.5% in sub-Saharan African countries.

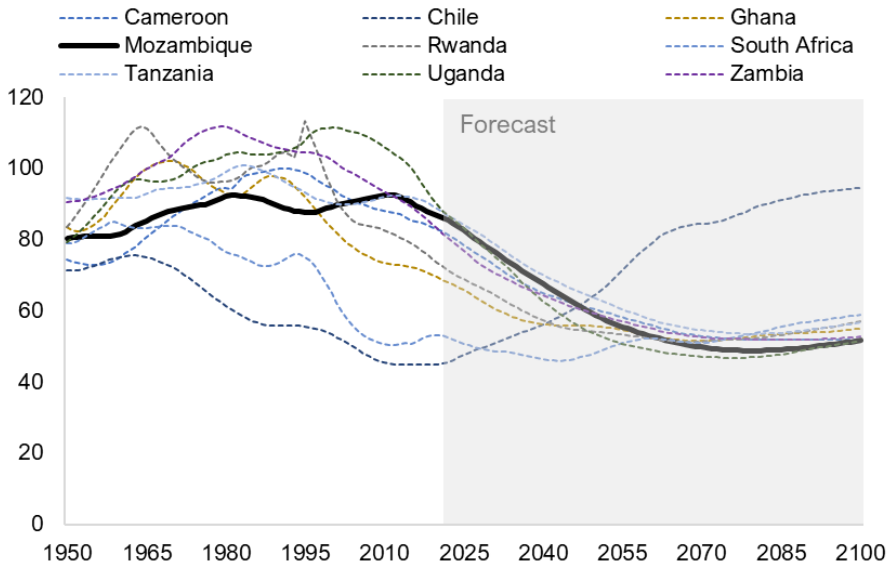
[13] See Appendix 3 - Figure A.1: Fertility, mortality, and population growth rates.

[14] Population dropped significantly during the immediate post-independence period as a result of a massive number of Portuguese people, which created substantial labor shortages and capital outflows that previously funded agriculture investment and inputs (Cruz et al, 2023).

This has produced, and will continue to produce, a surge in Mozambique's working-age population, especially as a proportion of its older and younger non-working-age population (the "dependency" ratio). The fall in Mozambique's dependency ratio has been pronounced since 2010 (see Figure 6). It began falling later compared to the country's peers and will continue to fall for decades on current trends. Today, the average number of dependents supported by each working-age adult is 0.85. This ratio is projected to fall to 0.48 dependents per adult by 2080[15].

The fall in the dependency ratio could stimulate economic growth, by increasing the labor force available for production and consumption. But this assumes that the economy can expand enough to employ today's labor force and the 500,000 newcomers who will arrive every year (World Bank, 2021).

Figure 6: Age dependency ratio projections, Mozambique vs peers



Notes: The ratio of the sum of the population under age 15 and that aged 65 and over to the number of persons of working age 15-64. It is expressed as the number of dependents per 100 persons of working age. Source: United Nations - Population Division (2022). https://population.un.org/wpp/Graphs/DemographicProfiles/Line/508

Broad-based growth in Mozambique will require a deep transformation of the economy.

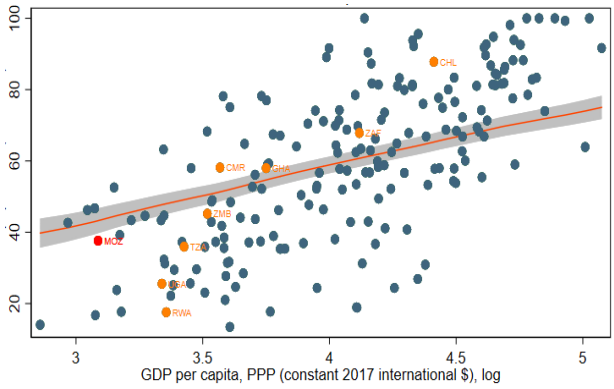
Across the world, there is a very strong correlation between income per capita, on one hand, and urbanization and agriculture employment, on the other. Richer countries are generally more urban. In richer countries, fewer people are employed in agriculture. On both counts, Mozambique lags – compared to the rest of the world, and compared to where one would expect Mozambique to be for its per capita income level.

The proportion of people living in urban areas rose from 25% to 38% between 1990 and 2021, but this is still slightly below the average for countries of Mozambique's income level (Figure 7). Similarly, the labor share of services and industry increased from 17% in the 1990s to 27% in the

[15] The sluggish GDP growth in the last years was not enough to compensate for the growth of population, and GDP per capita started to decline.

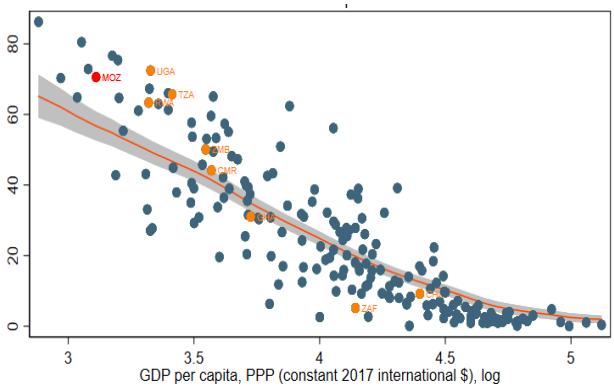
2010s, but agriculture still accounts for 73% of total employment[16] (Figure 9). The size of Mozambique's agricultural employment is higher than one would expect given the country's income level (Figure 8).

Figure 7: Urbanization rates versus income per capita, 2021



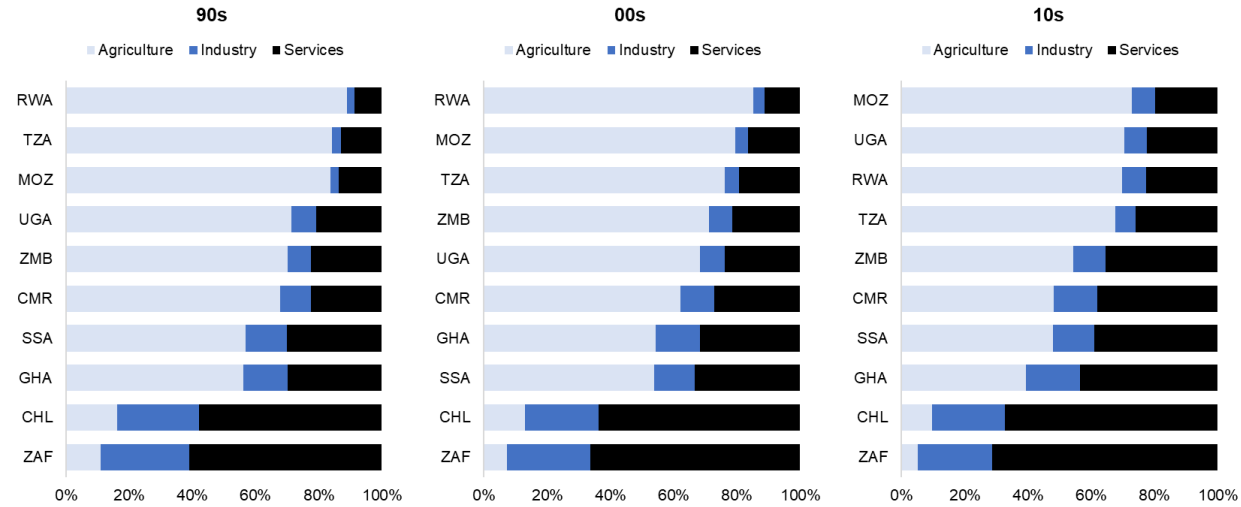
Source: WDI

Figure 8: Employment in agriculture versus income per capita, 2018



Source: WDI

Figure 9: Employment composition by sector, Mozambique versus peers



Notes: SSA corresponds to the simple average of countries excluding Mozambique. Source: WDI

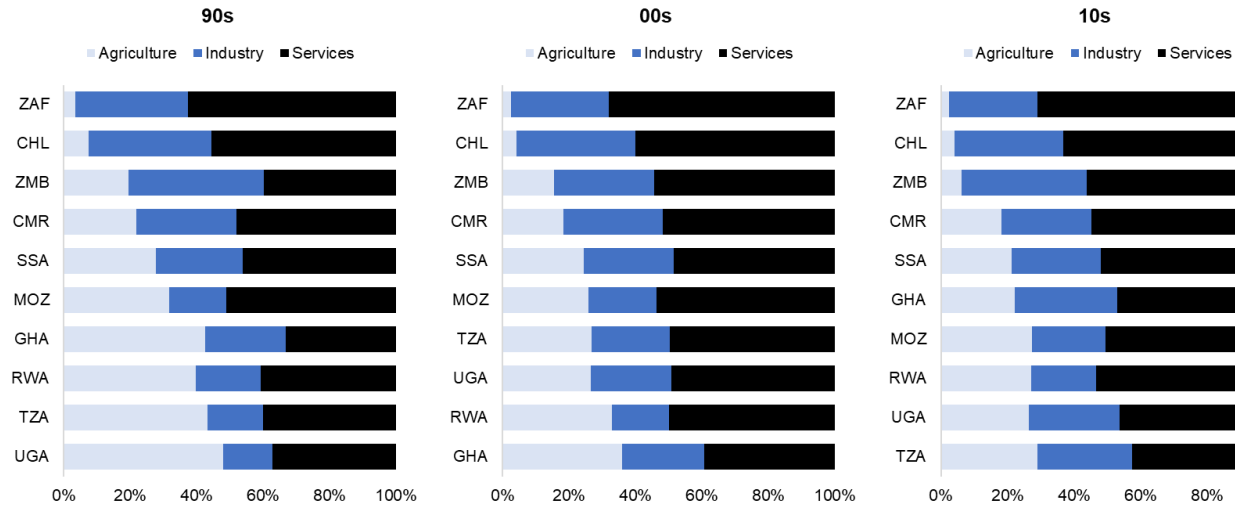
Agriculture is dominated by small-scale, subsistence farming. Approximately 3.2 million small-holder farmers account for 95% of total agricultural production (FAO, 2023), making agriculture the main source of income and employment across the country. Off-farm employment provides supplemental income to only a small share of farmers in the country's south (World Bank, 2021).

Yet this sector's contribution to GDP declined from an average of 30% throughout the 1990s to 23% in the 2000s. Although far fewer Mozambicans work in the services and industrial sectors, they have contributed much more to overall output, thanks in part to the important contribution of the extractives sector and related businesses and services, where labor productivity is very high

[16] The national IOF survey 2022 indicates that 74.7% of employed workers over the age of 15 work in the agriculture, forestry and fishing sector.

even though few are employed in these activities. Industry contributed an average of 18% over the 2000s, of which extractives constituted half. Services contributed another 47% to GDP. 25% of GDP comes from agriculture, a share that has increased only slightly over the decades, is relatively small compared to the average contribution of the SSA region, and is very small considering that almost three out of four workers are in agriculture (Figure 10).

Figure 10: Value-added composition by sector, Mozambique versus peers



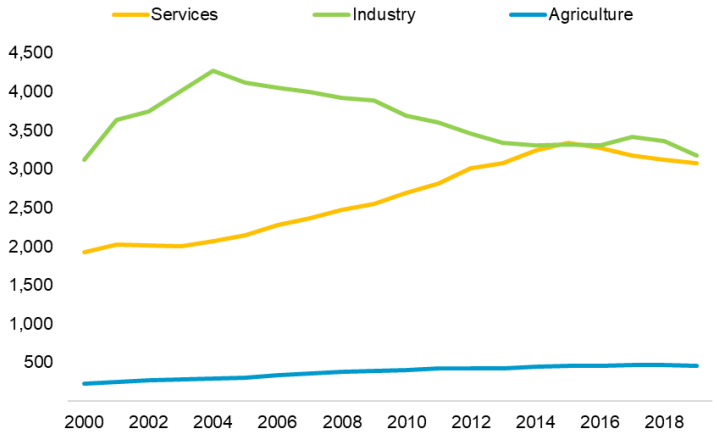
Notes: SSA corresponds to the simple average of countries excluding Mozambique. Source: WDI

Put differently, farmers are significantly less productive than workers in industry and services. Dividing the share of GDP by the employment for each sector, production per worker in agriculture has remained static throughout time, at about only 15% of the labor productivity in industry and services in 2019 (Figure 11)[17], a level substantially lower than most SSA countries and that correlates with extremely low levels of annual production over area harvested (IFPRI, 2018).

However, this does not reflect impressive productivity elsewhere in the economy. Indeed, productivity has declined in services and industry. Labor productivity in industry has been falling for two decades, including during the period of greatest economic expansion. Services productivity began to fall at the end of the commodity boom. Services remains dominated by low-productivity commerce and informal activities. Productivity in this sector grew faster in the underdeveloped provinces of the north (World Bank, 2021). Despite this spatial diffusion of growth, rapid population increase in these areas, and more new job entrants with lower-than-average productivity, explain the overall economy's and services' falling labor productivity.

[17] See Jones and Tarp (2016) for a full decomposition of within- and between-sector productivity.

Figure 11: Value-added per worker, Mozambique (constant 2015 US$)



Source: WDI

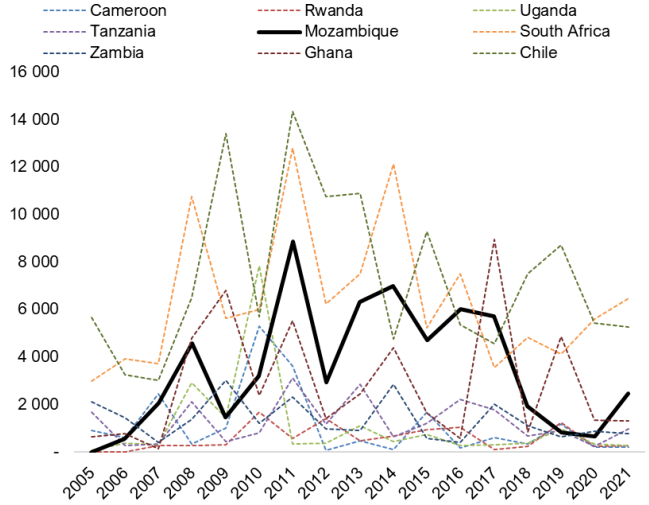
Mozambique's farmers are also perilously exposed to climate change shocks. Mozambique ranks as the 44th most vulnerable country and the 25th least ready country to climate change according to the Notre Dame Global Adaptation Initiative. Droughts and floods periodically affect the southern and central areas of the country.[18] Tropical Cyclones Idai and Kenneth, which struck Mozambique in March and April 2019, exacted considerable damage on agricultural production and social and economic infrastructure, especially around Beira, the second largest city after Maputo, and Cabo Delgado. Around 2.5 million people required humanitarian aid and the World Bank estimated a total damage of almost half of Mozambique's national budget. Later, in March 2022, Mozambique was hit again by the Gombe cyclone inundated an estimated 20,500 hectares, and recently, in February 2023, the Freddy cyclone, which was one of the strongest and longest-lasting cyclones recorded in the south hemisphere, affected 10 out of the 11 provinces in Mozambique and triggering a health crisis with a spike in water-borne diseases, such as cholera. Higher temperatures and more volatile rainfall associated with climate change will continue to threaten agriculture, and especially the small farmers and the rural poor who rely on rainfall for production.

Since farming is much less productive than working in industry and services, one would expect the latter two sectors to pull labor out of farming and into urban and peri-urban areas, and to see a corresponding fall in agriculture's share of employment and perhaps an increase in labor productivity. Yet there is little evidence of this. One could conjecture that little capital formation took place in industry and services, limiting new employment opportunities. But this is contradicted by periods of sometimes impressive capital formation in Mozambique over the past two decades. Foreign direct investment in Mozambique jumped from a yearly average of US$360 million in the 2000s to US$3.7 billion between 2010 and 2021, largely directed at resource extraction. During these years, only Mozambique accounted for 10% of the total FDI in sub-Saharan Africa.

[18] Cyclones are common during the hot, rainy season from October to March.

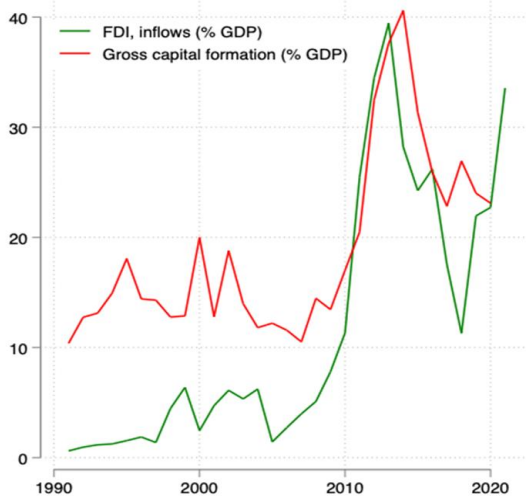
Much of this investment was for greenfield projects. The total value of announced greenfield projects in Mozambique surpassed most peers and was on a par with larger extractive economies such as Chile and South Africa (Figure 12). These large FDI inflows almost perfectly correlated with the country's capital formation, which reached 40% of GDP in 2014 (Figure 13). Mozambique his also largely dependent on aid inflows (of around 14% of GNI between 2017 and 2021).

Figure 12: Value of announced greenfield FDI projects, Mozambique vs peers (Millions USD)



Source: UNCTAD, based on information from the Financial Times Ltd, FDI Markets.

Figure 13: Gross capital formation and FDI: Mozambique (% of GDP)



Source: WDI

Despite sometimes impressive rates of capital formation, much of this investment went to capital-intensive industries with limited links to the rest of the economy. Between 2000 and 2012, most went to extractive projects (53% of total FDI); export-oriented sectors with stronger links to the rest of the economy, such as manufacturing and construction, received marginal inflows of 21% and 1%, respectively (ICG, 2015).

A closer look at the export sector tells a similar, albeit more nuanced, story. Exports can make significant contributions to job creation, because they can be scaled without hitting demand constraints (because global markets are large) and demand for goods exported by countries like Mozambique tends to be insensitive to prices (Hausmann and Klinger, 2008).

Mozambique's exports have increased significantly since the early 2000s, both to sub-Saharan Africa and global markets. By 2014, the total value of exports had registered a fivefold increase. Mozambique has also diversified its export basket, shifting significantly from predominantly agricultural products, which accounted for 42% of the export basket by 2000 (Figure 17, panel a), to a more diversified export basket; today, services contribute 10% to the country's export basket. The destination of these exports has also become more diversified. Europe and Africa remain the most important export markets, but exports to non-African markets have increased: In 2009, 65% of exports were destined for the rest of the world; in 2020 this proportion rose to 76% (Figure 16). There has also been a sustained increase in exports to Asia. India and China have increased their participation in Mozambique's exports from 7% in 2000 to 26% in 2021, both being the largest

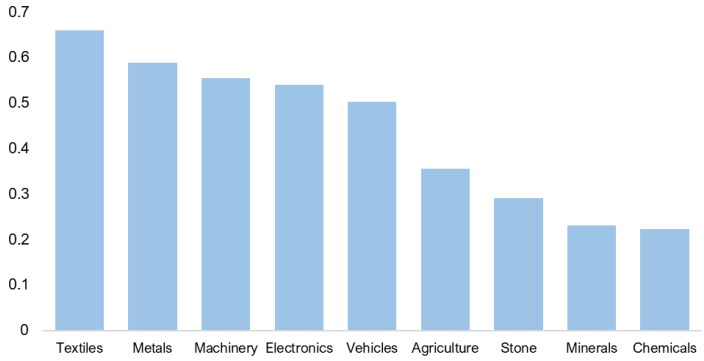
recipients of Mozambique's exports (19% and 14% of the total exports, respectively). the third country to which Mozambique's exports are directed is South Africa (12%).[19]

Despite this growth and diversification, extractive industries dominate exports. Metals and mineral exports, including coal and aluminum, more than tripled since 2009 (Figure 17) and represent 69% of the total export values. They also account for much of the diversification of exports (Figure 17, panel b). Agricultural exports also grew, but at a much slower pace.

The trouble is that Mozambique's exports have not been able to generate employment or increase labor productivity (a *sine qua non* for inclusive growth). Figure 14 depicts the labor intensity of Mozambique's export basket, calculated using labor shares from the US input-output table per product, weighted by their share of total exports. Minerals accounted for 39% of total export value in 2020. But mineral exports require little labor compared to other exports. In Mozambique, however, export sectors meeting these criteria are ill-suited to boosting employment.

Also, Mozambique's predominant export products are ubiquitous; they are produced and exported by many other countries. Mozambique has not been able to produce and export products from a wider set of industries, nor to differentiate its export products in the extractives sectors, as South Africa and Chile have, for example.

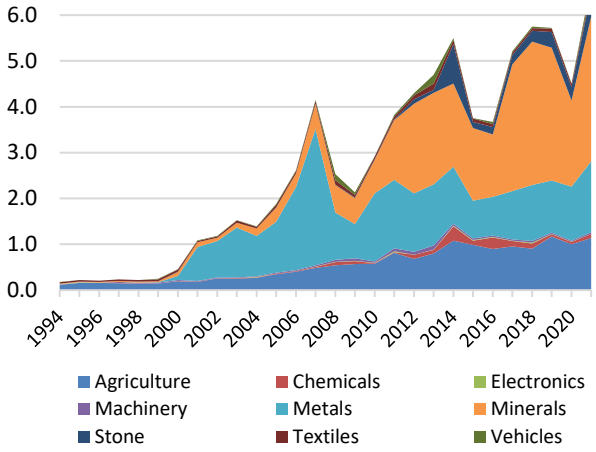
Figure 14: Labor intensity of the export basket by sector, 2020



Notes: Labor's share in total value added taken from the 2012 United States Input-Output table given its larger disaggregation by products (405 BEA sectors). This is translated to the HS 1992 6 digits products coding system, giving a labor share value for each export. Sectorial values are taken as the export-share weighted value of all product intensities for the 2020 export basket. Source: UN COMTRADE and US Bureau of Economic Analysis.

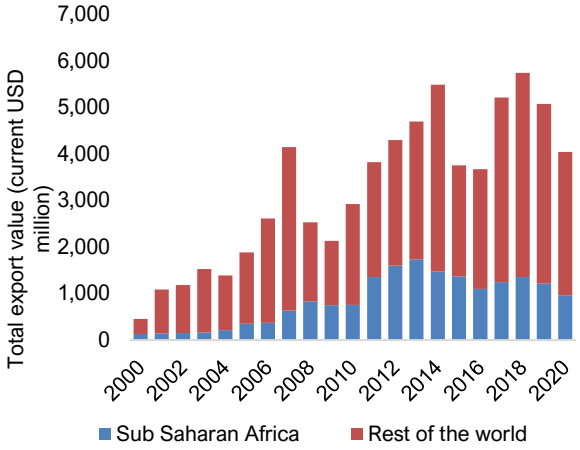
[19] For more information see the following link.

Figure 15: Export evolution, by sector



Source: UN Comtrade data 2021.

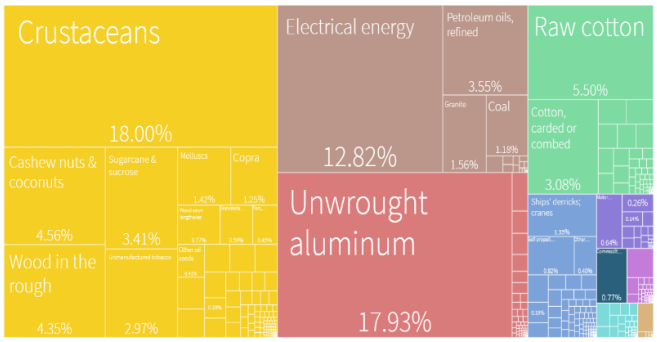
Figure 16: Exports by destination



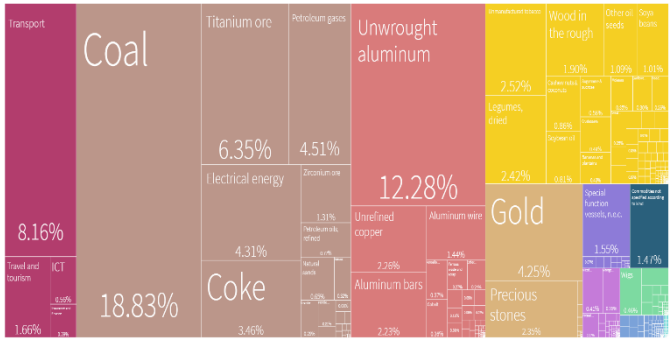
Source: UN Comtrade data

Figure 17: Export composition by product

a) 2000



b) 2021



Source: Atlas complexity database. Notes: Yellow products corresponds to agriculture products, aqua green to textiles, dark pint to services, light brown to stones, dark brown to minerals, light red to metals, pink to chemicals, purple to vehicles, blue to machinery, and light blue to electronics.

Mozambique's exports are relatively unsophisticated and have transformed very little over the past few decades. This explains the country's low Economic Complexity Index ranking compared to peers. To construct this index, we begin by constructing a Product Complexity Index (PCI), which captures the amount and sophistication of know-how required to produce country exports.[20] In Mozambique, just 1.6% of the total exports corresponds to complex products[21] [22], compared to

[20] PCI is a product-specific measure that ranks the diversity and ubiquity of the productive knowledge required for its production. It is calculated by an interaction of the average variety of countries that produce the product and the average ubiquity of the other products that these countries develop. In effect, PCI captures the amount and sophistication of know-how required to produce a product, and those complex products are those that only a few and highly complex countries can produce. Complex products include sophisticated machinery, electronics and chemicals for example, and less complex products includes agriculture products and raw materials. For more information see Appendix 4: Economic Complexity Framework.

[21] Complex products are those products with a PCI over 0.

[22] The list of products by PCI are in Appendix 3 - Figure A.2: Export products by PCI, Mozambique 2021.

43.3% in South Africa and 6.6% in Chile (Figure 18). The Economic Complexity Index (ECI) is a weighted average of PCIs for each export product, which gives a summary statistic of the know-how embedded in a country's export basket.[23] Mozambique's ECI was the second lowest amongst its peer group in 2021 (Figure 19). Moreover, export sophistication has fallen over the last 20 years (although it improved modestly in the last decade). Mozambique's ECI is low because the products that make up most of its export diversification – agriculture and mineral products – tend to be of low complexity (Figure 20).

Figure 18: Proportion of complex products over total exports

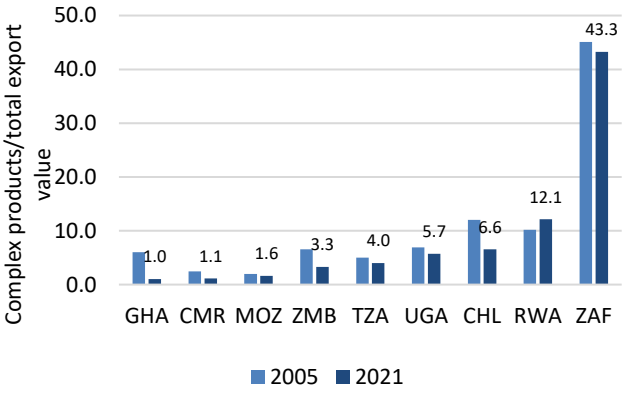
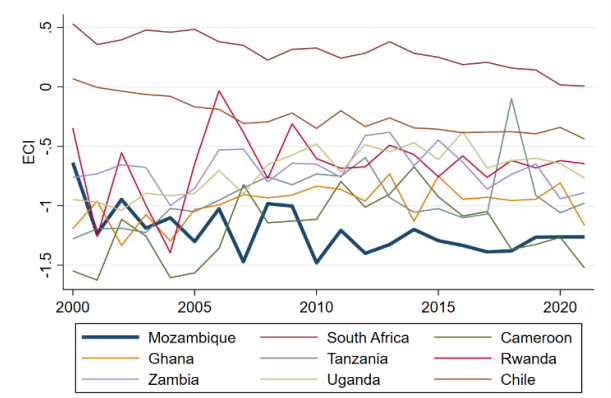
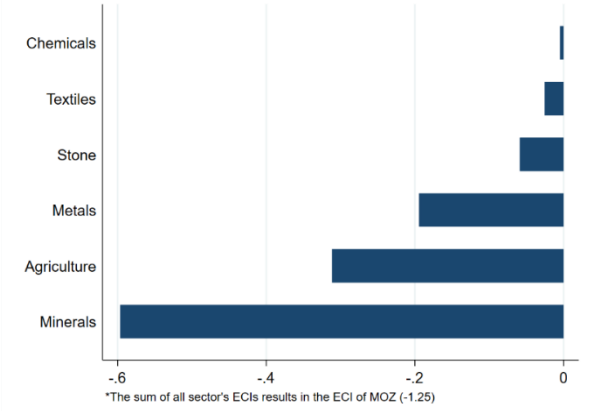


Figure 19: ECI evolution, Mozambique versus peers



Source: Atlas Economic Complexity database, 2023

Figure 20: ECI by sector in Mozambique

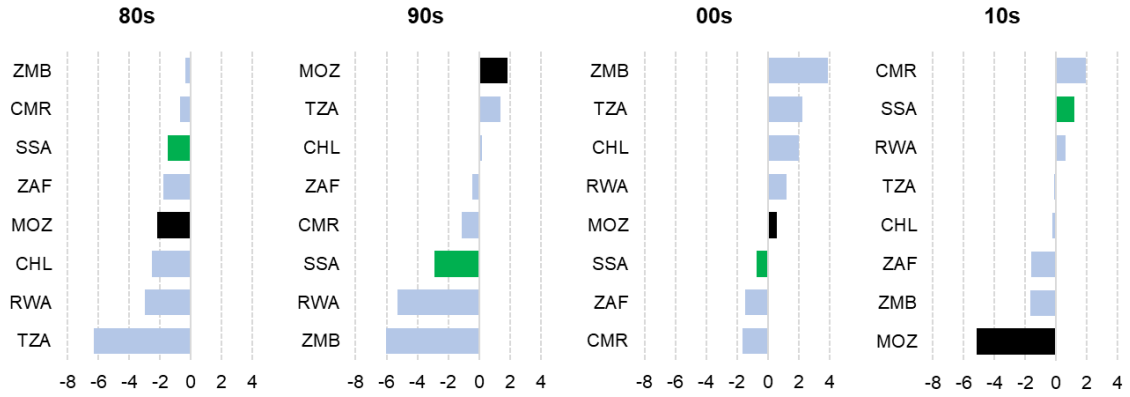


Source: Atlas complexity database 2021. Note: It corresponds to the weighted ECI by subsector, i.e., ECI of the subsector multiplied by the share of exports of each category. Source: Atlas complexity database

[23] For more information, see Appendix 4: Economic Complexity Framework.

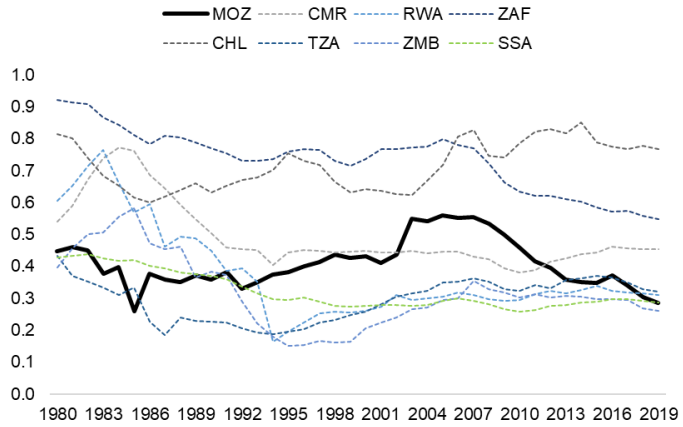
Mozambique is evidently short on the know-how[24] needed to develop, produce, and export more complex products. Most investment in Mozambique has targeted capital-intensive export sectors with weak links to more labor-intensive non-tradable sectors. This helps explain the evolution of total factor productivity (TFP) over the last few decades. TFP rose significantly immediately after independence, especially compared to its peers and sub-Saharan Africa in general. But it fell once the commodity super-cycle lost steam (Figure 21). By 2019, TFP represented less than 30% of the productivity in the US and back to the average of sub-Saharan Africa (Figure 22).

Figure 21: TFP Growth, Mozambique versus peers



Notes: SSA corresponds to the simple average of countries excluding Mozambique. Not available information for peer countries Ghana and Uganda. Source: Source: Penn World Tables, 10.01

Figure 22: TFP Mozambique versus peers (Current PPPs, USA=1)



Notes: SSA corresponds to the simple average of countries excluding Mozambique. Not available information for peer countries Ghana and Uganda. Source: Source: Penn World Tables, 10.01.

[24] In the Economic Complexity framework, know-how refers to the tacit ability to produce a product. Also known as productive capability, know-how refers to productive knowledge that goes into making products. Countries grow faster by diversifying the productive knowledge they have to make a wider variety of products of increasing complexity. See the complete definition in the following link.

To achieve sustained, broad-based growth, Mozambique's economy must experience a deep structural transformation. This transformation will involve a reallocation of labor away from basic agriculture (with a concomitant increase in labor productivity in agriculture) and towards more productive sectors, especially in manufacturing and services. It will involve greater urbanization. Mozambique's export complexity will have to rise. Total factor productivity must rise rather than continue to deteriorate.

Mozambique's economy has displayed a weak propensity to transform in these directions. Agricultural remains the largest employer in the economy, even though much of this employment is devoted to subsistence farming on small plots of land. Despite jobs in industry and services are considerably more productive, these sectors do not exert a strong gravitational pull in the labor markets. The sectors that have boomed, and where the most important investment and capital formation has taken place, are metals and mining. Yet these activities employ very few workers directly, they have only weak links to the rest of the economy, and they contribute to the production of goods that are ubiquitous in world markets and contribute little to product and economic complexity, which are correlates of higher living standards. We should not expect new investments in natural gas to depart from this pattern.

This calls into question the country's capacity to reduce poverty and improve access to basic services, despite important advances over the past decades. This problem is even more acute given the coming surge in working-age Mozambicans because of demographic trends.

What binding constraints hold back investment in more complex and diversified activities, activities that can harness Mozambique's natural resources in a way that promotes and sustains inclusive growth?

3. Growth Diagnostics final results

3.1. Access to finance

In general, access to finance is considered a binding constraint when potential projects with high risk-adjusted returns are not undertaken because the cost of capital is too high. This condition is easy enough to postulate. Nevertheless, it is challenging to observe whether access to finance is, indeed, retarding investment and overall growth. Private investment could be low because otherwise profitable projects cannot secure capital at a reasonable cost; in this case, one could conclude that a lack of capital at a reasonable cost is holding back growth. However, low levels of private investment could also reflect a dearth of worthwhile projects, even when there is more than enough capital to fund such projects. Distinguishing between these two possibilities poses a statistical challenge.

To find out if it's about the former case, namely, the low supply of loans for investments, what drives high interest rates, this analysis conceives four different causes. There are in essence two classes of stories. It may arise from inadequate access to savings and international markets, or from problems mobilizing those savings. The first story can come from low levels of domestic savings relative to the demand for investment credit or from limited access to international markets: even if domestic savings are low, profitable projects do not manage to tap into foreign savings through foreign direct investment (FDI) or via international financial markets, not even large conglomerates or foreign firms. The second story arises from a poor financial intermediation: even if domestic and foreign savings are high and enter the financial system, funds available to investors might be restricted by inefficiencies in financial intermediation.

The Growth Diagnostic proceeds as follows: we test potential causes of finance being restricted, such as low savings, lack of access to savings (domestically or internationally), or inefficient intermediation, and evaluate the signals of finance potentially being binding for investment and growth. Even if the signals of differential diagnosis do not conclude that the supply of finance is the binding constraint, it is valuable to explore the potential drivers of the cost of finance, should it be high: if domestic savings are low and international financing opportunities are not easily accessible, if domestic savings are high but do not find their way into the financial system, or if domestic financial intermediation is inefficient.

As we will show, Mozambique displays a relatively moderate level of investment when compared to peers that coexist with a relatively higher level of domestic credit to the private sector and the government. This happens while the cost of capital, namely the real interest rate, is higher than most peers but as expected given Mozambique's per capita incomes. Moreover, the costly capital does not respond to excess demand for credit nor to insufficient savings. While at aggregate level domestic savings are low, they are partially offset by the wide access to foreign finance, which largely benefits large, exporting firms, especially foreign companies, in need of capital. Additionally, financial depth and financial connectedness of the formal economy are relatively large, as deposits and bancarization indicators in Mozambique outperform comparable countries. Overall, this indicates that the aggregate supply of loans is not limited and does not explain the high cost of capital, and thus, reinforces the evidence on the lack of association between investment and investment credit.

Instead, the high cost of capital seems to be a consequence of large inefficiencies in the financial sector that arise from the revealed binding constraints. Inefficiencies are reflected

in large spreads between lending and deposit rates, high non-performing loans, a relatively high proportion of loans requiring collateral, and a relatively high ROE and ROA. As it will be described in posterior sections, poor quality and density of road infrastructure potentially increase the costs of finding borrowers and the risks of originating and servicing loans. Meanwhile, excessively burdensome red tape to doing business and, particularly to put land into productive use, increase the risks and therefore the interest rates that banks set for providing the loans. Market power and more stringent requirements and regulations to counteract these inefficiencies in the financial market have created a negative loop that further increases the interest rate and restricts the mobilization of funds to more credit-constrained firms that cannot post collateral, keeping otherwise productive firms out of the market.

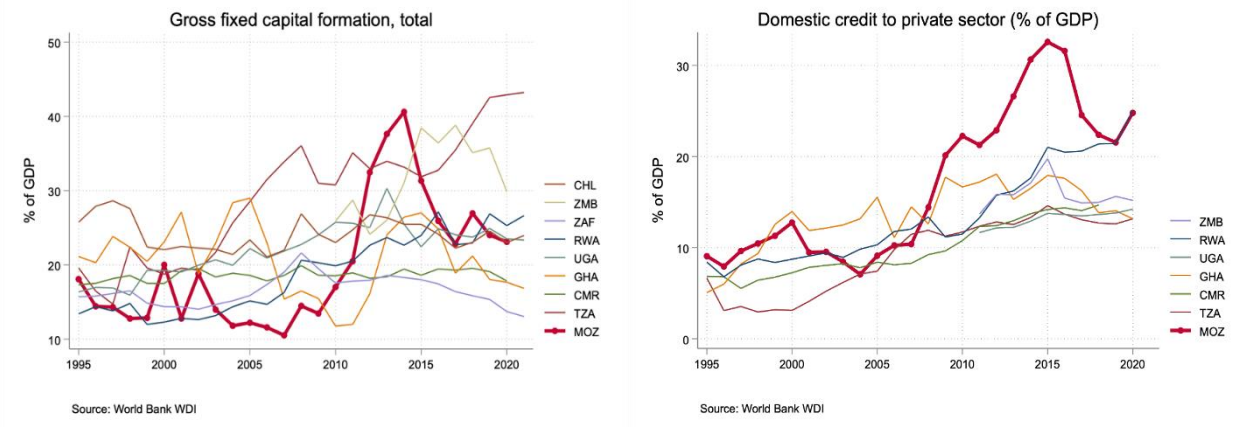
As such, finance is not an immediate challenge on Mozambique´s overall economy. Large firms manage to tap internal resources and foreign capital while enterprises in the informal sector might have figured out how to survive without it, or to rely on informal sources of credit. The segment of the private sector for whom it may be binding constraint comprises medium-sized enterprises with potential to be sufficiently productive and become part of the formal economy. And although they currently make up a small part of the private sector, they may be the most important part going forward, since these are the enterprises that will help Mozambique jump to more complex parts of the product space leveraging existing comparative advantages. This includes agriculture, such as intermediary agriculture-related services, minerals and mining, such as smelting and other intermediate processes, and other forms of industry or sophisticated services, such as technology and financial services.

3.1.1. Overview of investment and credit

Mozambique displays a moderate relative level of investment when compared to peers and as expected given the country's per capita income. Gross capital formation stood at around 23% of GDP in 2020, the last year with comparable available data, which ranked Mozambique in the middle of its peer group. This indicator saw unprecedented growth and fluctuations over the past decade, going from 17% in 2010 to more than 40% in 2014. It can be observed that the evolution of investment and was disrupted in 2016, when a series of domestic and external shocks started to hamper the real economy and Mozambique started to grow below peers and the region (see Figure 2).

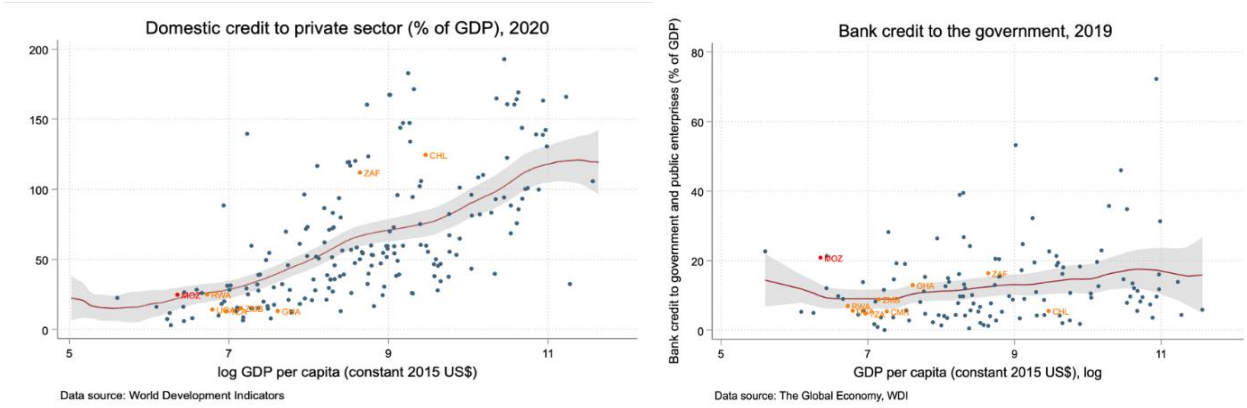
In contrast, Mozambique displays a high level of domestic credit to the private sector and the government. Domestic credit to the private sector passed from being in the middle of the regional peers' group up to 2007 to outperforming it quite significantly from 2010 onwards. By 2020, credit in Mozambique was higher than for most regional peers, and on an international scale in general, standing at 24.8% of GDP (Figure 23). The adjustment in GDP growth resulted in a simultaneous adjustment in credit as banks also started to opt for liquid government securities and had to comply with higher reserve requirements (IFC, 2021). Credit to the government is also high. It stood at more than 20% in 2019 and was the highest among the peer group and the countries with comparable income (Figure 24).

Figure 23: Investment and domestic credit in Mozambique and peers



Notes: Domestic credit to the private sector refers to financial resources provided by financial corporations (monetary authorities and deposit money banks, finance and leasing companies, money lenders, insurance corporations, pension funds, and foreign exchange companies, among others. Figures does not exhibit South Africa and Chile given their substantially higher values.

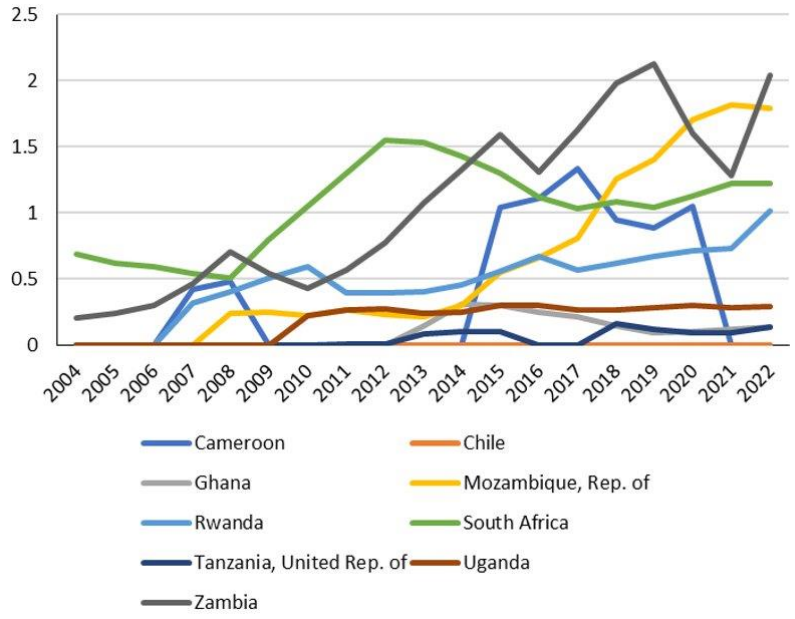
Figure 24: Domestic credit and credit to the government in Mozambique and peers, circa 2020



Microfinance contribution has grown over time, but it is still substantially limited. In the overall credit growth, microfinance has contributed minimally given its small scale. The sector is highly concentrated as there are more than 400 microcredit companies, but the biggest ones handle most of the value of loans and the number of borrowers. Microfinance only reaches 0.4 clients for every 1,000 people and had a portfolio equivalent to 2% of GDP, figures that although low, place Mozambique above among most peers.[25] However, this is still very small compared to the overall domestic credit of 24.8% of GDP in 2020, as described before (Figure 25).

[25] The Government of Mozambique launched in 2016 the National Financial Inclusion Strategy, which seeks to speed up financial inclusion in the country, under the following main pillars: (i) access and use of financial services, (ii) strengthening of financial infrastructure, and (iii) fostering consumer protection and financial education. As part of these efforts, in March of 2023, the World Bank approved a credit for USD 300 million, to channel resources through a Credit Guarantee Fund (Mais Oportunidades project).

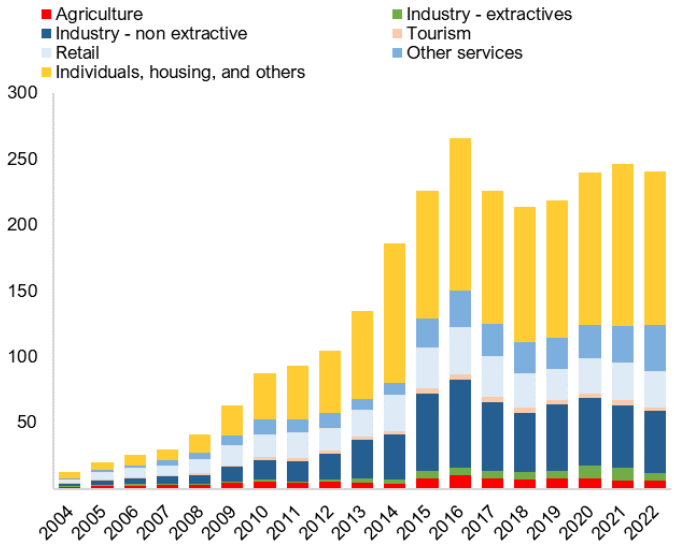
Figure 25: Outstanding loans from all microfinance institutions (% of GDP)



Source: IMF Financial Access Survey

Several potential and interrelated explanations may explain why credit in the economy far exceeds the investment made. First, credit might be going into sectors that do not contribute significantly to gross capital formation. For example, credit might be heavily skewed towards consumer finance (such as personal loans, credit cards, and mortgages) or other non-productive sectors. This could happen because local businesses and the government might not be able to use credit very effectively to convert it into productive investments in the economy, or because of low business confidence and the lack of infrastructure, skilled labor, or other inputs needed for investment. A second potential reason, that seems plausible in the context of high levels of government borrowing, is the crowding out of private-sector investment by increasing the demand for funds and pushing interest rates up. Available data on credit at a sectorial level informs the first claim: credit to individuals and households reached 46% of total credit on average between 2004 and 2022, with a gradual increase in its participation over time (Figure 26), followed by non-extractive industries and services. Meanwhile, existing empirical estimations do not show that there's a severe crowding out effect in Mozambique (EIB, 2022).

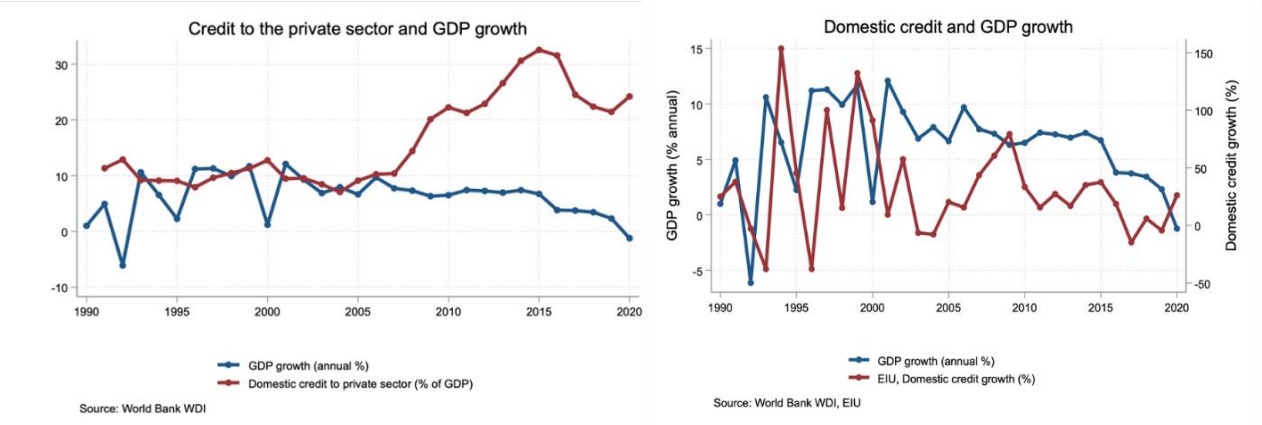
Figure 26: Domestic credit in Mozambique, by sector (Billions of meticals)



Notes: Corresponds to stock by the end of each year. Source: Central Bank of Mozambique.

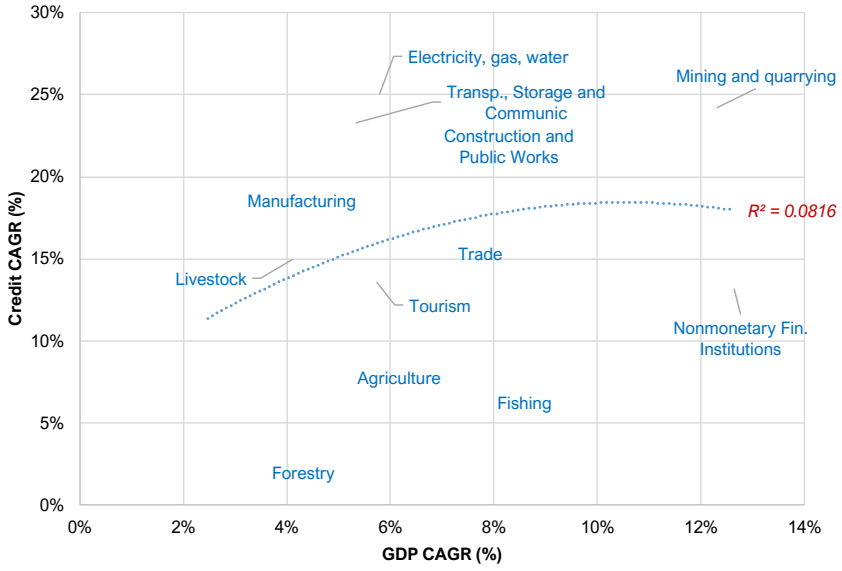
Evidence shows that credit growth does not seem to translate into higher economic outcomes and GDP growth. Diagnosing access to finance as a binding constraint for firms must specifically include the movements-in-movements analysis for economic growth and credit. Under this principle, for access to finance to be considered a binding constraint, variations in credit should be evidently correlated with variations in the outcome of interest, in this case, overall GDP growth. This does not seem to be the case of Mozambique. From 2005 to 2015, credit to the private sector as a share of GDP grew more than three-fold from 9.1% to 32.5%, while GDP growth was more gradual and averaged 7.3% annually – a similar pace of growth it had from 1995 to 2005 (8.2% annually, on average) when credit to GDP stayed somewhat constant at around 9% of GDP (Figure 27). Looking at the growth pace of both credit and GDP, the correlation is also not directly visible: while GDP growth had little to no volatility over the 2003-2015 years, averaging 7.3% per year (with a standard annual deviation under 1%), the domestic credit growth was more volatile. As reported by the Economist Intelligence Unit (EIU), credit growth was negative in 2003-04, then averaged 42% per year from 2005 to 2010, and 26% per year during the 2010-2015 period. This lack of strong correlation is even more evident in the years post-commodity boom, with the GDP growth in continuous decline and private credit still growing.

Figure 27: Co-movements of GDP and domestic credit growth



Sectorial data also shows a lack of association between credit and GDP size and growth. In terms of credit and GDP growth, one would normally expect to see an upward-sloping line in Figure 28, indicates that sectors seeing larger value added growth received more credit since the returns are higher. However, according to the Central Bank of Mozambique, the obtained slope observed for the era of most rapid growth, namely 2004 and 2015, indicates that loans were not always extended to the fastest-growing industries. For example, for the finance services and fishing sectors, which saw an 13% and 8% compound annual growth rate (CAGR) in their output between 2004 and 2021, the credit increased by only 13% and 7%, respectively, while for electricity, gas, and water, and construction sectors, which also saw high increases in their sectorial output, registered over 21% of credit increases.

Figure 28: Domestic credit and GDP, by sector



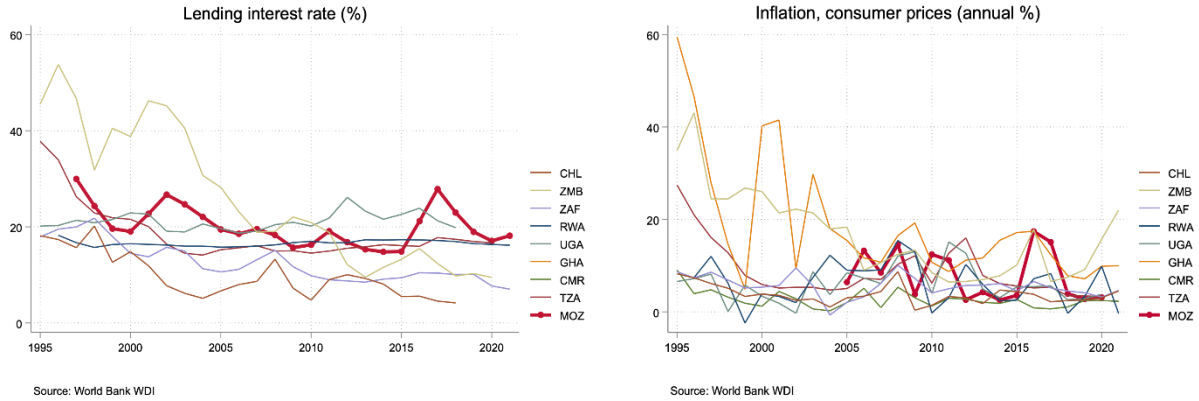
Notes: Data for the 2004-2021 period. The fitted line on the graph is a second-order polynomial trendline for the set of observations, with R-sq statistics presented alongside the trendlines. Credit data excludes individuals, housing, and others. Source: Central Bank of Mozambique and National Institute of Statistics.

3.1.2. Price Signals: Is the cost of finance high?

When observing relatively moderate levels of investment and high levels of credit, the Growth Diagnostic framework begins by asking if the cost of finance is high. Constraints that tend to bind investment, namely credit, will be in lower supply when there's a relatively higher demand, resulting in high prices. If one can establish whether interest rates are high, that might signal problems with access to finance through the supply channel.

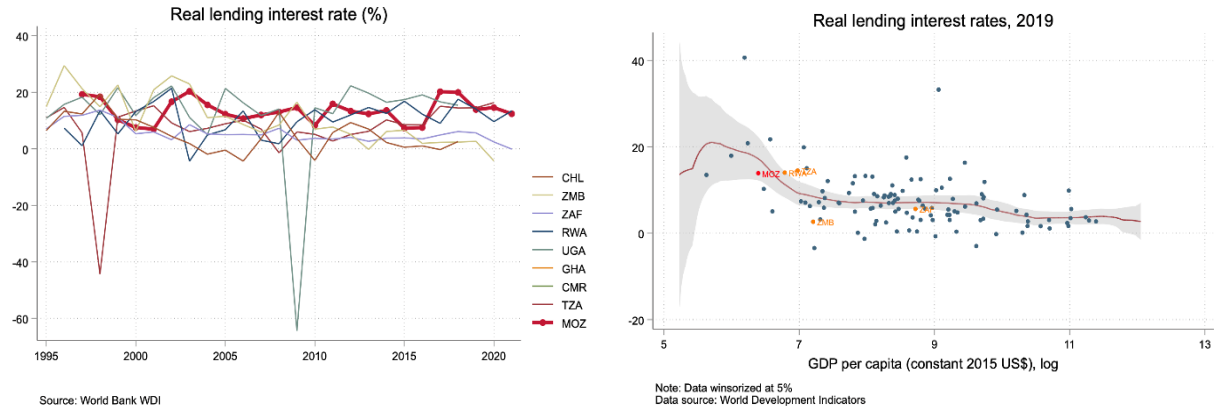
Real lending rates have been persistently high over time and higher than most peers, yet they are as expected given the country's income per capita. While nominal lending rates were substantially high in Mozambique, reaching levels above 20% once the economic downturn started, this was in part due to higher inflation that Mozambique tended to experience compared to most peers (Figure 29). A more informative measure of purchasing power and investment decisions, the real lending rate, is calculated by subtracting inflation from nominal lending rates using annual averages (using GDP deflator series). Real interest rates in Mozambique are still high. In 2019, the real rate stood at 13.9%, after staying elevated over 2017-18, and even after the correction, they appear somewhat higher than most peer countries (Figure 30). However, the rate is at levels expected for Mozambique's income per capita. Moreover, at similar levels of costly capital, Tanzania and Rwanda managed to grow fast,[26] giving a cross-country initial indication that growth seems achievable at Mozambique's real interest rate level.

Figure 29: Nominal interest rate and inflation in Mozambique and peers



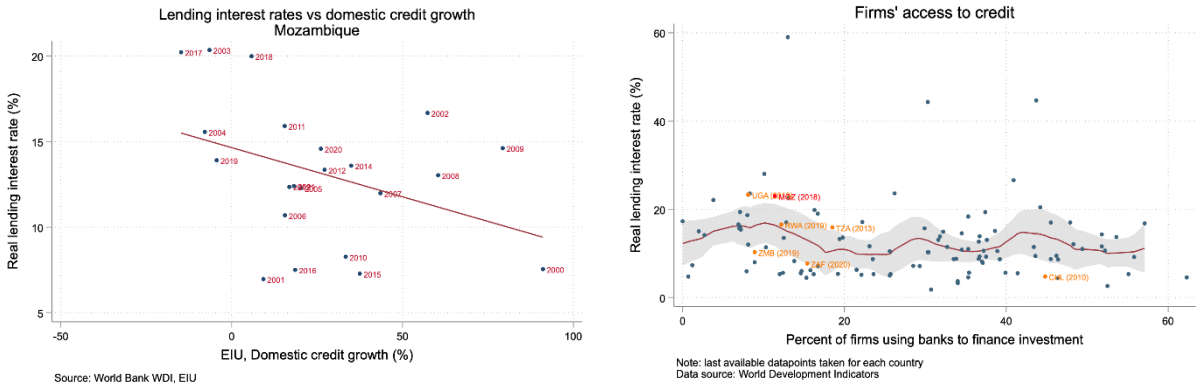
[26] In the period 2000-2019, Rwanda's and Tanzania's GDP growth reached 4.5% and 3.1%, correspondingly, close to Mozambique's rate of 3.1%.

Figure 30: Real interest rate in Mozambique and peers



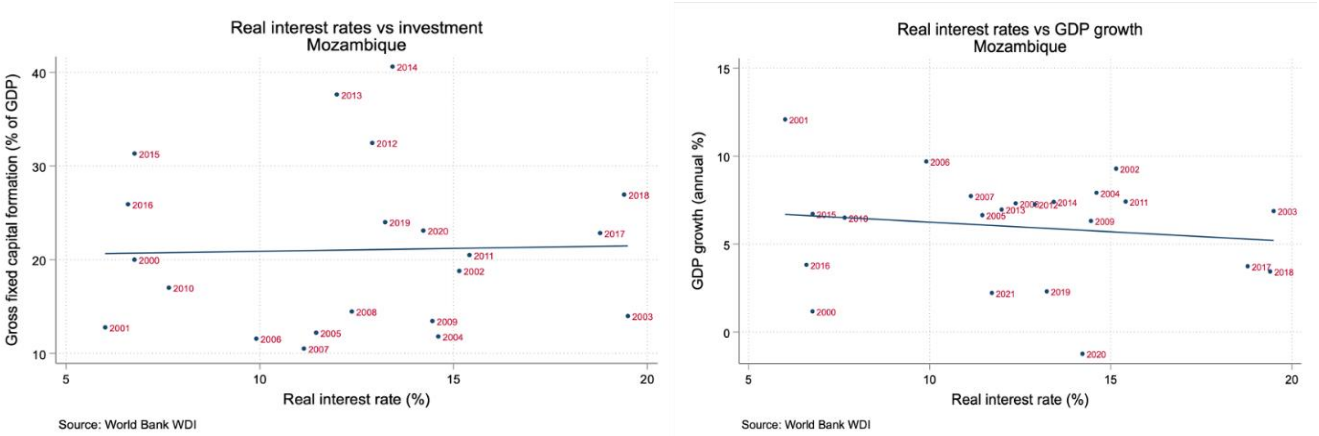
Over time, real lending rates have correlated domestic credit dynamics, measured through its pace of growth and its availability to firms. Domestic credit growth is strongly negatively correlated with the real lending interest rates in the country. In fact, the highest rates recorded between 2017 and 2019 produced a negative credit growth (Figure 31). Moreover, in 2018, when the average real lending rate was substantially high and stood at 20%, only around 10% of firms in Mozambique stated that were using banks to finance their investments. While the firm-level access to credit is high given the observed real cost of credit, it is well below most peers, except for Uganda and Zambia.

Figure 31: Real interest rate, growth of and access to credit in Mozambique and peers



However, it appears that alterations in real interest rates do not exert a discernible impact on fluctuations in investment and the broader economy. A crucial indicator of a binding constraint is the presence of a relationship between changes in the restriction and corresponding changes in investment and growth. In the context of Mozambique, there appears to be a lack of association between lower interest rates and higher investment as a percentage of GDP. Simultaneously, a non-significant inverse relationship is evident between actual interest rates and GDP growth, primarily influenced by heightened fluctuations throughout the early 2000s (Figure 32). Therefore, it is possible that lower real interest rates do not effectively stimulate economic growth.

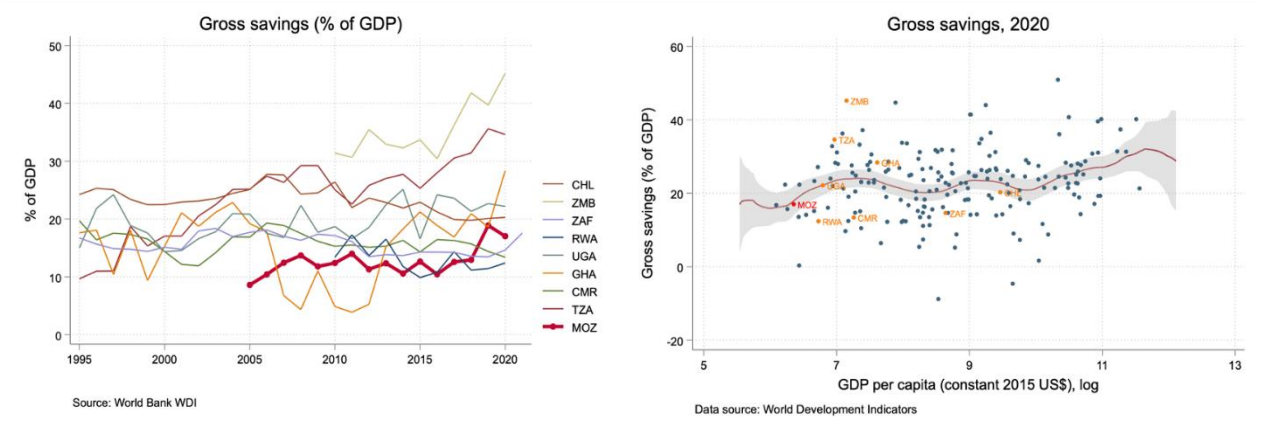
Figure 32: Real interest rates, investment and GDP growth



3.1.3. Savings and international capital markets access: Are they behind the supply of loans?

Following the first cause that can lead to a low supply of loans to undertake investment, we study the levels of domestic savings. Gross savings in Mozambique are low and below that of many peers. Gross savings represent the gross national income plus net transfers less final consumption and are resources that should finance the economy. In Mozambique, savings remained relatively stagnant between 2008 and 2018, although they started to increase in more recent years. This shows that the increase resulted from the disposable income growing at a higher rate than consumption expenditure. Savings stood at 17% of GDP in 2020 (Figure 33), a level expected for Mozambique's incomes per capita and below some peers, especially those in the SSA region, such as Zambia, Tanzania, Ghana, and Uganda.

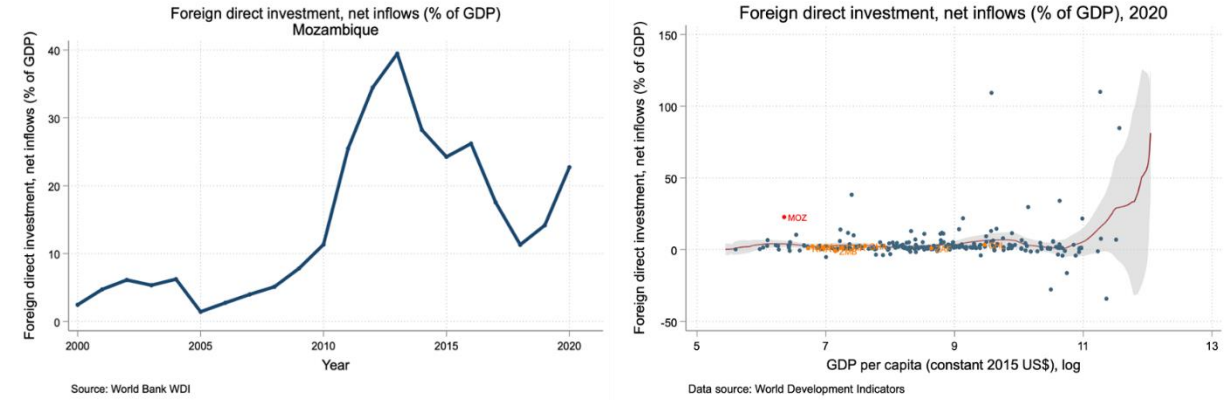
Figure 33: Gross savings in Mozambique and peers



Following the second cause that can lead to a low supply of funds to undertake investment, we study the access to international finance markets. Beyond domestic savings, there's a broad access to foreign sources to fund their investments. De-facto access to international finances can be analyzed through the net FDI inflows to the country, which, as described in the Growth Trajectory section, saw unprecedented growth during the last decades. While in 2010, the net FDI inflows stood at 11.3% of GDP, in 2013 the number went up to almost 40%, leveling down to 22.7% in 2020. Even after almost a complete reversal in the net FDI inflows between 2013 and

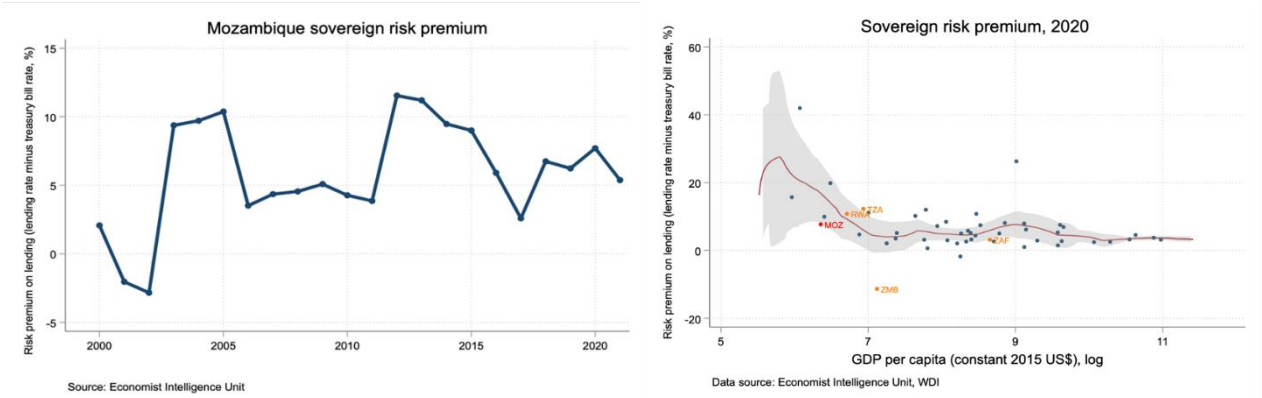
2020, the country stood well above all its peers and the international averages (Figure 34 and Figure 12). This points to Mozambique's large capacity to attract money from abroad.

Figure 34: FDI net inflows in Mozambique and peers



Broad access to international funds is in part the result of declining country's sovereign spreads since the early 2010s. Sovereign risk premia, measured as the difference between the lending rate and the treasury bill rate, has been volatile and high but trending downwards from 2012 onwards, despite the hidden-debt episode in 2016. While in 2012 it reached 12%, it declined to 5% in 2021, the best historical improvements in the last two decades. Overall, Mozambique ranks in the middle of its peer group, with a premia that is high but slightly below expected (Figure 35)[27]. While it could be argued that despite the high premia, banks are able to access international financial markets and thus channel resources for investment in Mozambique, a deterioration in the perspectives of the economy can potentially reverse this access. In fact, the increased government debt and widened fiscal deficits since 2016, led the country's credit rating to fall from B+ to currently record worse ratings than peers. Specifically, a Long-Term Foreign-Currency Issuer Default Rating (IDR) at "CCC+" was granted by Fitch (Fitch Ratings, February 2023) and S&P Global Ratings (S&P, June 2023), indicating a very high level of default risk[28]. And these agencies' perspectives do not seem to likely improve in the near future.

Figure 35: Sovereign risk premium in Mozambique and peers

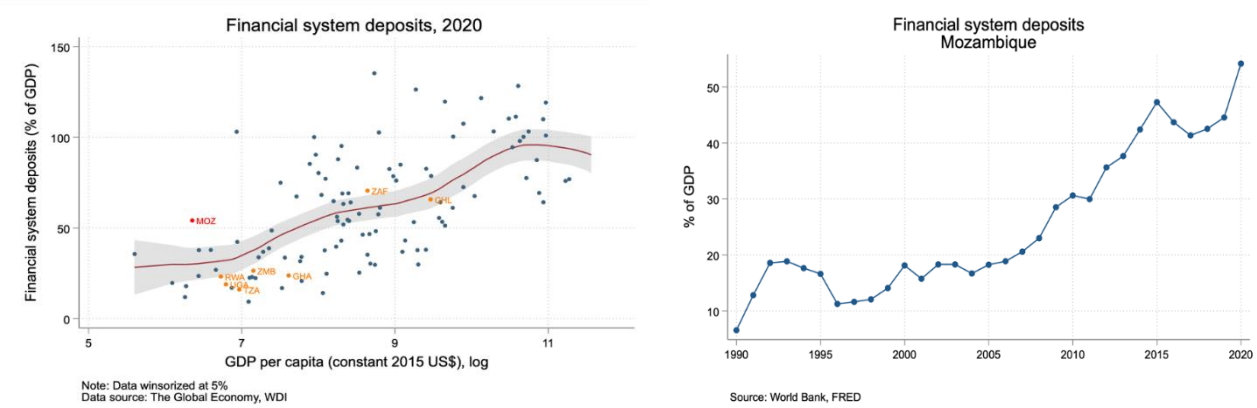


[27] See Figure 104 for additional indicators on risk premium.

[28] See the following link, and link. Credit ratings are views that look into the future and say how likely it is that the debt will be paid back according to the terms of the loan. The rating scale for issuers and issues is shown with the categories plus or minus signs to show how different the chances of failure or recovery are for issues.

Moreover, several measures of financial depth in the formal economy such as deposits in the financial system and firms' access to savings accounts, suggest that Mozambique's formal firms and individuals are financially connected and have access to financial services. Despite low savings in the economy, the financial system deposits are high, with a stark rapid growth happening over the last decades (Figure 36). Starting from below 20% of GDP in 2005, they grew more than 2.5-fold and stood at 54% in 2020. Additionally, while financial connectedness, measured through general bancarization rates, is lower than peers, it is as expected for Mozambique's level of income. Additionally, 80% of firms own a checking or savings account on average (Figure 37). There are also 0.8 commercial bank branches per 1,000 km^2 and four branches per 100 thousand people (Figure 38), figures that are not substantially different to peers. Importantly, despite its low contribution to overall granted credit, as mentioned before, connectedness to microfinance institutions is even higher than to commercial banking. There are around three commercial bank branches per 1,000 km^2 and twelve branches per 100 thousand people (Figure 39), figures that surpass most comparable peers. Similarly, connectedness through mobile money is expanding. By 2019, 29% of adults owned a mobile money account (versus 3% in 2014) while by 2022 the value of mobile money transactions reached almost 80% of GDP (versus less than 1% in 2014) (Figure 40),[29] showcasing the country's capacity to catch up with the upward trend registered by most peer countries, specially since 2016. Higher access to both microfinance and mobile money show that Mozambique is similarly capable as peers of overcoming the limited absence of commercial banking by accessing financial services and provide the resources that firms can leverage for productive investments.

Figure 36: Financial system deposits in Mozambique and peers



29 In Mozambique, mobile money was launched in 2011 by Mozambican Carteira Móvel, branded as mKesh. Other two main providers are m-Pesa (Vodacom) and e-Mola (Movitel).

Figure 37: Financial connectedness of firms in Mozambique and peers, 2020

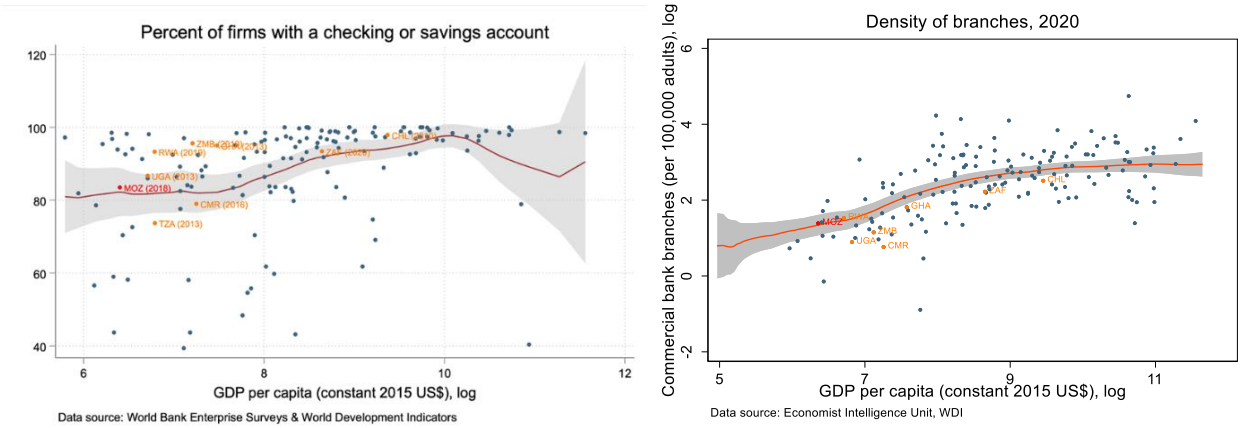
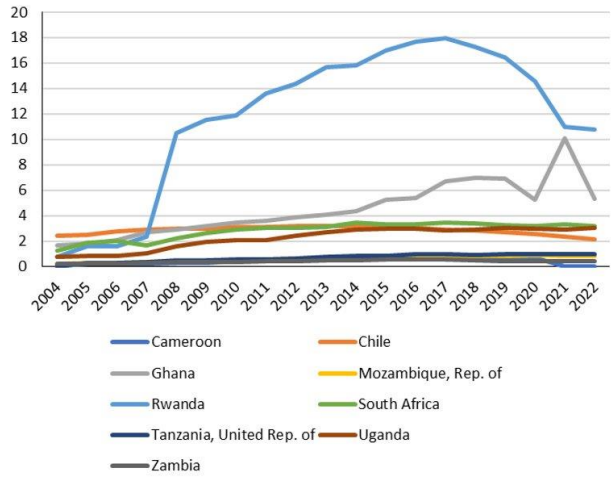
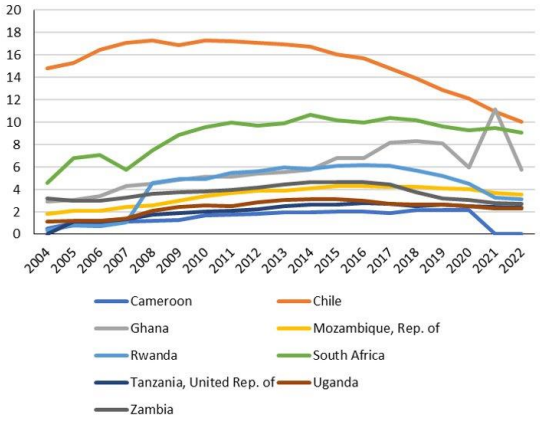


Figure 38: Connectedness to commercial banks in Mozambique and peers

A. Number of all commercial bank branches per 1,000 km2



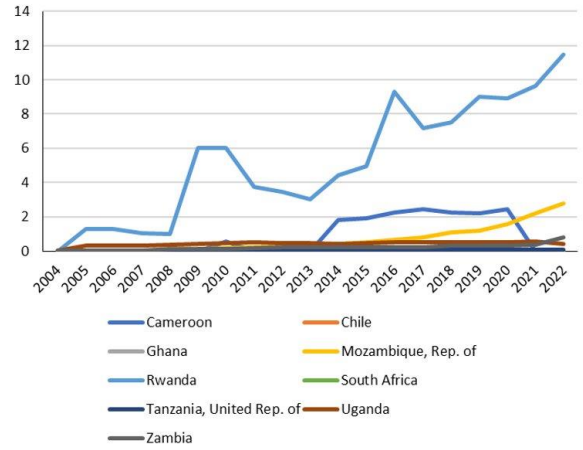
B. Number of all commercial bank branches per 100,000 adults



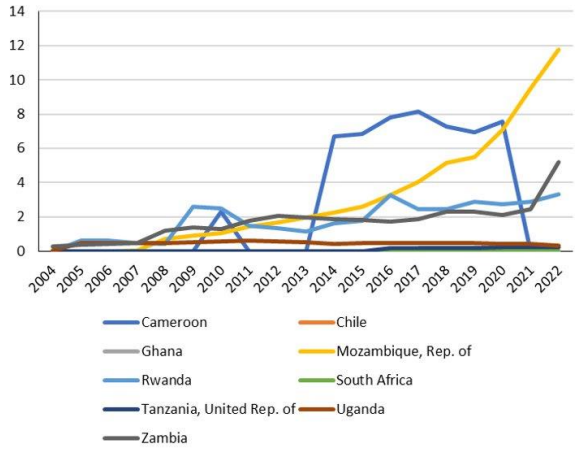
Source: IMF Financial Access Survey

Figure 39: Connectedness to microfinance institutions in Mozambique and peers

A. Number of all microfinance institution branches per 1,000 km2



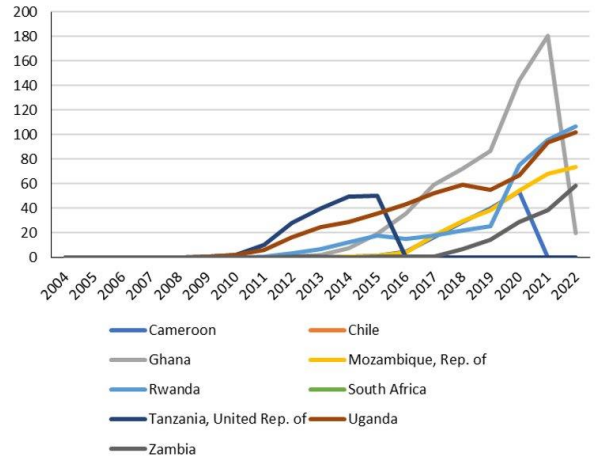
B. Number of all microfinance institution branches per 100,000 adults



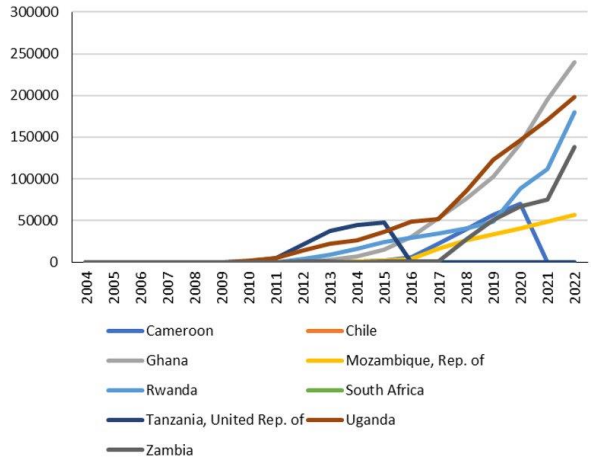
Source: IMF Financial Access Survey

Figure 40: Mobile money penetration in Mozambique and peers

A. Value of mobile money transactions (during the reference year) (% of GDP)



B. Number of mobile money transactions (during the reference year) per 1,000 adults



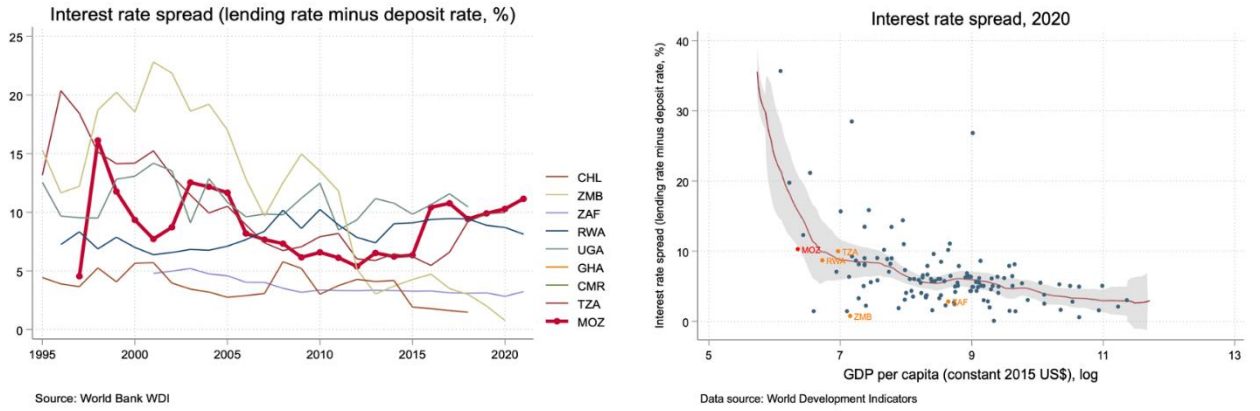
Source: IMF Financial Access Survey

Overall, high real interest rates seem to be responding to other causes than supply-side constraints. Despite domestic savings being low, the country has unrestricted access to international finance that channels resources for investment. Moreover, there seems to be a vibrant local banking system, with respectable levels of deposits and financial connectedness for the formal economy, including to microfinance institutions and mobile money.

3.1.4. Financial Intermediation to Mobilize Savings: Is it behind the supply of loans?

Lending-deposit spreads are the highest among peers and point to the potential inefficiencies in the banking sector, although levels are as expected for Mozambique's income per capita. In 2020, the spread between the average lending rate and the average deposit rate was higher than in all the benchmark countries for which data is available (Figure 41). Moreover, after a sustained decrease since the early 2000s, the spread appears to be growing in recent years following the hidden-debt episode and the concerns about the sustainability of the fiscal accounts, going from 6.3% in 2015 to 11.5% in 2021, with the spread mostly being driven by the changes in the lending rates, as deposit rates fluctuated less and stayed around 10% over the last 12 years. Overall, the levels of spread are expected for Mozambique's level of income (Figure 41).

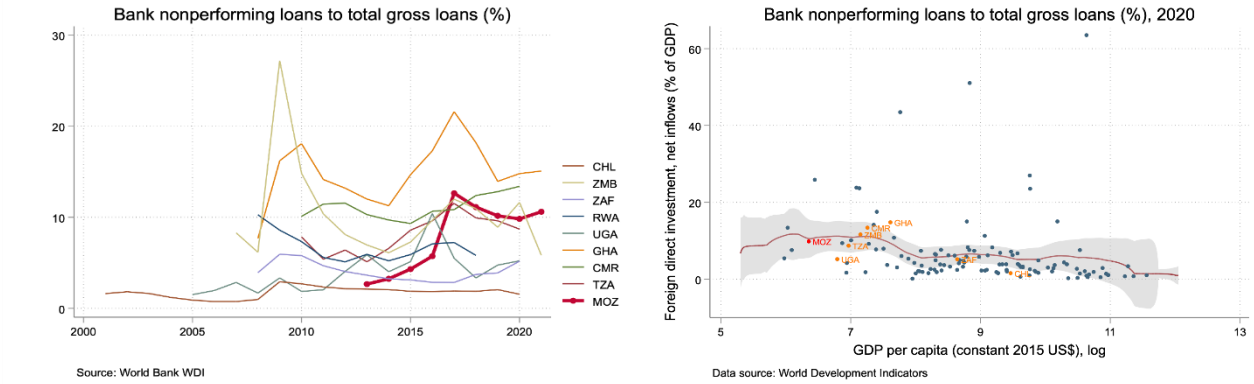
Figure 41: Interest rate spread in Mozambique and peers



Moreover, non-performing loans (NPLs) have been on the rise in recent years. Once the economic downturn started in 2015 and following the quick expansion in the domestic credit to the private sector, the banking sector manifested stress through the deterioration of non-performing loans (NPL), namely loans with payments of principal and interest that are 90 days or more past due or with future payments that are not expected to be received in full. Measured as the percentage of total gross loans, the ratio jumped from 2.6% in 2013 to 12.6% in 2017. After three consecutive years of the indicator falling, in 2020, NPLs stood at 9.8%, which was higher than a few benchmark economics with available information (Figure 42). NPL ratios in five banks are above 20% of gross loans, although high provision levels reduce these banks' exposure (IFC, 2021). Like the case of the spreads, while the indicator is relatively higher, it stands at levels expected for Mozambique's income per capita (Figure 42)[30]. This level is still high enough to indicate high risk, with sectors such as Trade (2.7%), Industry (2.3%), and Transportation (2%) contributing the most[31], which altogether reflects a poorer asset quality in the loan portfolio.

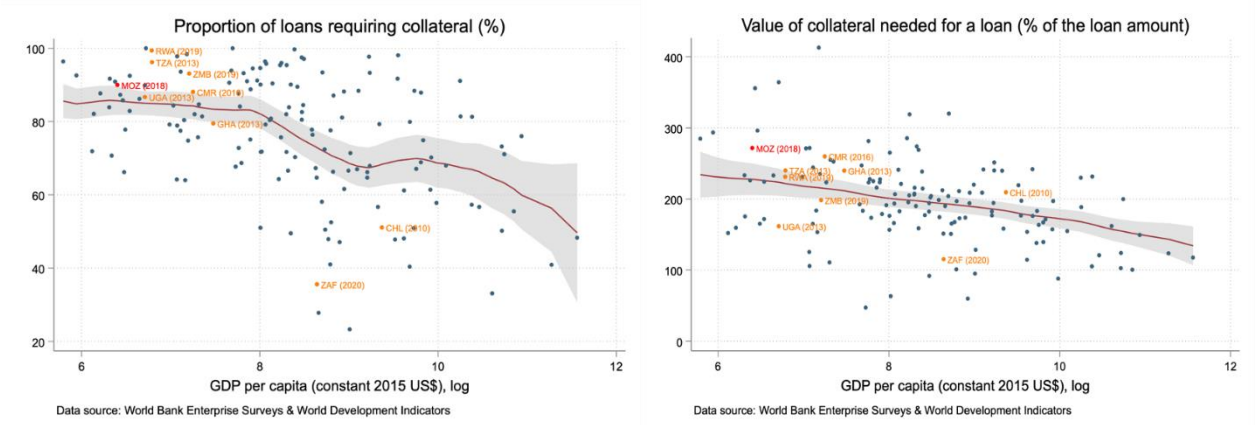
[30] More recent data available for Mozambique reports that the NPLs ratio stood at 10.02% in June 2022 (Bank of Mozambique, 2022).
[31] See the following link.

Figure 42: Non-performing loans in Mozambique and peers



The spillovers from high NPLs impact financial intermediation, for example, through strict collateral requirements. Widening NPLs affect the profitability of banks and erode their capital base necessary for absorbing losses and maintaining solvency. This, in turn, can make the banking system more vulnerable to financial shocks and can affect its ability to lend and conduct normal banking operations. Overall, worsening NPLs make financial intermediation even more inefficient by more restrictive underwriting and regulatory practices.[32] A clear example of these inefficiencies in Mozambique is the proportion of loans requiring collateral and the value of collateral itself as both are higher than expected for its level of income, and the value of collateral needed is the highest among peers (Figure 43). As the banking system is almost fully collateralized, it restricts the number of firms with access to bank credit, particularly in the sectors without sufficient assets to be collateralized. It is worth to notice that credit provision in Mozambique is dominated by a lending model based on fixed assets as collateral, instead of more modern and precise information systems.

Figure 43: Collateralization of the banking system in Mozambique and peers

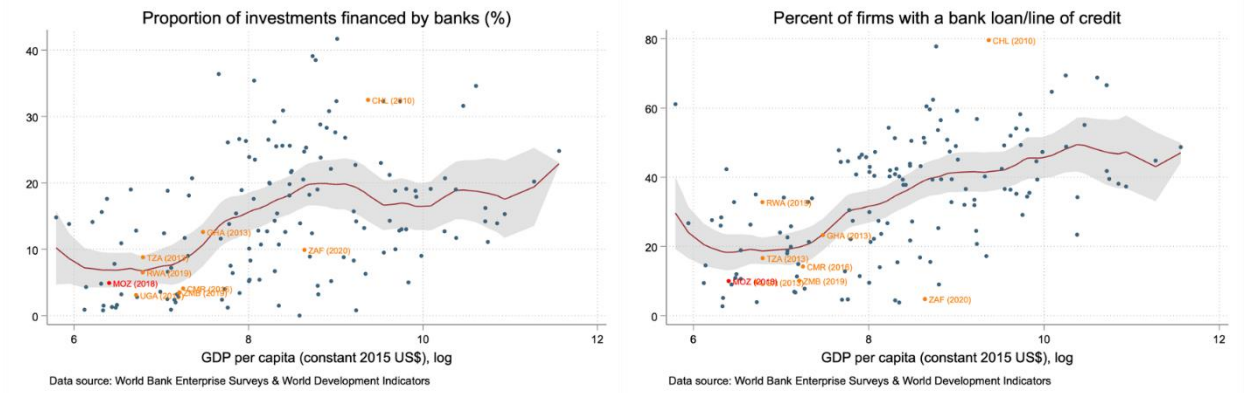


Stringent collateral requirements, in turn, are exacerbated by land policies, restricting the mobilization of funds to more credit-constrained firms. Another aspect of collateral requirements is partly related to the legal framework around access to land for productive use in the country. As land is owned by the government and granted to people in the form of land-use

[32] New regulations to increase the capital adequacy ratio (CAR, from 8 to 12%, over a period of three years) and establish minimum liquidity requirements were put in place in 2017 (IMF, 2019).

concessions (DUATs, as it is explained in following sections), it cannot be used for securing a loan, restricting individuals and firms to access formal loans, which mostly affects workers in self-employment or smaller firms.[33] Indeed, Figure 44 shows that in Mozambique, a lower-than-expected proportion of investment is financed by banks, and the share of firm that have a bank loan is one of the lowest among peers, many of them being self-employed workers. Inefficiencies like this may explain why, while the ratio of bank deposits in Mozambique is higher than most peers, the ratio of bank credit to deposits is substantially low, suggesting also that the system is unable to turn deposits into credit. This ratio stood at 45% in 2020, a figure that is not only lower than expected given Mozambique's income per capita, but also lower than most peers, such as Rwanda (108%), South Africa (98%), Cameroon (83%), Tanzania (81%), and Uganda (69%).

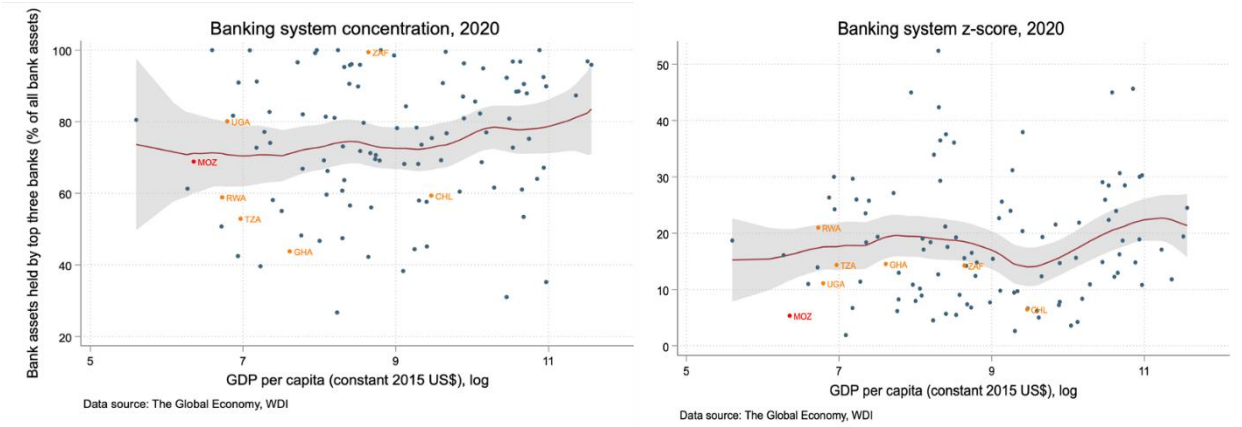
Figure 44: Banking penetration in Mozambique and peers



The banking sector's headline indicators suggest that the sector's financial system inefficiency is worse than what one would expect based on per capita income. First, the banking system concentration was higher than in most peers in 2020, only better than in Uganda and South Africa (Figure 45). Indeed, in 2018, only three banks out of nineteen, Banco Comercial de Investimentos SA (BCI), Banco Internacional de Mocambique SA (BIM), and Standard Bank, accounted for more than 65% of the total assets, total loans, and advances in the country, without substantial changes since 2016.[34] High concentration or the lack of competition between banks is supposed to guarantee better financial results for those that hold the majority of assets. Mozambique's banking sector's profitability indicators, namely return on equity (ROE) and return on assets (ROA), also outperformed peers between 2014-2019 (IFC, 2021), being supported by the large interest rates described before and the highest lending-deposit rate spreads in Mozambique versus peers, which reaffirms the banking sector's high concentration. At the same time the probability of insolvency, represented by a lower level of banking system Z-score, was the worst performing in absolute terms and compared to peers. This index compares the buffer of a country's banking system (capitalization and returns) with the volatility of those returns. As such, besides the seeming inefficiency of the system, this large default probability points to the presence of systemic risks in the banking system of Mozambique (Figure 45).

[33] See the following link.
[34] See the following link.

Figure 45: Banking system concentration in Mozambique and peers



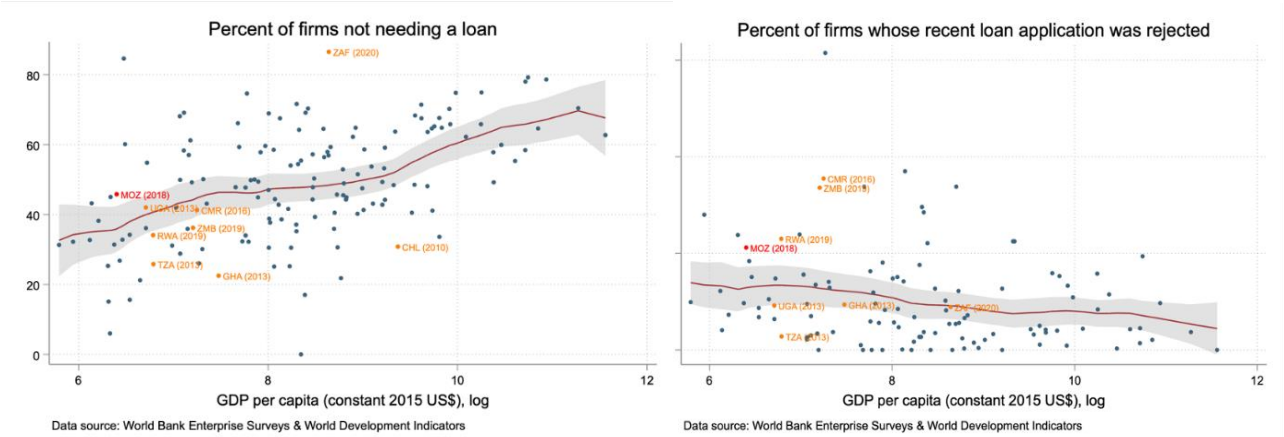
Thus, high-interest rates are mostly the result of inefficiencies in financial system. The challenges of high lending rates plus strict collateral requirements pose stress on demand for funds coming from available creditors, while banks' inefficiencies limit the access of firms to loan facilities. As such, Mozambique requires significant improvements, along with ensuring the overall stability and soundness of the banking sector.[35]

3.1.5. Micro-level data: Firms' access to finance

On aggregate, many formal firms report not requiring credit. And those who do, are largely ineligible for the funds. More than 45% of formal firms in Mozambique reported not needing a loan, a figure that is higher than expected for Mozambique's level of income and the second highest among peers after South Africa. Simultaneously, 20% of formal firms who applied for a loan, were rejected, a figure that is also relatively higher than expected and peers (Figure 46). Such numbers can be reconciled in many possible ways, one of which could be that since the lending rates are high, firms that are financially healthy and have enough resources can afford to fund their operations and investments through internal resources or equity financing and subsidies, hence, not requiring a loan. At the same time, firms that require bank loans tend to be the ones that cannot get access to any other form of financing due to their size or financial results, thus, being denied formal loans more frequently than an average firm in the economy.

[35] The World Bank FSDA report gives a clear set of policy improvements to fix these issues which are ready for implementation, particularly, advice on capital market development and banks' ability to raise money.

Figure 46: Firms' needs and applications for loans in Mozambique and peers



Correspondingly, a relatively low proportion of formal firms tend to report that accessing finance is a major problem in Mozambique. From the previous sections, it is concluded that Mozambique has a combination of relatively high domestic credit to the private sector, with high interest rates that arise from inefficient intermediation of the banking system. These pieces of evidence altogether would point to the fact that access to finance might be a constraint for certain types of firms in the economy, such as small and medium-sized firms (SMEs) and not yet existing firms, which cannot comply with the restrictive collateral requirements or access to international financial markets. Evidence shows that only 15% of formal firms in Mozambique identified access to finance as their biggest obstacle in the 2018 World Bank Enterprise Survey (WBES), well below most peers and down from 23% in 2007 (Figure 47). The problem of accessing finance was mostly experienced by SMEs, as 13% of small firms (5-19 employees) and 20% of medium firms (20-99 employees). In contrast, less than 10% of large firms (100+ employees) mentioned access to finance as their major concern (Figure 48). Sector-wise, firms in manufacturing-related activities and hospitality & tourism reported the highest rates of access to finance problems, while across the country, this problem was felt the most in Zambezia province, followed by Manica and Greater Maputo (Figure 49).

Figure 47: Percent of firms identifying access to finance as the main obstacle

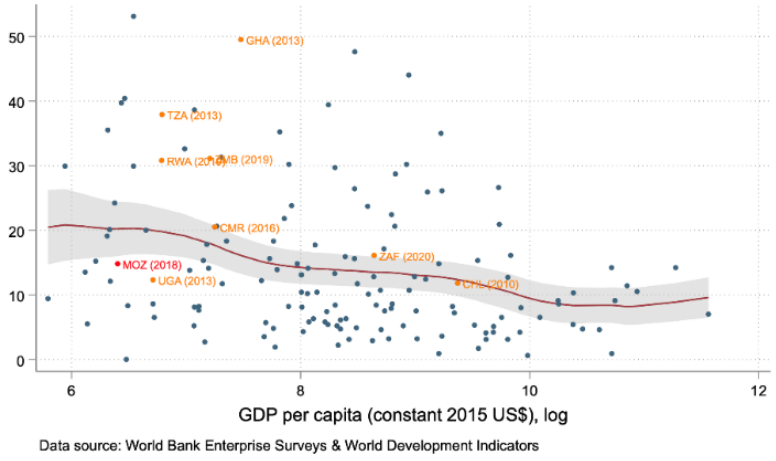
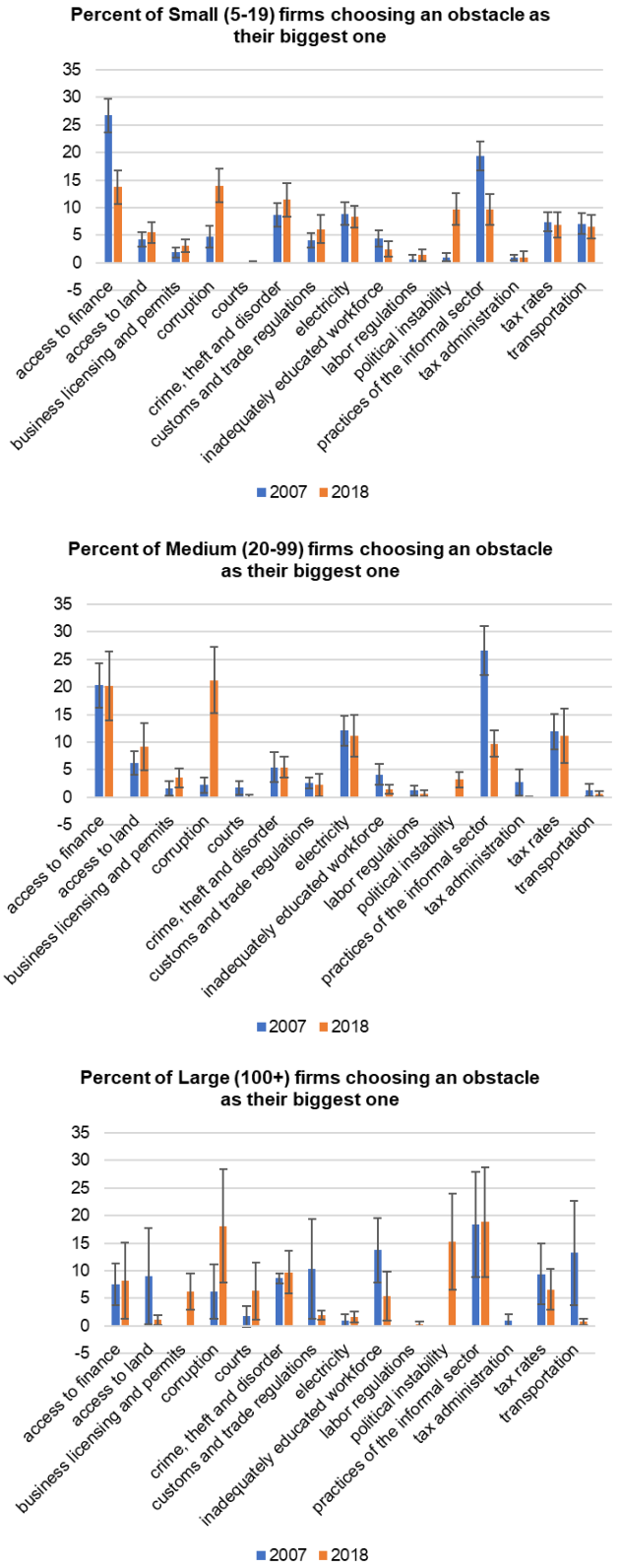
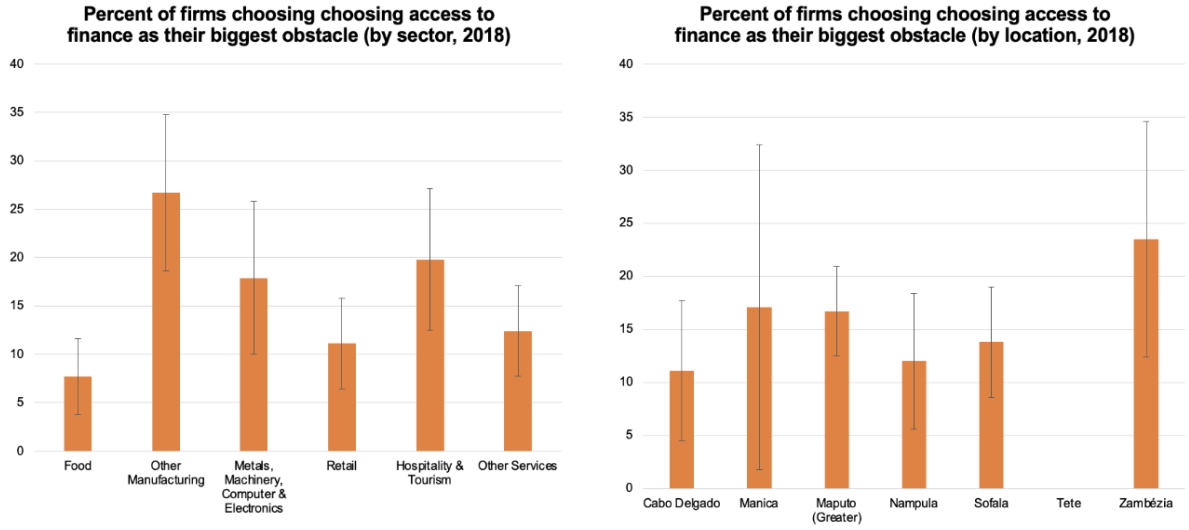


Figure 48: Main obstacles for firms in Mozambique, by firms' size



Source: WBES

Figure 49: Access to finance as the main obstacle for firms in Mozambique, by sector and location



Source: WBES 2018

More comprehensive data on the manufacturing sector gives a clearer picture on the access to credit for formal and informal firms. While the WBES provides rich information of a representative sample of an economy's private sector, it only captures the dynamics of existing firms operating in the formal economy, which may be systematically different from those operating on the outside. Moreover, WBES findings should be treated with caution as they are subject to the survivorship bias, and thus only represent the situation for the firms that are already on the market. The Mozambican Manufacturing Enterprise Survey (IIM), however, helps sort out all these challenges as it provides information from a balanced sample of micro, small, and medium-sized firms, in urban areas of seven major provinces that were interviewed in 2012, 2017, and 2022, disregarding their formality status.[36] Following firms over time, also help factor in variations in costs of finance. Moreover, this survey addresses concerns about the misleading self-reported perception of being financially constrained and defines those as firms that either applied for a loan and were denied the funds or did not apply for a loan for the perceived application complexity and unattainability of collateral requirements.

The IIM confirms the previous findings on small and medium firms being constrained by access to finance. While only 37% of firms applied for a loan, a large proportion of them were ineligible (73%) (Table 1). Moreover, among those who did not apply, 53% did so because they expected to have an application rejected while the remaining 47% did so because they did not need a loan. Disaggregating these figures over time, the IIM reveals a steadily increasing demand for credit among Mozambican small and medium enterprises and an increasing number of firms unable to access credit because of eligibility failures or self-expected rejection. In 2012 and 2017, around 20% of firms applied for credit. This figure tripled to 69% in 2022. Simultaneously, while

[36] In fact, in the IIM's sample of firms only between 37% and 50% of firms were formal as they reported being registered with authorities including the Registry of Legal Entities (CREL) or the local tax office/finance authority, having obtained a business license (Alvará), or having workers registered in the National Institute of Social Security and the Ministry of Labor and Social Security. Importantly, IIM found no statistical differences between surveyed firms and those out of the panel dataset, whether dying or new firms, suggesting that the balanced panel overcomes the survival bias.

in 2012 and 2017 the percentage of credit-constrained firms ranged from 53% and 46%, in 2022, the figure increased to 82%.

Table 1: Access to finance for manufacturing firms

Applied for a loan	Yes			No	
	596			1,170	
	(34)			(66)	
	389			**676**	
	(37)			**(63)**	
Problems getting the loan	Yes	No	**Did not apply, why?**	Firms	Percent
	406	190	No need for a loan	561	(48)
	(68)	(32)		**318**	**(47)**
	284	**105**	Self-selection due to expected	609	(52)
	(73)	**(27)**	application rejection	**358**	**(53)**

Notes: Percentages in parenthesis. Bold numbers relate to the balanced panel for years 2012, 2017, and 2022 (a total of 1,065 observations). The remaining numbers relate to the full data (a total of 1,766 observations). Source and elaboration: IIM (2022).

Overall, we conclude that access to finance is not a binding constraint for the overall economy because most common enterprises, namely informal or large ones, seem to be forced to overcome the constraint or able to ignore it. Once disaggregated, it is shown that small and medium firms are the ones constrained. The inefficiencies of the domestic financial system encourage large firms to look for capital abroad while informal firms unlikely eligible for loans resort to business models that do not need credit or informal credit channels. Policy reforms needed to connect domestic financial intermediation to growth are not macroeconomic in nature. Reducing real interest rates across the board (e.g., avoiding crowding-out risks, inflation uncertainty) is unlikely to spur much growth. Even if interest rates fall, given the high market concentration and large inefficiencies, banks may still not relax underwriting standards, and they will capitalize on lower interest rates to boost their returns rather than pass them along to borrowers. Meantime, firms with access to international capital will continue to rely on it. Reforms need instead to rely on targeting the operations of the domestic financial system (e.g., spur more competition, find ways to narrow the spread between lending and deposit rates, reduce NPLs, among others).

3.2. Low social returns

Low levels of private investment to drive the sophistication and diversification of the economy may arise from low, although appropriable, expected returns. Whenever this happens, clear investment projects stop being executed because complementary factors or inputs that the investors require are short in supply, unreliable, or harder to access. Under a broad perspective, we segment the analysis to study factors that can be related to limited physical and human capital, or essentially, poor productive infrastructure and labor without the right set of skills to produce.

In the infrastructure section we look for evidence of the possibility that poor infrastructure is limiting the private profitability of investment by examining transportation, water, and power infrastructure. In this section, we conclude that specifically the poor quality and limited scope of roads networks is holding back growth specifically in the agriculture sector, perpetuating disparities between regions, and disrupting the proper allocation of productive resources. The analysis for ports, electricity, aviation, and water indicates that these are not immediate challenges for the growth and diversification of the country's productive matrix.

Poor quality of roads is an immediate challenge to address in Mozambique. Mozambique's road infrastructure was built as a feeder system to serve the primary urban areas, but its quality and density have remained poor over the years, with 80% of the primary network unpaved. These deficiencies, especially in rural areas, raise transportation costs, restricting the capacity of farmers, domestic firms, and large investors to access domestic and foreign markets, and developing backward and forward linkages along value chains. Simultaneously, it limits connections between rural areas and more dynamic economic centers in urban areas, restricting the development of an integrated internal market in the country instead of functioning as three economically independent regions. In the largest employment and income generator sector, namely agriculture, it holds back the adoption of key modern technology (fertilizers, pesticides, improved seeds, mechanized equipment) necessary for productivity gains. Finally, deficient road infrastructure limits the capacity of workers to reallocate into higher value-added industries. And despite significant efforts since the early 2000s to overcome these challenges, public investment in roads has been hindered by conflicting demands on the government, and declining state capacity to manage public infrastructure investment and maintenance programs.

Meanwhile, the rail infrastructure was biased to serve large projects and connect resource-rich regions in Mozambique and hinterland countries with export centers. It was not designed to connect producers and consumers inside the country. Inadequate railways – poor maintenance and a shortage of rolling stock – constrain firms that export minerals and metals, which are intensive on railways for transportation of their production (e.g., coal). Nevertheless, in contrast to roads, larger extractive-related firms have overcome rail deficiencies by providing for themselves while privatizing what would normally be a public good. Given this evidence, we conclude that railways is not an immediate challenge in Mozambique.

In the human capital section, we analyze if the range of available skills in the country is sufficient for firms to compete effectively in productive economic activities and adopt new technologies. We demonstrate that human capital is not an immediate challenge in Mozambique. Educational attainment has been expanding and enrollment rate has also increased significantly in the last decades. Nevertheless, Mozambique's working-age population remains relatively uneducated. Although human capital is in short supply in Mozambique, it does not necessarily follow that human capital is a binding constraint on growth. We show evidence that the returns to most levels of education have been falling over time. Besides, unemployment among those more educated with secondary education is high – suggesting an excess of supply rather than a human capital deficit for this level of educational attainment. Unemployment is lower for those with a tertiary education, but this is a very small fraction of the labor force. Individuals with no education have the lowest unemployment rate. In complement, few firms cite a skilled workforce as a major constraint, and few firms offer their own training to compensate for insufficient public training. Besides, in Mozambique, years of schooling of the working-age population increased sixfold in the last three decade, and we observe a positive relationship with increase in GDP per capita, but this positive relationship has weakened in the past several years. Finally, the sectors that have grown the most in Mozambique are not necessarily the ones that require large proportions of high skill workers, confirming that human capital is not a binding constraint for those sectors.

While this evidence indicates that human capital is not an immediate challenge, it in no way means that improvements in education are relevant for the development of Mozambique. There is strong time-series evidence on the long-run association between both variables in the country, indicating that the investment in education made by the government in the past decades are of the utmost

importance. The evidence presented in this section highlights the extent to which other constraints bind current potential investments. The more sophisticated and diversified becomes the economy, the highest the demand for more educated labor and with appropriate skills will be.

3.2.1. Infrastructure

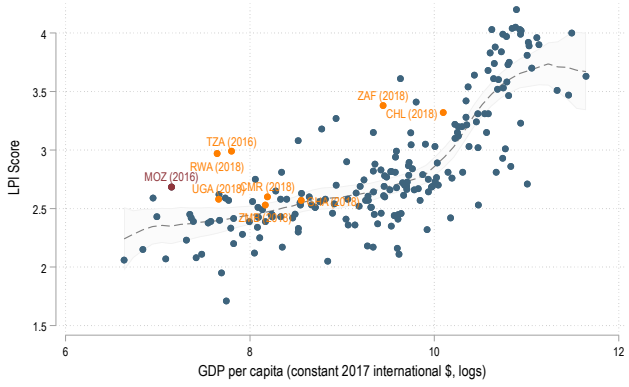
3.2.1.1. Overall transportation

Mozambique is divided into three distinct transport corridors, reflecting its longstanding position as the gateway to global markets (via shipping) for neighboring landlocked countries. The Maputo corridor in the south links Mozambique to South Africa and Eswatini; the Beira corridor in the center provides Zimbabwe's access to the sea; the northern Nacala corridor services Malawi and Zambia. All three corridors include ports and the associated logistical services that facilitate exports, and they make significant contributions to Mozambique's national income. The Maputo transport and storage hub contributed 6.8% to real GDP in 2021 and has grown at the modest rate of 4% since 2012, according to the Bank of Mozambique.[37]

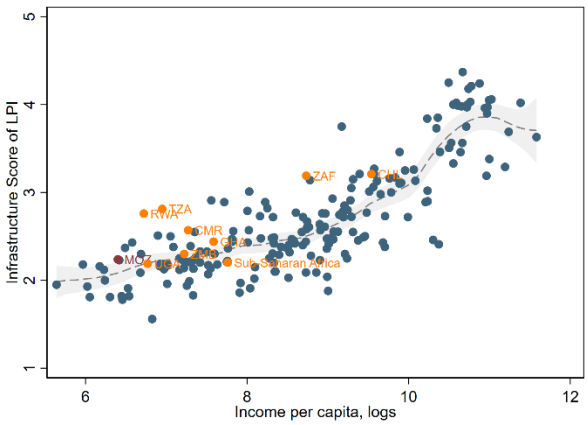
In general, Mozambique's logistics services score adequately compared to other countries, **but transport infrastructure is below peer levels.** Transportation infrastructure, which is a component of logistics, scores poorly compared to other countries, and the country ranks worst among its peers (Figure 50). Moreover, infrastructure has deteriorated over time, and is regarded as better than only Cameroon (Figure 51).

Figure 50: LPI score

A. Overall Logistics Performance Index Score, 2016



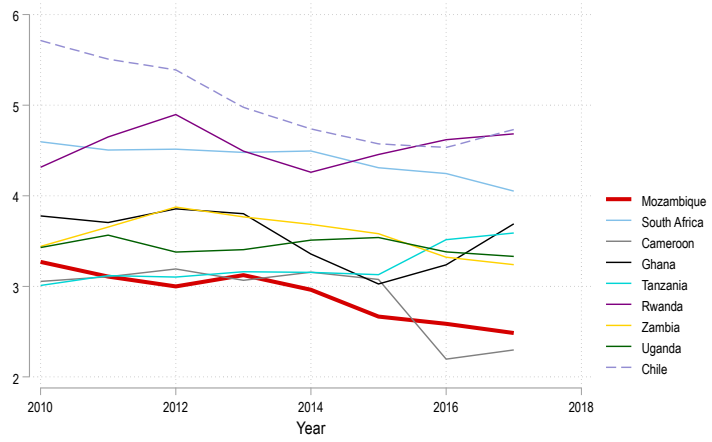
B. Infrastructure Score of LPI, 2016



Source: WDI data. Note: Scores are based on survey responses by logistics operators and range from 1=low to 5=high. The infrastructure score refers to the quality of trade and transport-related infrastructure (e.g. ports, railroads, roads, information technology).

[37] See Appendix 5 - Figure A.6: Average growth by sector, 2012-2021.

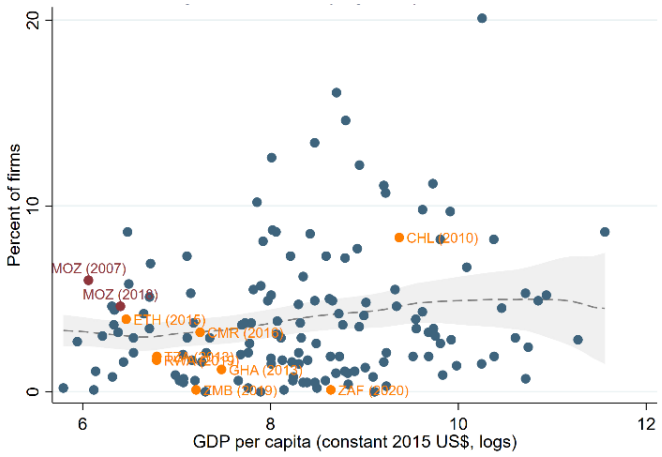
Figure 51: Quality of overall infrastructure, 1-7 (best)



Source: Global Competitiveness Index 2017, World Economic Forum.

Despite these poor scores, formal private sector actors do not rank transportation high among constraints they face, at least compared to other constraints. Only 4.6% of survey respondents cite it as their most serious obstacle, whether in manufacturing or services sectors.[38] Despite that this is a high level compared to the income level of Mozambique (Figure 52), there are more relevant constraints for the formal firms in the country.[39] It is important to mention that these surveys only cover companies in the formal sector and exclude the agriculture sector. Thus, these results do not indicate to what extent informal, small and agricultural firms are affected by this constraint.

Figure 52: Percentage of firms identifying transport as the main obstacle



Source: World Bank Enterprise Survey.

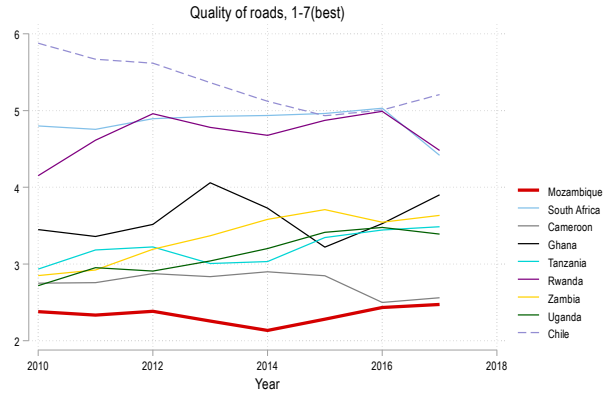
[38] See Appendix 5 - Figure A.7: % of firms indicating transport as the main obstacle, by sectors.
[39] See Appendix 5 - Figure A.5: Main problems for firms, Mozambique 2007 and 2018.

3.2.1.2. Roads

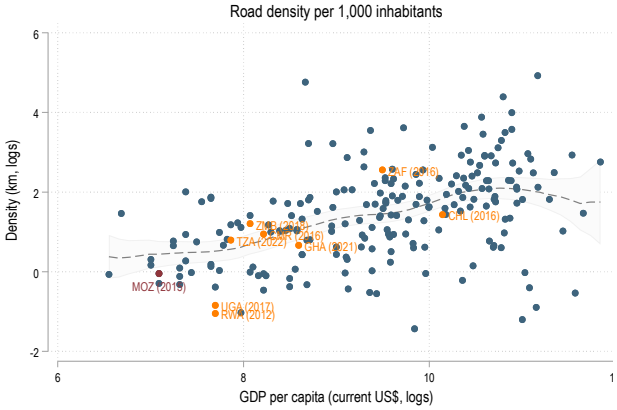
Mozambique's road infrastructure generally serves the logistics infrastructure built to facilitate efficient transportation from the hinterland to ports. These roads are concentrated around the three main transport corridors (i.e., Maputo, Beira and Nacala)[40]. They run horizontally across the country, limiting connectivity between urban and economic clusters and between corridors, except what can be carried along the single north-south national road. Although several transportation routes effectively facilitate regional connections and establish links between mining, important production hubs, and ports, the country lacks the connections that would link parallel corridors to one another (Domínguez & Briceno-Garmendia, 2011).

Although Mozambique's road network is extensive, its quality and density are poor, and ranks below all peer countries (Figure 53). Roads constitute the foremost means of transportation, making up fifty percent of cargo movement and 98% percent of passenger travel (World Bank, 2016). Roads are dangerous; there are, on average, 30.4 annual fatalities per 100,000 inhabitants; this compares to an average of 17 deaths across globally, although Mozambique does not stand out for a country of its income level.[41] Road density per inhabitants is very low relative to peers and for its income level, which translates into disproportionately longer journeys to reach further areas in the country (Figure 53). Road density per area is also among the lowest in the region (Iimi, 2021).

Figure 53



Source: World Economic Forum



Source: World Bank. Note: Last year available for each country.

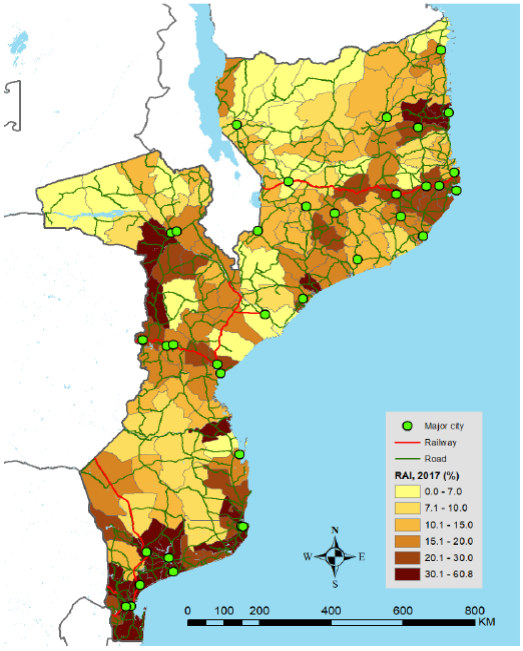
Transport access is also very limited in rural areas, with only 19% of the population living within 2 kilometers of a main road, according to the Road Access Index[42]. This is equivalent to 16 million people (Iimi, 2021), even though well over 60% of the population is rural (Figure 6). By contrast, the RAI for South Africa, Tanzania, Rwanda, Uganda and Zambia are 58%, 25%, 55%, 53% and 17%, respectively[43] (Figure 54, panel B). Road accessibility varies across the country. The north and center zones, which are key production areas for the agriculture sector (World

[40] For more information see the following link.
[41] See Appendix 5 - Figure A.8: Mortality caused road traffic injury.
[42] The Rural Access Index is one of the global indicators in the transport sector, and it is included as part of the Sustainable Development Goals (SDGs). See the following link.
[43] See the following link.

Bank, 2022b), have a lower proportion of the population residing within 2 km of the nearest road in good condition (World Bank, 2021). In particular, the RAI is relatively high in Chokwe (60.8%), and Manhica, Bilene, and Maputo (45%) (Iimi, 2021). But in most rural zones, the RAI is below 10% (Figure 54, panel A). Besides, according to the World Bank, there is a strong correlation between rural access and poverty incidence: regions where less than 20% of the population has access to well-constructed roads exhibit poverty rates of 60% or more (World Bank, 2016).

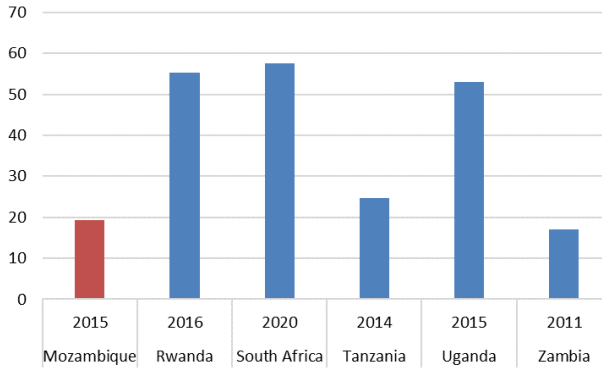
Figure 54: Rural Accessibility Index (RAI)

A. RAI (2017) by district Mozambique



Source: Iimi, 2021.

B. RAI, Mozambique, and peers



Source: World Bank data.

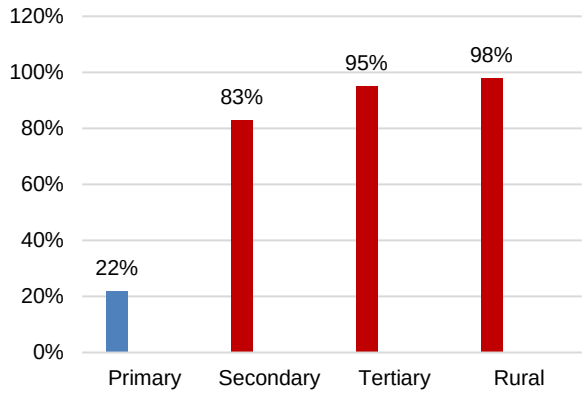
Primary roads, which connect economic clusters and ports along the corridors and are mostly paved, are of substantially better quality than secondary and tertiary roads, although they constitute only 20% of the entire network. Non primary roads (secondary, tertiary, and rural roads) represent 80% of the network, and they remains mostly unpaved (Figure 55, Panel A). Within the entirety of the road network, only 27% are paved, and 45% of unpaved roads are in a very poor condition (World Bank, 2021). On average, non-primary roads cannot be used 84 days in a year, compared to 16 days on the primary network. The mean speed is also considered as a good proxy for road quality[44], and low speeds can be interpreted as a proxy of high shadow price faced by road users. When comparing the mean speed of vehicles between main cities, the mean speed is high in Mozambique relative to peers (Figure 55, Panel C). Nevertheless, there is a

[44] Moszoro and Soto (2022) estimated the mean speed between large cities from Google Maps. Using a sample of 160 countries, they found that average speed ranged between 38 km/h and 107 km/h. They also showed that this score is a very good proxy for quality and access. This measure highly correlates with RAI and with WEF´s quality of roads infrastructure score.

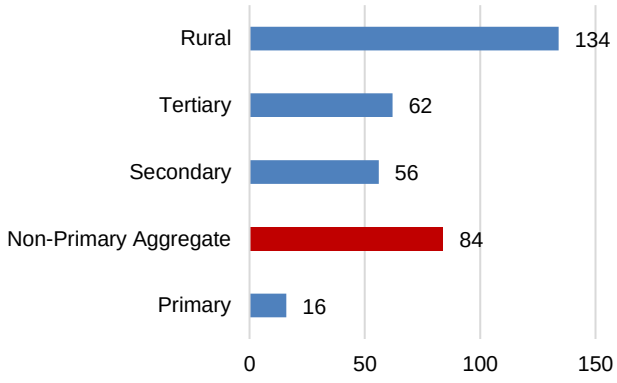
marked difference between paved and non-paved roads. Speed average in unpaved roads (which represents 73% of the total network) is markedly lower (Figure 55, Panel D).

Figure 55

A. Share of unpaved roads by road class

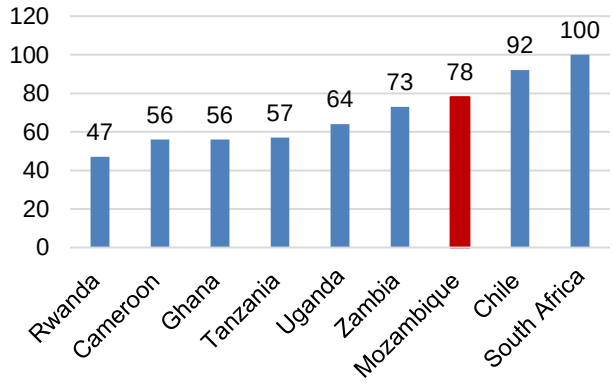


B. Days intransitable in a year, unpaved roads



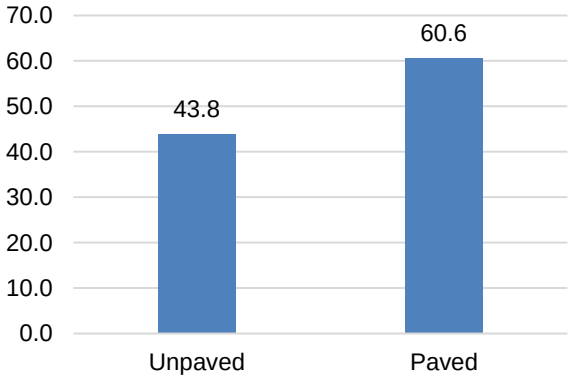
Source: DFID

C. Mean speed between cities (km/h)



Source: Moszoro & Soto, 2022.

D. Speed by road type, km/hour

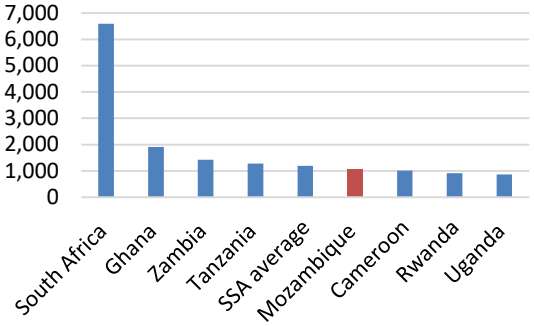


Source: DFID.

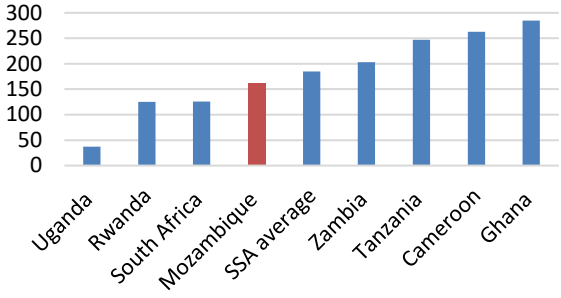
The low quality of the road network also contributes to low traffic volumes. Mozambique's traffic (measured as the average daily traffic) on primary roads is amongst the lowest in the peer group, and below the Sub-Saharan African region (Figure 56, Panel A). Mozambique's relative position improves when considering secondary roads, but it is still among the lowest in the group of peers (Figure 56, Panel B). One important element is that considering tertiary roads, the traffic global threshold widely considered to justify gravelling of roads is a minimum of 30 vehicles per day, and in Mozambique the daily traffic average is 73, being among the highest in the region (Gwilliam, 2011). This would be a clear sign of under engineering of the tertiary roads in Mozambique.

Figure 56

A. Annual Average Daily traffic on primary roads



B. Average annual daily traffic, secondary roads



Source: Gwilliam (2011).

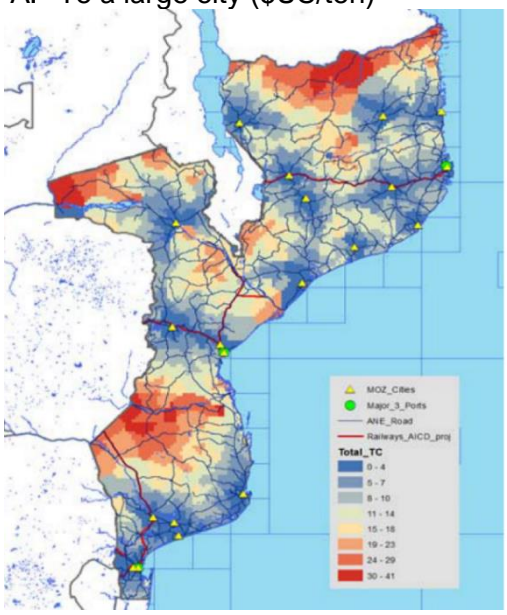
Mozambique's geography and limited transport infrastructure results in three regions that are economically independent of each other (Suit & Choudhary, 2015). Despite the north's agroecological conditions are better, the high transport costs make it very difficult to offer products to domestic markets in the south of the country (drier zone)[45]. For example, the north region is relatively self-sufficient in food compared to the southern region, which relies on food imports from South Africa and other nearby countries. The surplus of maize in the north is not transported to the south. As a result, Mozambique imports a substantial amount of maize even though domestic production is enough to meet demand (Alfieri et al., 2007). Moreover, Mozambique has exhibited a tendency to neglect the North-South connections while bolstering the three main corridors Maputo, Beira, and Nacala, which are linked to the natural ports in the south, center, and north of the country. This effectively divides Mozambique into three smaller markets, negatively impacting the pricing strategies of transportation and logistics providers (World Bank, 2021).

There is notable regional variation in transportation costs, with more isolated parts of the country facing higher transport costs. According to the World Bank, in inland zones of Manica, Niassa, and Tete provinces, transport expenditures exceed US$30 per ton (Figure 57), and transport costs to the ports of Maputo, Beira, and Nacala remain exceptionally high, running as high as US$50 per ton in Tete and Niassa provinces, restricting agricultural exports and raising import costs (Suit & Choudhary, 2015).

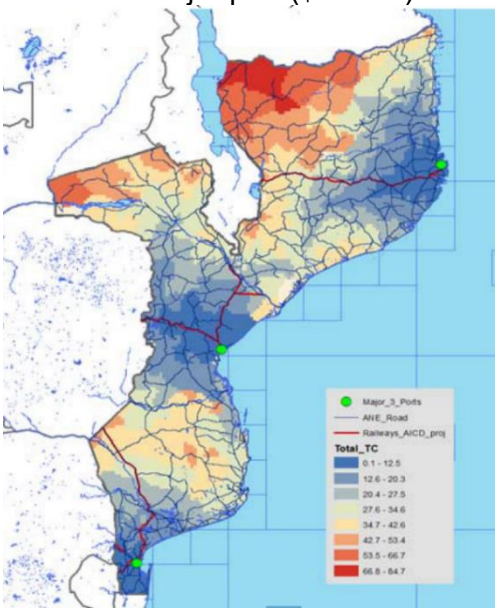
[45] Mozambique's economy is highly dependent on rain-fed agriculture. The southern provinces receive relatively less rainfall than the rest of the country. The northern provinces also receive good rainfall during the agricultural season, which runs from November to April.

Figure 57: Transport costs

A. To a large city ($US/ton)



B. To a major port ($US/ton)



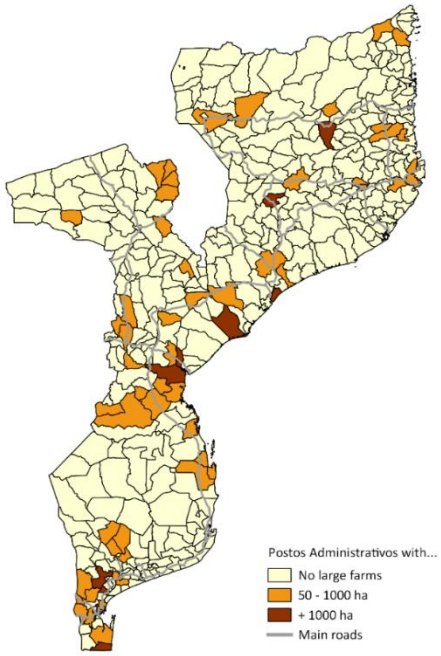
Source: World Bank, 2016.

Large agricultural companies in Mozambique tend to be located in wealthier areas with better connection to roads and higher population. Glover at al. (2016) use agricultural survey data from 2002 to 2012 to analyze the spatial distribution of large farms in Mozambique in order to identify the factors affecting their location**.** According to the authors, the distribution of large farms across the country is not uniform, and certain regions concentrate a higher number of large farms, notably in the vicinity of Maputo in the far south and within the Beira Corridor in Manica and Sofala (Figure 58). Besides, the regions featuring large farms often intersect with major roadways (Figure 58). The lack of substantial farms in areas distant from primary road networks suggests that limited market access in these regions serves as a significant constraint, impeding both investment in and the expansion of existing farms. The isolated areas with large farms that serve as exceptions are sufficiently close to the borders of other countries, suggesting that their main markets are outside the country.

Interviews conducted on the first trip to Maputo also indicated evidence that better connected agents (to neighboring countries) have better outcomes. During our first visit to Maputo, the LSE team conducted interviews with a total of 64 stakeholders. In these discussions, infrastructure emerged as a recurring challenge in most of the meetings. The examples shared during these interactions highlighted the difficulties faced by subsistence farmers in accessing markets and processing their products due to high transportation costs resulting from the absence of proper roads. In contrast, border communities with access to nearby foreign markets were shown to achieve significantly higher yields while incurring lower transportation expenses. Another noteworthy instance of overcoming this constraint is the case of one of the companies interviewed during the first trip, which is located just 20 kilometres from Maputo. This company made strategic investments in the necessary infrastructure to reach the port, including the

construction of roads outside the production area leading to the port. They diligently maintained street lighting and ensured the proper upkeep of the bus stop.

Figure 58: Distribution of large farms by area (*posto administrativo* level), 2012



Source: Glover et al., 2016.

If poor roads constrain economic activity, transport costs should constrain the growth of small firms as they struggle to integrate with the wider economy and source domestic inputs. Survey evidence from Mozambique suggest this is the case. According to Tonelli & Dalglish (2012)[46], high transport costs handicap the extent to which small firms can trade with other parts of the country. These firms face lost productive labor, additional compensation for long and arduous journeys, and investment in more expensive modes of transportation (e.g., motorbikes) to traverse bad secondary or tertiary roads. They also have trouble securing required inputs on schedule, which makes it harder to meet growing demand. These costs depress the profitability of otherwise productive small business, hampering their further growth.

The agriculture sector is also hindered by deficiencies in transportation, affecting access input/output markets, and knowhow from government extension services. Mozambique's main economic activity is agriculture, which naturally relies on road transport to access markets at district, provincial and national levels. There are three main channels through which the lack of adequate roads affects this sector. First, the low input intensity and technology adoption in the agricultural sector reflects the limited participation of smallholders in the input markets. The low fertilizer adoption by farmers is in part explained by high transportation costs to access both input and output markets. High transport costs should have two implications- firstly, fertilizer costs should be high in Mozambique and secondly, there should be a lack of domestic fertilizer suppliers as it is more cost effective to import fertilizers than develop the industry domestically. Comparing

[46] This paper is a case of study for micro enterprises funded by the same local NGO and operating in diverse industry sectors in a peri-urban context in Mozambique.

data on suppliers and prices of fertilizers in Sub-Saharan Africa, empirical evidence does indeed confirm these two indicators in Mozambique (Bonilla et al., 2020). In complement, Mozambique records the highest fertilizer prices among a sample of 14 Sub-Saharan African countries. The dispersion and isolation of populations, high transportation costs, elevated operational costs in relation to scale, and other inefficiencies result in high prices for agricultural inputs (World Bank, 2022b).

Second, according to the World Bank (2021) the elevated transaction costs also impede the commercialization of crops and the potential for increasing income through enhancing value and diversification, encompassing forest-related goods and services, fisheries, as well as non-tradable activities conducted off the farm. An analysis based on geographic referencing reveals that farmers with stronger market connections are likelier to sell a portion of their yield and participate in off-farm pursuits (World Bank, 2021).

Third, the lack of transportation infrastructure can also significantly impact extension services in agriculture. Farmers in remote areas may have limited access to extension services due to poor transportation networks, leading to a lack of dissemination of crucial information, technological advancement, and best agricultural practices. Data from the Ministry of Agriculture and Food Security shows that the percentage of households receiving extension visits from the government extension agents is small and it has decreased from 2002 to 2015. One of the reasons is the transport conditions for front line extension workers, which would lead these workers to target farmers that are closer to paved roads and leaving the majority of the smallholders out of the program (Cunguara et al., 2018).

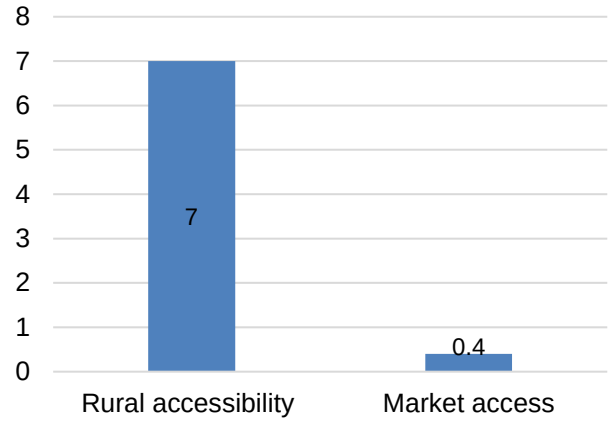
There is evidence that improving road connectivity in Mozambique increases agricultural production significantly (Iimi, 2022)[47]. Large-scale road investments between 2010 and 2015 provide a natural experiment for understanding the impact of reduced travel times and increasing market access (measured by markets that can be reached within 5 hours) on productivity. Estimates of the impact of these improvements on agricultural production indicate that transport connectivity has a direct effect on improving agricultural production. In particular, an increase of 1% in RAI raised crop production by 7% (Figure 59). Moreover, there is a lower but significant coefficient for market access (0.4%), indicating the effect of the road investments over agriculture is not only explained by rural access, but also by the proximity to domestic markets.

Rural connectivity and domestic market accessibility are found to be of particular importance, but substantial heterogeneity exists across regions. There is considerably regional variation in the impact of connectivity (Iimi 2022). Connectivity is better in the more urbanized region in the south, whereas the northern and central provinces are more fertile. Yet market opportunities for farmers are more limited in the north and subsistence farming predominates; cash crops are more common in the south. These differences explain the heterogeneous effects of rural connectivity on crop production in the country. While rural accessibility increases the value of agricultural output across regions, improving market access is

[47] The author uses the agricultural sample survey data in 2012 and 2015 to estimate the effects of the large investments in crop production. The data comprised 6,500 households and covered 43 food crops and vegetables. Most of the households in the survey are small-scale farmers, owning less than 1.5 ha of land. On average, farmers produce about US$5000 crops per year, which was estimated by multiplying the total production evaluated at market prices. This amount does not take into account whether producers leave part of this production for consumption and may be overestimated. Therefore, the results of the study should be considered with caution.

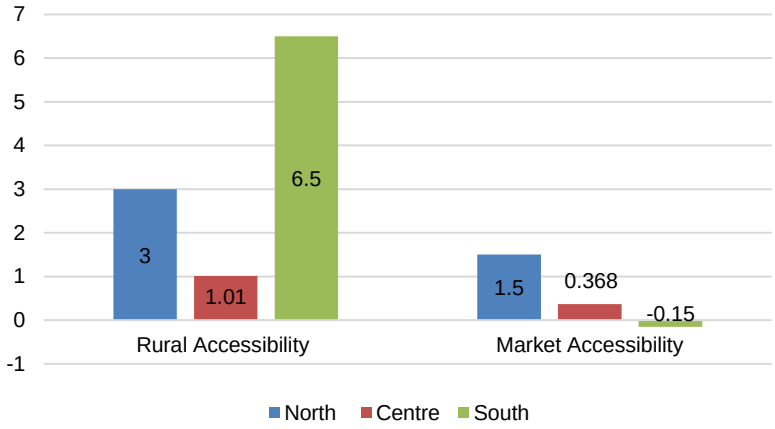
significantly higher in the north of the country (Figure 60), where baselines for access and commercial agriculture are poor.

Figure 59: Elasticity of agricultural output (%)



Source: Iimi, 2022. The coefficients indicate the results from the IV regression with location-specific fixed effects.

Figure 60: Elasticity by regions (%)



Source: Self elaboration using Iimi (2022).

There is also evidence that public investment expenditure on roads increases accessibility, especially in the rural areas. A study from the World Bank (2019c) used data on public investment (BOOST and data from the Roads Fun) to estimate the expenditure in roads, and IOF surveys to obtain consumption, poverty, and employment data. The results indicate that a 1 billion MZN increase in roads expenditure is related to a decrease in the time to reach transportation by 9 minutes. In the case of rural areas, it decreases by 25 minutes, pointing to a higher return on investment in rural areas when it comes to increasing access. Moreover, the study also indicates that public investment in infrastructure (not only in roads) is also associated with job creation (private and informal). The same amount of public investment is related to higher job creation in rural areas compared to urban areas (World Bank, 2019c).

The transport sector's shortcomings, especially in the roads, are a policy challenge, given limited government resources and competing demands (World Bank, 2016a). The government recognizes the need for new roads and better maintenance. Since the early 2000s, the government has undertaken a series of reforms, including the creation of a road commission and a road fund, among others. During the period of economic expansion (2009-2015) road spending accounted for 25% of the capital expenditure of the government, the higher compared to other key basic infrastructure areas (education, water, health, and agriculture). This share was maintained even after the capital expenditures cuts that came after the economic crisis (World Bank, 2019a). These efforts have brought significant improvement to roads (Domínguez & Briceno-Garmendia, 2011). Yet Mozambique´s National Road Administration has focused on new road construction and the maintenance of primary roads, exacerbating differences between relatively well-kept primary roads and a secondary network that is in poor shape. Moreover, during the years of investment expansion, the application of most of the expenditure on roads was concentrated on urban connectivity, which explains the significant increase in transport distance reported by rural households, which resulted in decreased levels of rural connectivity. In contrast, expenditure on non-road infrastructure showed the opposite trend (World Bank, 2019a).

Some of the management challenges that have been identified include the emphasis on the main road network, and a lack of funding for maintenance (Domínguez & Briceno-Garmendia, 2011). In complement, challenges associated with economic governance in infrastructure projects, particularly in the efficient selection, prioritization, and execution of projects have resulted in leakages of financial resources (African Development Bank, 2018). Several institutions are responsible for the transport system, and it is not clear who is responsible for local and tertiary roads (World Bank, 2016a). Therefore, the challenge is not only to improve meet the demand for infrastructure, but the country must link further increases in public investment to its capacity to improve its public investment management system (Ross et al., 2014).

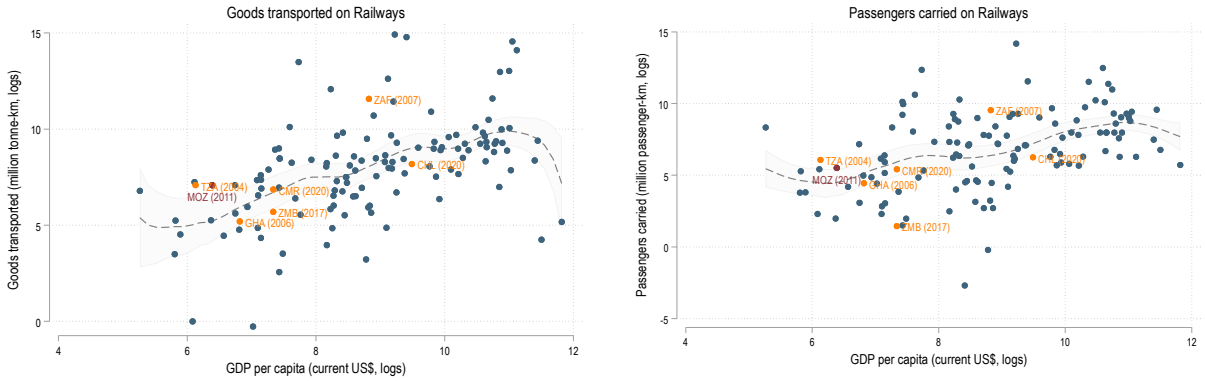
In this context, international donors have played an important role investing in feeder roads and rural trunk. Given the low traffic volume in many rural areas, the provision and maintenance of roads is not feasible for private players, therefore, investments rely mainly on public funds (World Bank, 2022b). However, the difficulties mentioned above have led to the actions of various international donors in this area. Different international donors have announced forthcoming projects that aim to contribute to the provision and maintenance of roads and transport infrastructure. Some examples include World Bank approval of a US$400 million grant to improve road connectivity safety, and climate resilience[48] in 2022. On the other hand, the AfDB country strategy for 2018-2022 aimed to contribute to the development challenges of the country through different channels, including the development of infrastructure. In August 2021, in the portfolio of 21 projects valued at $1.08 billion, 36% consisted in projects for the transport sector. The bank's indicative lending program for 2021SA-2023 totals $440 million and covers nine projects, in which 18% are dedicated to the transport area[49]. In the same line, the Millenium Challenge Corporation approved in June 2023 a US$529 million grant to improve transport connectivity in rural areas, incentivize commercial agriculture and improve coastal livelihoods through climate resilience initiatives[50]. These are some examples of international donor involvement in this area.

[48] See the following link.
[49] See the following link.
[50] See the following link.

3.2.1.3. Railways

Portos e Caminhos de Ferro de Moçambique (CFM, or Mozambique Ports and Railways) is the state-owned company that oversees the railway system, with railway transport divided between the three corridors. These corridors include the Maputo corridor in the south, linked to South Africa and Eswatini; the Beira corridor in the center, linked with Zimbabwe; and the Nacala corridor in the north, linked with Malawi and Zambia. There are no direct rail connections among the three systems; connections are only available via neighboring countries.[51] The corridors link ports to economic clusters, mines, and neighboring countries to facilitate exports; there is little passenger transit by rail.[52] Indeed, the number of goods transported via rail is high for Mozambique's income level whereas passenger use is close to expected levels (Figure 61). Investment in rail lines is therefore correlated with the prices of coal and other major exports.[53]

Figure 61

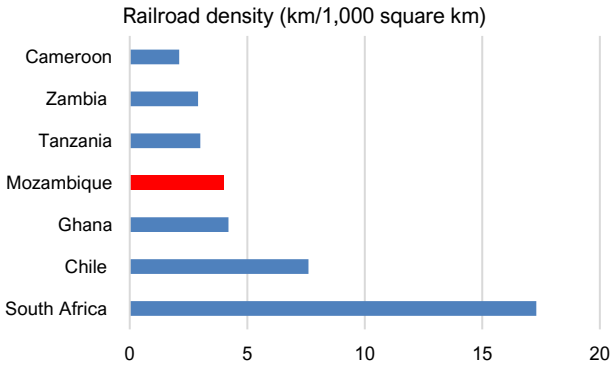


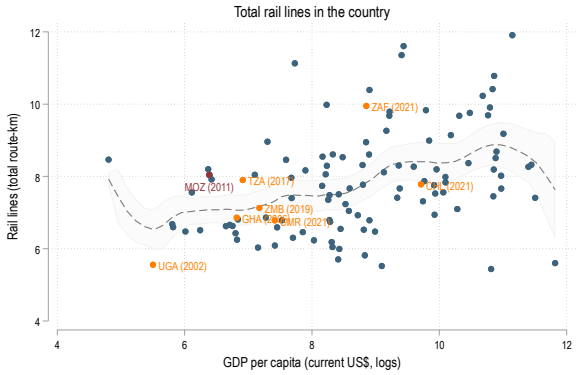
Source: World Bank

Despite expected levels of rail lines and density, outlined data suggests the quality of rail service could be limiting in the country. The main railway network is about 2,500 km long, high for Mozambique's income level. Its density is about 4 km for a 1,000 square km of land, which is in line with peers (Figure 62). However, railroad quality is considered poor, with Mozambique scoring 2.5/7 in the most recent year surveyed[54]- but this is comparable to peers and Mozambique performs relatively better within its peer group (Figure 63). Notably, the stock of wagons on railways is markedly lower than the regional average (Figure 63). The poor quality and lack of sufficient rolling stock is reflected in Mozambique's poor efficiency of rail services- which accounts for speed, frequency, and punctuality of service- and a high number of derailments (Figure 64).

[51] For more information see the following link.
[52] Idem.
[53] See the following link.
[54] See the Global Competitiveness Report 2017-2018 for Mozambique in the following link.

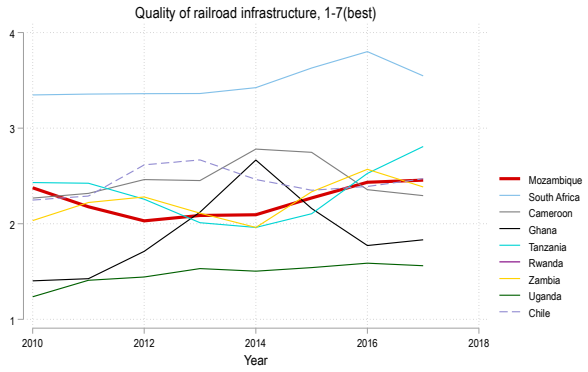
Figure 62



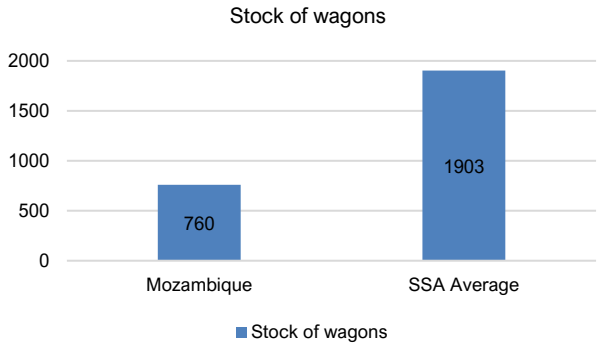


Source: World Economic Forum and World Bank.

Figure 63

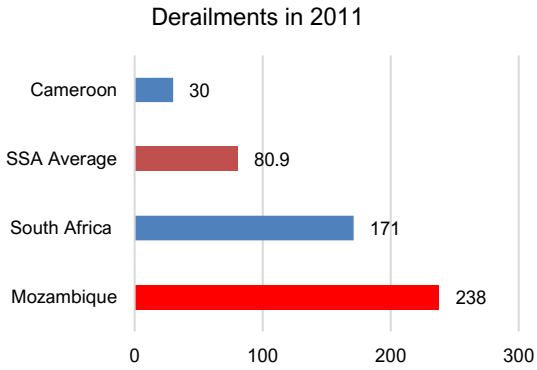


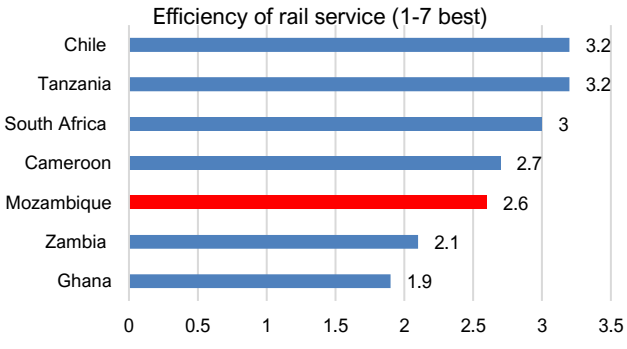
Source: Global Competitiveness report



Source: International Union of Railways

Figure 64

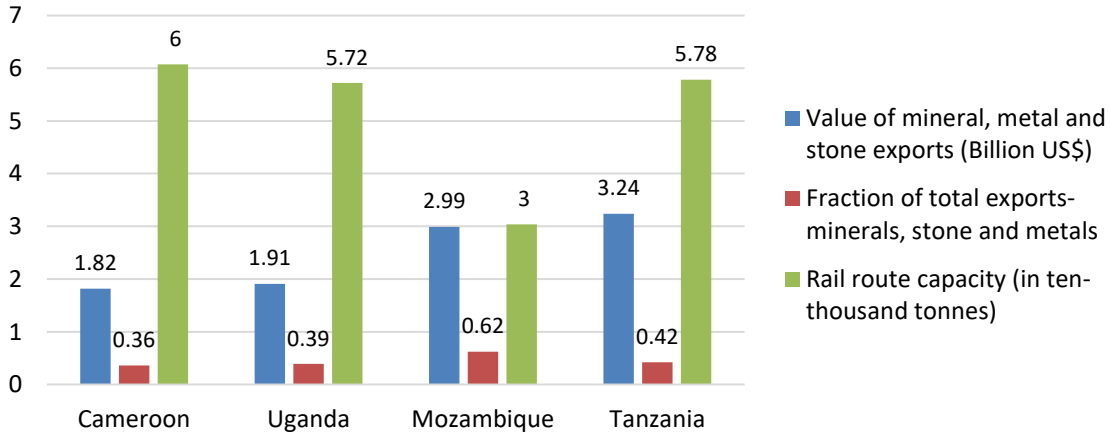




Source: International Union of Railways

The poor quality of railroads, along with a shortage of locomotives and wagons to run on them, means that the capacity of rail transport to support exports is poor in Mozambique- which has inhibited exports in the past and led to firms overcoming the constraint by purchasing their own rolling stock and investing in new rail lines. For metal and mineral exports, which dominate Mozambique's export basket, rail is a suitable mode of transportation given the infeasibility of road freight for the transport of large volumes of heavy goods over long distances[55]. Despite exporting relatively more minerals and metals and a greater reliance on the same, Mozambique's rail route capacity is around half of comparable peers (Figure 65). This has led to disruptions such as Vale pausing coal shipments due to rail disruptions and Rio Tinto pausing operations due to an inability to supply shipments on time. As a result, firms have purchased their own trains and wagons in light of CFM having insufficient locomotives and initiated their own rail projects in the country to overcome insufficient capacity on existing railroads.[56] Examples include Vale investing in rail lines in the country passing through Malawi and even training rail staff to meet the demands of the rail system. ENRC also constructed a second railway linking Tete province to the Port of Nacala.[57]

Figure 65: Rail route capacity against metal, stone and mineral exports



Source: International Union of Railways (2012), Atlas of Economic Complexity.

The important responsibility of the private sector in rail transportation arises the need for coordination between the private and public sector that has not been realized (World Bank, 2016a). There is no clear strategy between the public and private infrastructure, and the government has a key responsibility to expand the railways for passengers and freight.

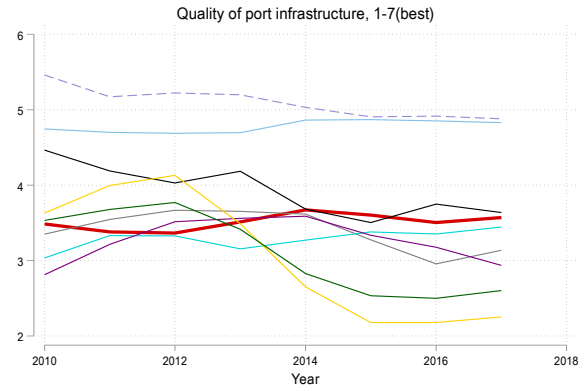
3.2.1.4. Ports

Mozambique has three major ports that are owned by the government and performs well in port quality indicators despite being poorly connected to global shipping networks. Maputo, Beira and Nacala are the three major ports in the country, and several other smaller ports serve domestic shipping. All three are owned by the government- with Maputo and Nacala administered by public-private joint venture companies, and Beira along with smaller ports administered by the state-owned enterprise Mozambique Ports and Railways (CFM). Mozambique has fewer products

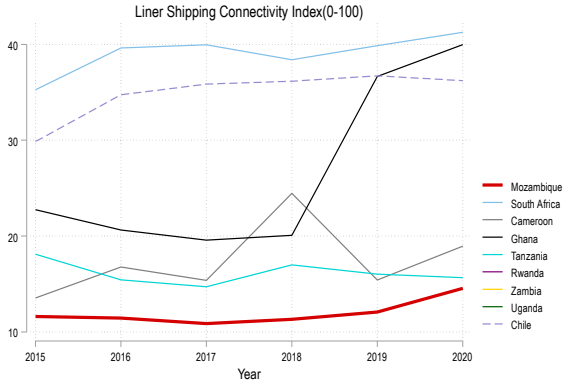
[55] See the following link.
[56] See the following link.
[57] See the following link.

damaged due to shipping and higher port traffic than what one would expect for its income level, supported by its relatively good quality of overall port infrastructure (Figure 66). However, the maritime industry remains poorly connected to global shipping networks- with Mozambique consistently performing the worst within its peer group in the Liner Shipping Connectivity Index (LSCI) (Figure 66).[58]

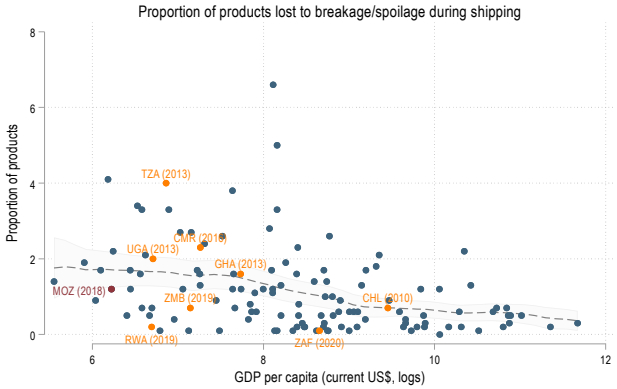
Figure 66



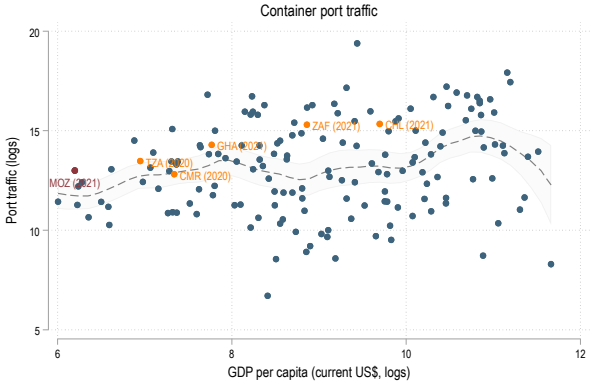
Source: World Bank Enterprise Survey



Source: UNCTAD



Source: World Bank



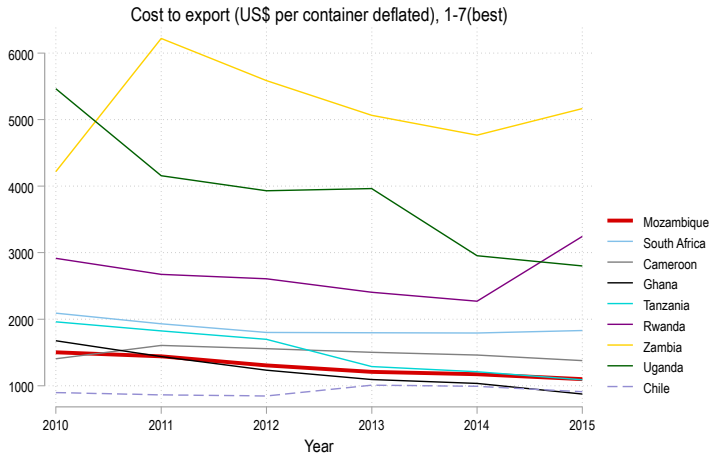
Source: World Bank

The observation of trade being fast and cheap in the country suggests that port infrastructure is not likely to be a binding constraint, which is further supported by low export costs in the country. Good port infrastructure and transport along the main corridors is reflected in it being cheaper (Figure 67), and faster, to move goods in and out of Mozambique compared to other countries in Southern Africa (Figure 68). If port infrastructure was a binding constraint, we would expect this to materialize in high costs of moving containers in and out of Mozambique and a longer time to trade with firms in the country. The absence of the same indicates that port infrastructure is not likely to be a binding constraint in the country- and to the

[58] Liner Shipping Connectivity Index measures how well a country is connected to global shipping networks and is based on the number of ships, their container-carrying capacity, maximum vessel size, number of services, and number of companies that deploy container ships in a country's ports.

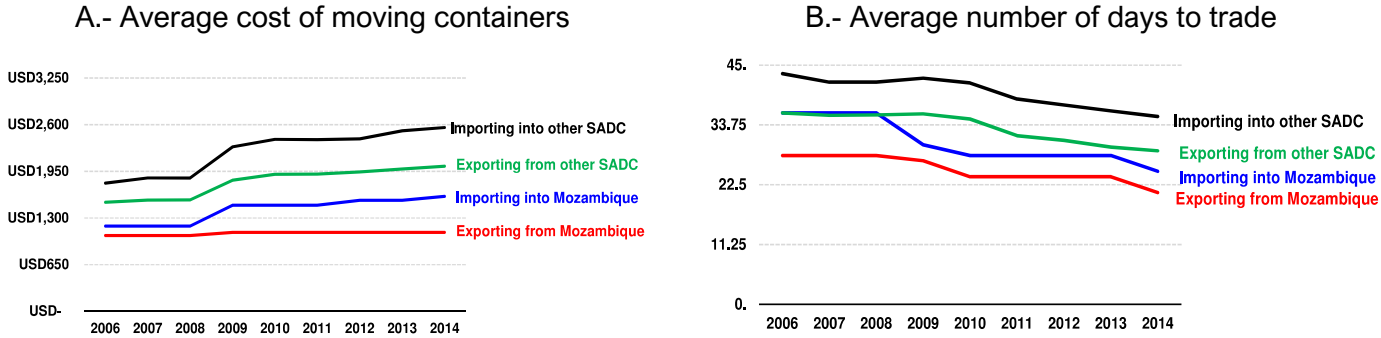
extent it is a constraint, high costs from the same are offset by other factors making trade fast and cheap in the country on average. The relative efficiency of trading in the country is also reflected in Mozambique consistently maintaining low export costs which have been gradually further declining over the years, where export costs capture documentary compliance, border compliance and domestic transport. With respect to comparator countries, it is only Chile and Tanzania that perform better (Figure 68). It is important to note that transport corridors link economic clusters to ports directly to facilitate exports, so export costs due to domestic transport can be low within the broader deficiencies in road and rail infrastructure in the country.

Figure 67



Source: World Economic Forum

Figure 68



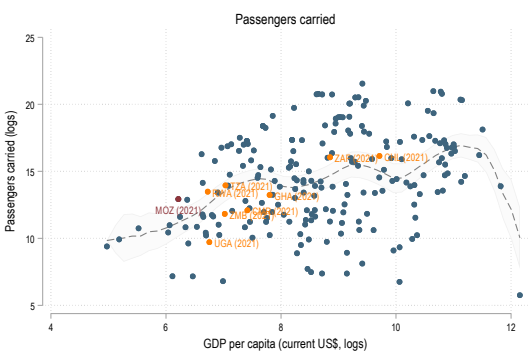
Source: UNCTAD

3.2.1.5. Aviation

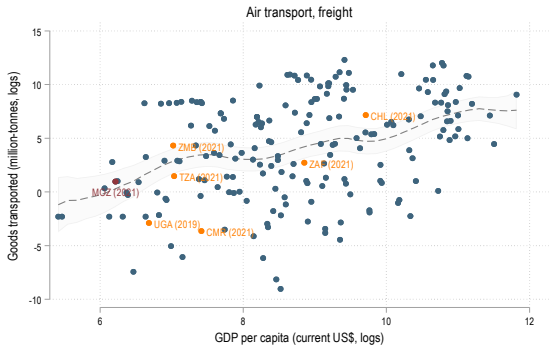
Despite poorer infrastructure quality, the volume of goods and passengers carried is in line with expectations for Mozambique's income level and comparable to peers. The Civil Aviation Institute of Mozambique is a public entity that oversees aviation activities, while Aeroportos de Moçambique E.P. is the state-owned enterprise that owns and operates the air transport infrastructure in the country. The quality of air transport infrastructure remains poor in the country and has been gradually worsening on average-but performs relatively better than

comparator countries of Tanzania, Zambia, Uganda and Cameroon (Figure 70). Nevertheless, passenger transport via air is more than what one would expect for Mozambique's income levels while freight transport is close to expected levels- both at levels comparable to peers (Figure 69).

Figure 69

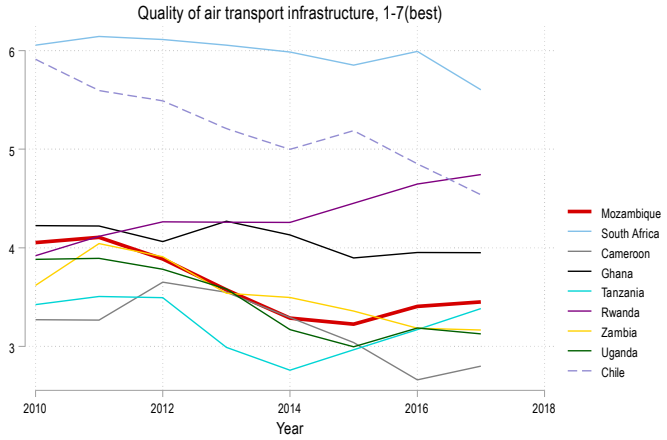


Source: International Civil Aviation Transport Organization



Source: Civil Aviation Statistics of the World

Figure 70



Source: World Economic Forum

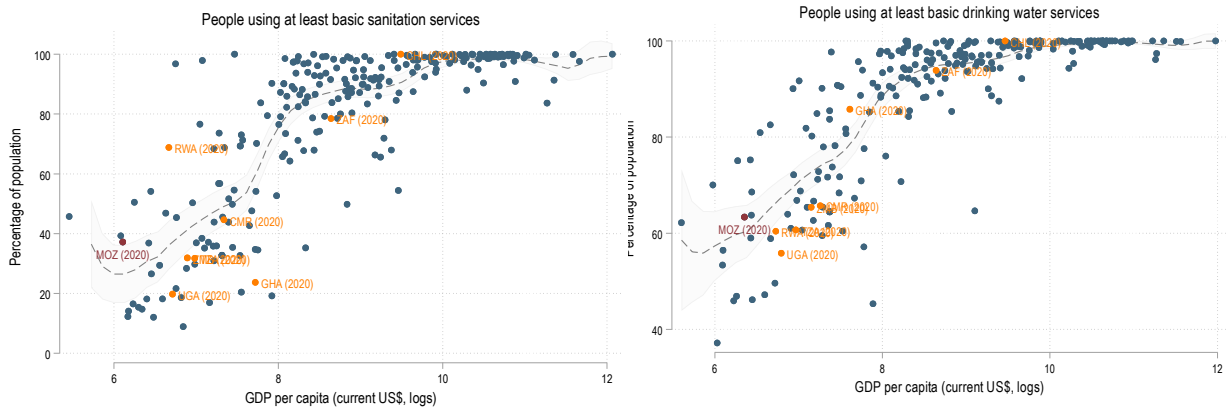
3.2.1.6. Water and sanitization

Mozambique has made progress in its efforts to expand access to water and sanitation. According to WHO and UNICEF's Joint Monitoring Program for Water Supply, Sanitation and Hygiene, the access to basic drinking water in the country has expanded from 22.7% in 2000 to 63.2% in 2022. However, the gap between urban and rural is high, with 87% and 48% of basic drinking water coverage in 2022, respectively.[59] Access to basic sanitation also increased from

[59] See the Joint Monitoring Program database in the following link.

10.2% to 37.4% in 2022. As a result, household access to basic drinking water and sanitation services is at levels comparable to peers and expectations for Mozambique's income level (Figure 71).

Figure 71



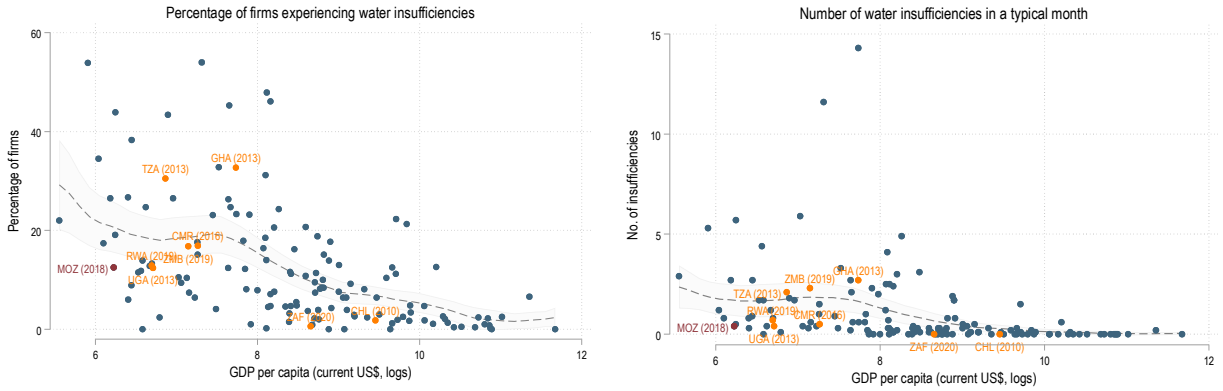
Source: World Development Indicators.

Water utilities in Mozambique are owned by the government, and part of the operations are managed by independent private operators that are contributing to meet the demand of water. In Maputo and the large urban centers water supply is the responsible of the Water Supply Asset and Investment Fund (FIPAG). Beyond these areas, local small private water providers known as Fornecedores Privados de Agua (FPAs) are contributing to meet the demand in the peri-urban areas. Established in 2009, the Water and Sanitation Infrastructure Administration (AIAS) serves as a national asset management unit dedicated to fostering independent, effective, and financially viable management of water supply systems in secondary towns. Currently, AIAS is responsible for supervising secondary water supply systems in small and medium-sized urban areas, as well as rural towns[60]. In order to achieve the commitment with the SDG Goal "Ensure availability and sustainable management of water and sanitation for all", the Government of Mozambique has implemented substantial measures including involve delegating greater responsibilities for water and sanitation to local governments and creating a clearer policy for licensing Private Water Providers (PWPs). This resulted in PWPs, local governments and NGOs contributing to water provision, to fill the growing gap between demand and public water service (SPEED+, 2018).

Water is not perceived as an obstacle for firms, as measured by reports of water insufficiencies. According to the World Bank Enterprise Survey, water insufficiencies reported by firms, at 0.4 a month, are low for Mozambique's income level as are the number of firms that reportedly do experience insufficiencies at 12.5% (Figure 72).

[60] See the following link.

Figure 72



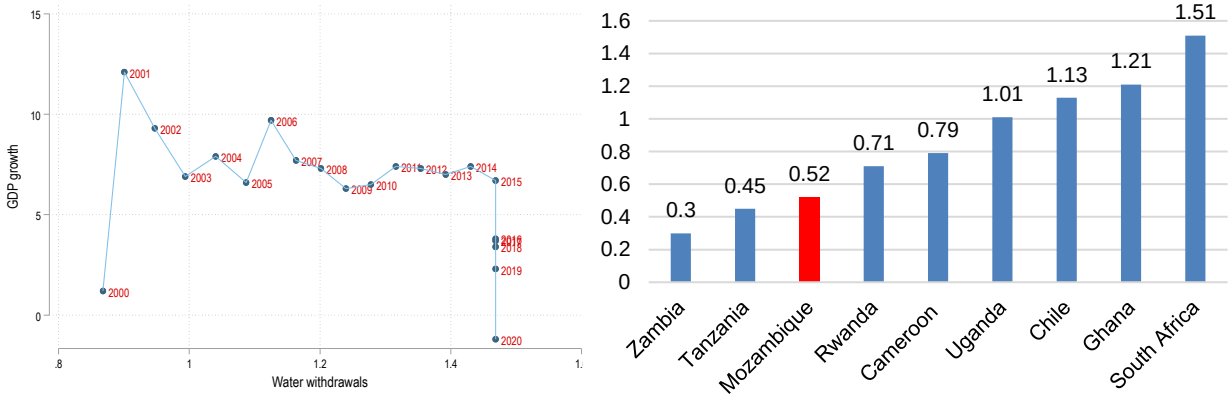
Source: World Bank Enterprise Survey.

There is no clear correlation between water use and GDP growth in Mozambique, nor are water tariffs high in the country- suggesting water is unlikely to be a constraint in the country. Annual freshwater withdrawals have tapered off in the country, driven by a fall in water withdrawals within industry and agriculture and a tapering off of withdrawals by households (Figure 74 and 75). This could reflect decreasing demand for freshwater withdrawals, but also constraints in the supply of the same- that is, these trends do not disentangle the cause behind the same. Regardless, water withdrawals do not seem to have a clear correlation with GDP growth- with annual growth figures fluctuating regardless of a constant increase in withdrawals for much of the period considered (Figure 73, panel A), suggesting growth is not particularly responsive to increases in water withdrawals. Moreover, if water is a constraint, we would expect outstripped demand to materialize in higher water tariffs in the country. Instead, water tariffs remain low in the country (Figure 73, panel B)- and as water supply is not heavily subsidized, these figures do not distort demand and supply dynamics.

Figure 73

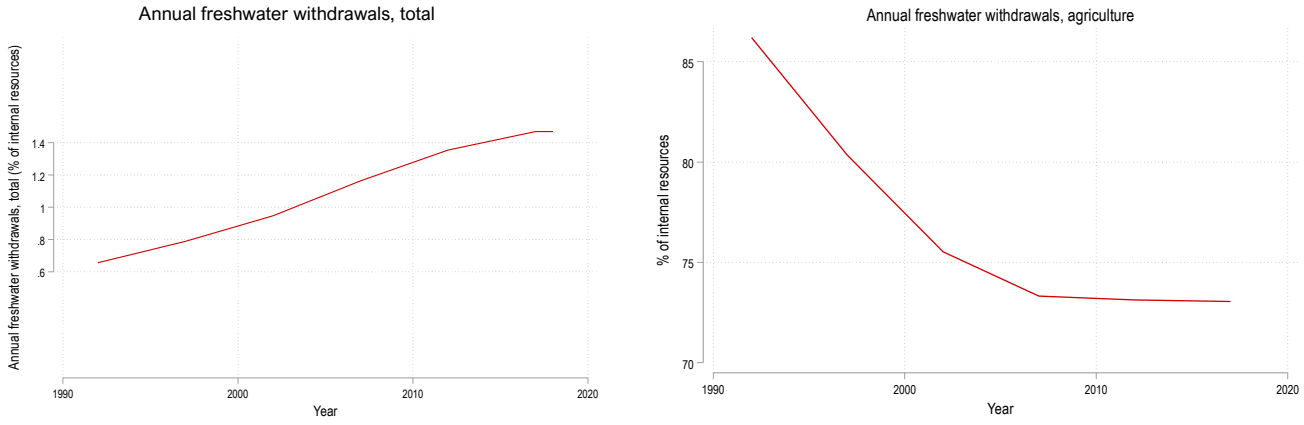
A. Water withdrawals against GDP growth

B. Average water tariffs



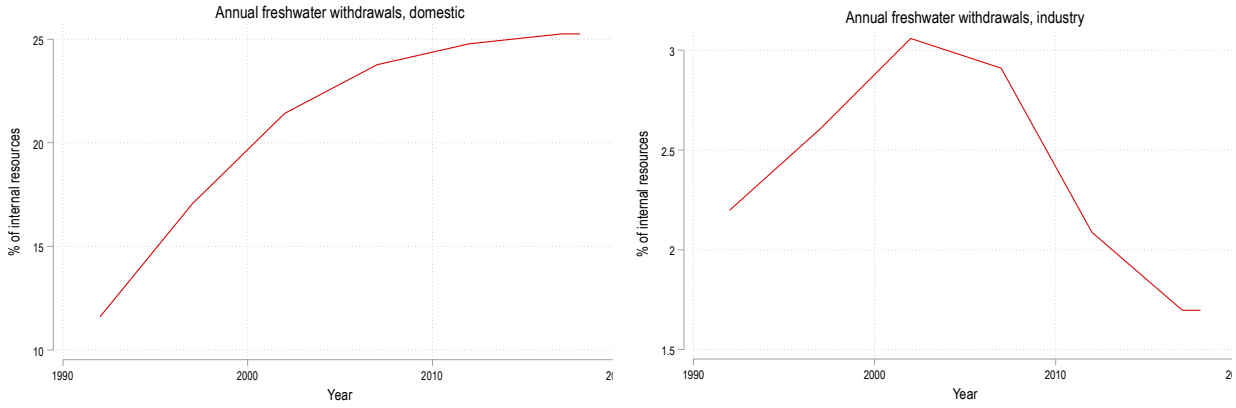
Source: Food and Agricultural Organisation, Aquastat Data, World Bank data.

Figure 74



Source: Food and Agricultural Organisation, Aquastat Data

Figure 75



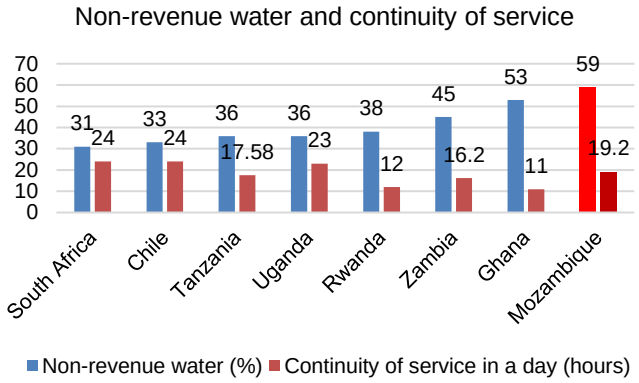
Source: Food and Agricultural Organization, Aquastat Data.

Present concerns regarding water supply include extremely high operational inefficiencies with 51% of the water produced being non-revenue water - which makes water suppliers heavily reliant on donors and government subsidies for cost recovery. Non-revenue water is water that is produced but lost before reaching the consumer. This can be when water does not reach the consumer due to problems such as leaks (physical losses), or is consumed but unbilled due to factors such as theft or meter inaccuracies (commercial losses). Government publications suggest that the cause of high operational deficiencies in Mozambique's infrastructure is due to both factors.[61] Relative to comparator countries, in 2014 Mozambique performed the worst in terms of operational deficiencies with the highest share of non-revenue water (Figure 76). Nevertheless, in 2020, this proportion decreased to 51% at the national level. Nevertheless,

[61] See following link.

Mozambique performs well in securing continuity of water supply with hours of reliable supply during the day for those covered relatively high within the peer group (Figure 76).

Figure 76



Source: IBNET Water Supply and Sanitation Blue Book (2014).

Overall, water is unlikely to be a binding constraint for diversification an growth in the country, although there remains a need to improve operational efficiency in water provision given the high share of non-revenue water and dependence on government subsidies for cost recovery. Low water tariffs and an unclear correlation with growth rates, alongside good performance on indicators of access for industry and households, support this conjecture. However, due to operational inefficiencies revenues are insufficient to recover operation and maintenance costs. There is thus a need to improve operational efficiencies to recover costs and while not a constraint at the moment, this could lead to issues with water supply in the future.

Despite that access to water is not a binding constraint for diversification in the country, access to reliable water supply is important for citizens as it underpins multiple aspects of human development. The access to improved sanitation and access to safe water in rural areas is an important challenge in Mozambique, affecting population health specially in more isolated areas. The exposure to some pathogens is a direct result of inadequate access to safe water and sanitation. Access to clean water and proper sanitation facilities is fundamental to prevent diseases, and to contribute to overall public health of the population. Besides, ensuring access to WASH services enhances productivity, increase education outcomes, empower women, and it can contribute to break the cycle of poverty (World Bank, 2021).

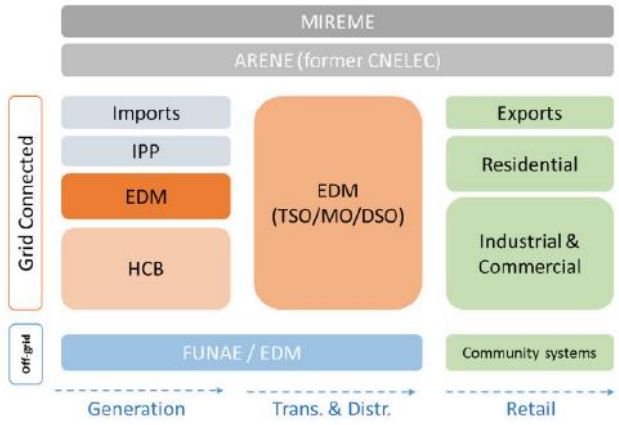
3.2.1.7. Electricity

The power sector in Mozambique is mainly owned by the state-owned energy company *Electricidade de Moçambique* (EDM), which serves as one of the country´s electricity generators and the only transmitter and energy distributor. While EDM acts as a monopoly in the transmission and distribution sectors, the generation is done in conjunction with the Hidróelectrica de Cahora Bassa (HCB), Independent Power Projects and imported energy. HCB is the company that manages the Cahora Bassa plant, one of the biggest hydropower systems in Africa. Its principal owner is the Government of Mozambique, which owns 82% of the company (African Development Bank, 2021). In 2020, the Cahora Bassa plant supplied 52% of the electricity produced in Mozambique, while Independent Power Projects generated 35%, EDM 12% and 1% of the energy was imported from South Africa (EDM, 2020). EDM generates

electricity by operating the country's other five active hydroelectric plants: Mavuzi, Chicamba, Corumana, Cuamba and Lichinga.

The Ministry of Mineral Resources and Energy (MIREME) is in charge of regulating and supervising the energy sector in Mozambique. MIREME formulates Energy Policies and monitors their implementation. On the other hand, The Energy Regulatory Authority (ARENE) supervise all the electricity operators. Among its functions, ARENE has to regulate energy tariffs and quality. It also has to overlook the country's institutional capacity and energy efficiency. Lastly, the Energy Fund (FUNAE) was created to promote low-cost forms of electricity supply in rural and urban areas inhabited by low-income households. FUNAE works under MIRAME's authority but possesses administrative and financial autonomy (Figure 77).

Figure 77: Institutional Architecture of the Energy Sector Mozambique

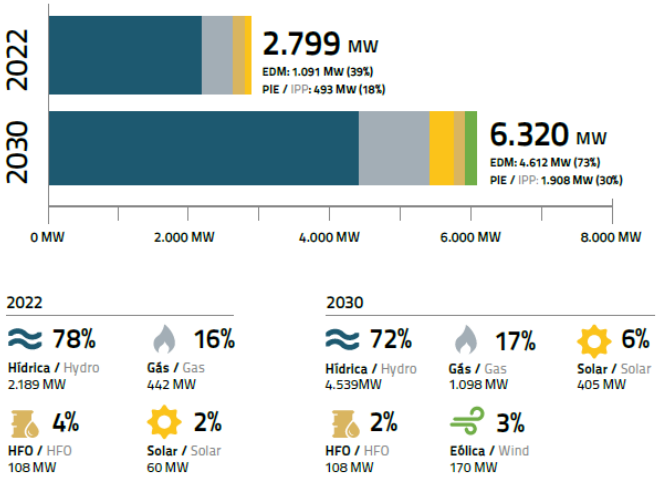


Source: African Development Bank, 2021

Mozambique has the most significant potential for power generation in Southern Africa. The country is a resource-rich energy hub (Salite et al., 2021). Considering untapped coal, hydropower, gas, wind and solar resources, Mozambique can generate 187 gigawatts of energy[62]. The current installed capacity in Mozambique is about 3,000MW, primarily generated by hydropower (78%). However, in the last decade, natural gas and renewable energy sources have occupied a growing share of Mozambique's energy mix. Since 2015, several Independent Power Projects (IPPs), or private players that generate electricity, started operating in the country. EDM and Mozambique's government began broadly supporting IPP creation and launching public tenders for gas, wind and solar projects. The above is part of the Government's plan to expand the national grid and boost off-grid solutions based on sustainable energy, increasing the electricity installation capacity up to 6,320MW by 2030 (Figure 78).

[62] See the following link.

Figure 78: Electricity installed capacity Mozambique



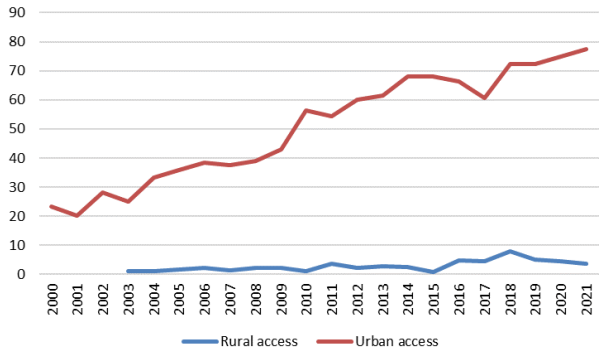
Source: ALER & AMER (2022).

However, despite the country's enormous capacity for power generation, access to electricity remains low and is mainly concentrated in urban areas. In 2021, only 31% of the population had access to electricity, the most insufficient power access among all peers (Figure 79, panel A). If we disaggregate the population by geographic zone, in urban areas the 75% of the population had access to electricity, and access has increased significantly in recent years. In contrast, in rural zones, only 3.8% of the population has access to electricity, the same percentage than in 2011 (Figure 79, panel B). The imbalance between rural and urban areas represents an important challenge to achieving national electrification, considering that most of Mozambique's population lives in rural zones (62%).

Figure 79

A. Access to electricity (% of the population)

B. Access to electricity by geographic zone

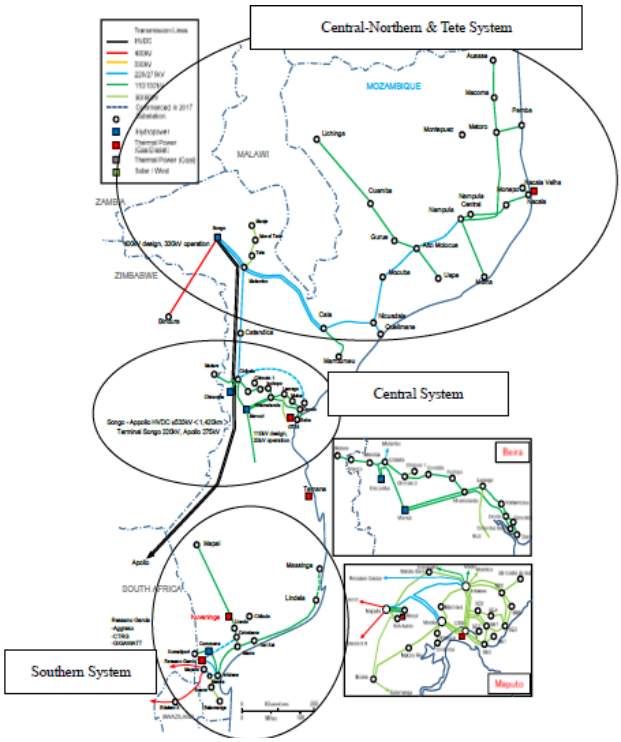


Source: World Development Indicators – The World Bank

One of the main issues preventing access to electricity is the limited and fragmented transmission channels. Similar to what happens with roads and railway transportation, Mozambique's national grid is made of three main systems. The Central-Northen region uses a

transmission system from the Songo substation to Nampula, continuing to the city of Nacala, covering around 1,000 km. The central system runs from the Matambo substation to Chibata. It connects the Chicamba and Mavuzi hydroelectric plants to Beira-Maniza. Finally, the southern region provides electricity to Maputo, Gaza and Inhambane provinces. The above is done by linking the city of Maputo with Komatipoort, which connects to the system operated by the South African company ESKOM. The Central-Northen and Central systems are connected through transmission lines between Matambo and Chibata substations, leaving the country with three systems but two independent networks. The Southern system is the only one not connected to the Cahora Bassa Hydro Power Plant but powers the country's most energy-intensive city (Maputo). Therefore, much of the Cahora Bassa Plant's electricity must be carried out through South Africa (Figure 80).

Figure 80: Map of Mozambique Electricity network and location of existing hydropower generation

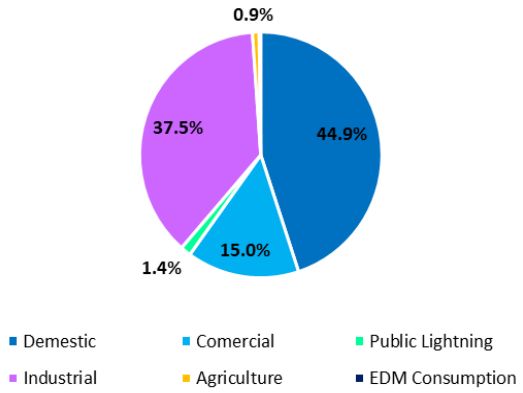


Source: Minister of Mineral Resources and Energy Mozambique, 2017.

The highly concentrated grid system in urban areas limits electricity access in rural zones, where the most common forms of power include kerosene lamps, solar panels, candles and batteries (World Bank, 2019b). Over 60% of Mozambique's population depends on agriculture for livelihood, and access to energy is critical to increasing its productivity, for example, through better irrigation, harvesting and post-harvesting process that could help agriculture become less

dependent on weather conditions. However, of all the electricity consumed in 2021, only 0.9% was used for agriculture (Figure 81).

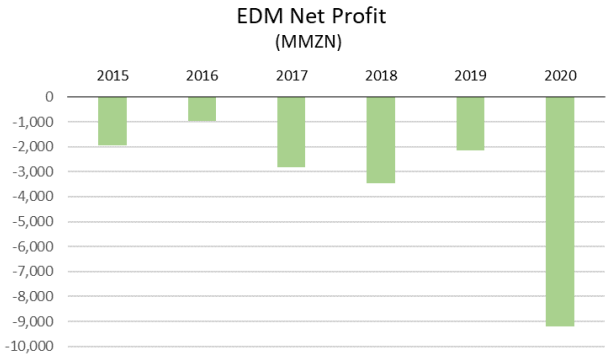
Figure 81: Electricity consumption by category, 2021



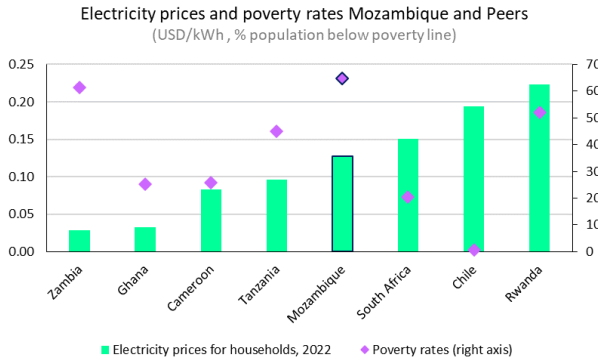
Source: ALER & AMER (2022).

At the same time, the prices charged for electricity in areas with grid connections are high, considering the poverty levels in the country. Electricity in Mozambique currently works through a tariff system that is not cost-reflective (it doesn't cover EDM's entire operation and investment costs). The above has hindered the company's net results and threatened the supply of reliable and affordable services (Figure 82). To face this, the government had to raise tariffs, making them unaffordable for the country's poorest population (Salite, et al., 2021). As shown in Figure 82, Mozambique presents average electricity prices at first glance compared to its peers. However, if we consider Mozambique's poverty rate, tariffs are high for the elevated number of people living in extreme poverty, making electricity less affordable than its peers despite its average prices.

Figure 82



EDM Annual Report 2020.



Own elaboration based on Global Petrol Prices (2022), ITA (2022) and The World Bank Data

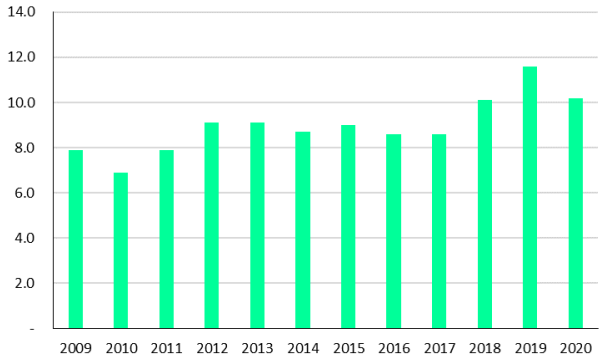
The lack of electricity in rural areas has prohibited the sector that employs the largest population share from being fully developed. Even though agriculture employs more than 60% of the people in Mozambique, it remains relatively unproductive and consists mainly of smallholder farms. A significant share of the farms are rain-fed, with less than 0.5% of the total cropland under irrigation (Salazar-Espinoza et al., 2015). The above has left the country highly exposed to climate shocks. Increasing access to electricity in Mozambique could help the country overcome its exposure to climate change and boost economic growth by helping make the unused arable land productive. This kind of solution is already being implemented by the United Nations Industrial Development Organization (UNIDO) in African countries, proving its efficiency in increasing the farmer's income.

Even in areas where electricity connections are available, access is not 100%. Inconsistent services, unreliability, bad quality and affordability are part of the challenges facing urban and peri-urban citizens for electricity access (Salite et al., 2021).

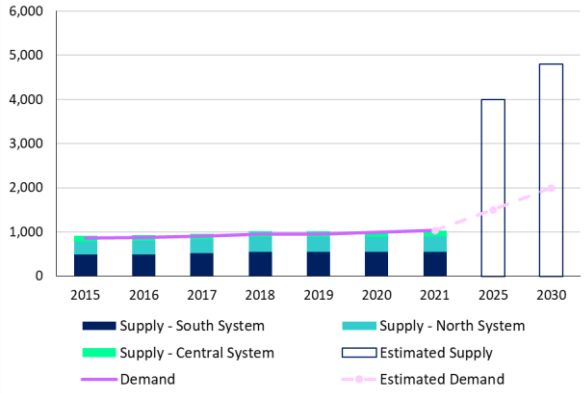
For electricity to be a binding constraint for growth, its shadow price should be high, reflecting an imbalance between offer and demand. The average selling price of EDM has been increasing over time, rising 30% from 2009 to 2020 (Figure 83). However, the increase in electricity prices is due to tariff adjustments made by EDM in an effort to compensate for its losses. As electricity prices are centrally assigned, they are not a reliable indicator that the electricity demand exceeds the supply. Demand for electricity in Mozambique has continuously increased over time, and energy supply has not always been able to grow in line with it. The above produced electricity shortfall, especially between 2018 and 2020. However, according to the power availability and demand forecast of the EDM Master Plan, in future years, Mozambique will have energy not only to supply the demand but also to trade at competitive prices in regional markets (Figure 83).

Figure 83

A) Tariff charge by EDM (c$/KWh)



B) Electricity demand and supply (MW)

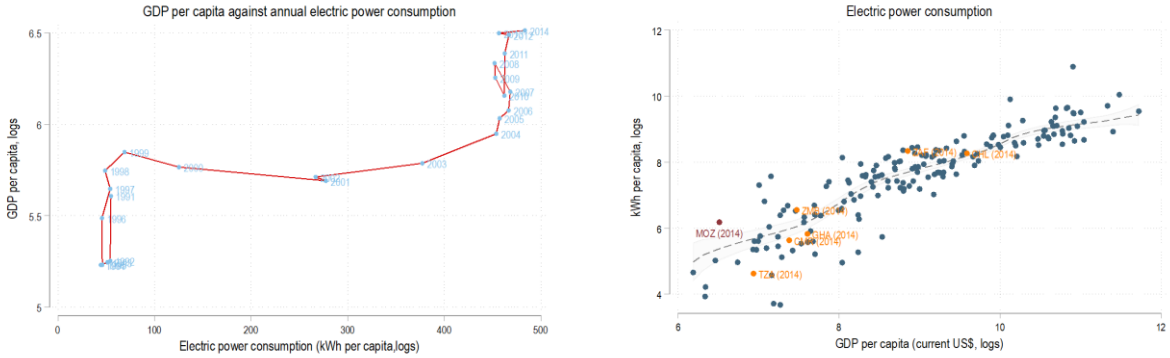


Sources: EDM Annual Report (2020) & EDM Integrated Master Plan (2018)

Even though we established that there is a sufficient supply of electricity in the economy (or will be), we need to check if movements in the constraint reflect movements in the objective function (growth). When analysing electricity consumption, there doesn't appear to be a clear impact on aggregated income levels. Periods with higher power consumption are unrelated to income increases, and years with large economic growth have not been accompanied by higher electricity consumption (Figure 83). Furthermore, electricity consumption

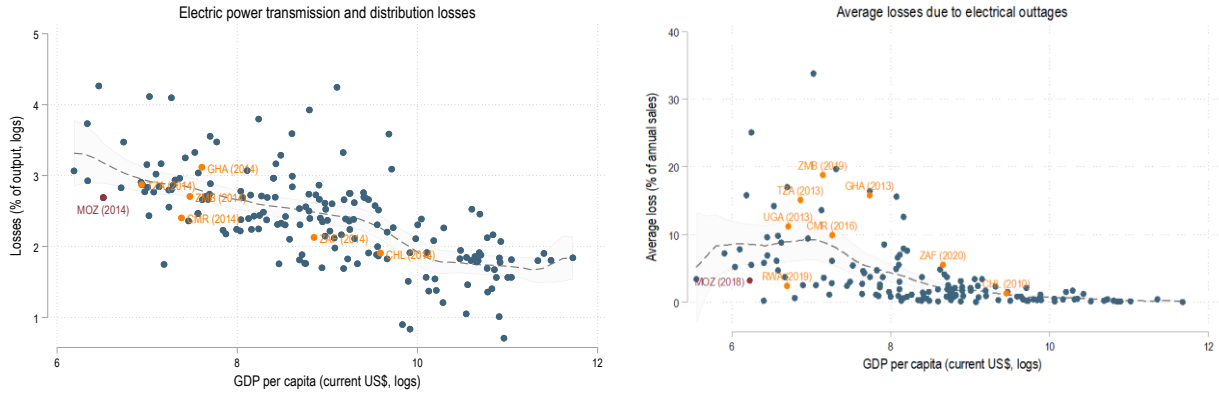
in the country is higher than expected, given its income levels, and even larger than peers with more income per capita (Figure 84). Also, given its income level, Mozambique presents lower transmission, distribution and outage losses than expected (Figure 85). When we replicate the analysis for access to electricity, we can see a clear relation between electricity access and GDP per capita growth. This behaviour is common in countries with low access to electricity, so it does not indicate that it is a specific barrier to Mozambique (Figure 86).

Figure 84



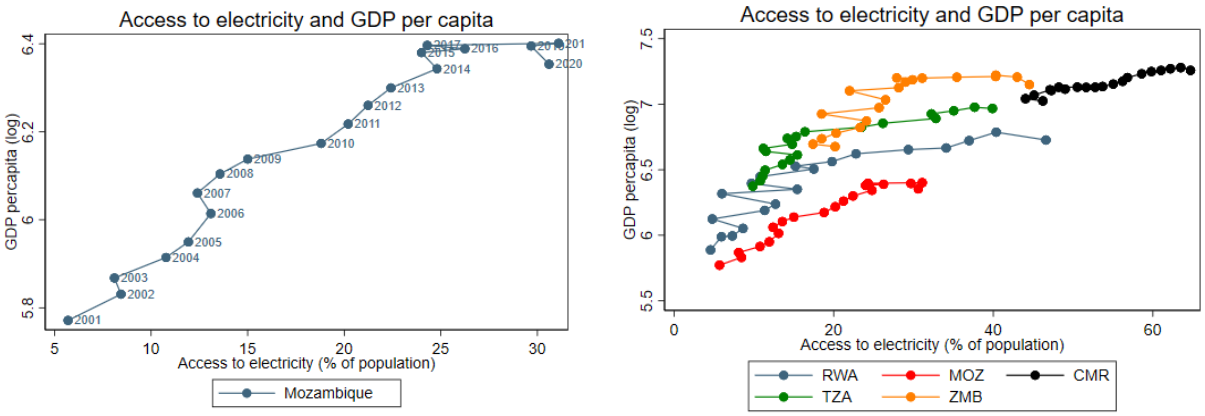
Source: World Bank Enterprise Survey and The World Bank.

Figure 85: Losses due to transmission, distribution and outages



Source: World Bank Enterprise Survey and The World Bank.

Figure 86



Source: World Bank Enterprise Survey and The World Bank.

In the third place, we need to analyze if firms are trying to overcome the electricity shortage. There is not enough evidence to suggest that firms in Mozambique are trying to overcome electricity as a main constraint. Given Mozambique's income levels, the number of firms owning or sharing a generator and the proportion of electricity used from those generators are lower than expected. The number of firms owning a generator is the lowest among its peers, and the firms that own a generator only rely on it for 16.8% of their energy needs. The above is not much compared to Tanzania, which relies upon 30%, South Africa (50%), and Zambia (close to 35%) (Figure 87). Also, even though 8.4% of the firms declare electricity to be their largest obstacle, this number is lower than the share of firms declaring Corruption to be the main obstacle (16%), Access to Finance (14.8%), Crime (9.8%) or Practice of the Informal Sector (10.4%).[63]

Figure 87

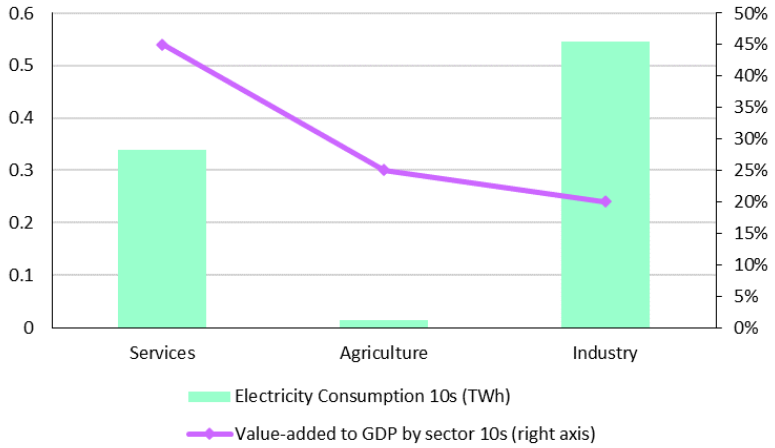
Source: World Bank Enterprise Survey.

Fourth, for electricity to be a binding constraint, sectors that are more intensive in electricity should be performing worse than firms less intensive. There is no clear evidence of the inverse relation between sectors that contribute more to GDP and their electricity consumption. In the 2010s, services were the sector that contributed the most to GDP (45%),

[63] See Appendix 5 - Figure A.5: Main problems for firms, Mozambique 2007 and 2018.

followed by agriculture (25%) and industry (20%). However, during the same period, firms in the service sector consumed 25 times the energy used in agriculture (Figure 88).

Figure 88: Electricity consumption and value-added to GDP by sector



Source: World Development Indicators & Enerdata (2023)

Lastly, Mozambique's Government is committed to providing sustainable and affordable national electricity access. Mozambique's Government has set significant targets for developing its electricity sector. By 2030, the Government of Mozambique aims to generate at least 2,300 MW of new installed capacity and about 5 million new connections, both on-grid and off-grid (African Development Bank, 2021). This initiative was part of the National Development Strategy for 2015 – 2035 and seeks universal access to electricity in Mozambique by 2030. The National Electrification Strategy and the Electrical Infrastructure Integrated Master Plan are part of several strategies adopted by the Government to meet its goal of national electricity. The fulfilment of this plan is critical for Mozambique's future development, especially in overcoming poverty in rural areas. **Nowadays, electricity doesn't meet the criteria to be considered a binding constraint to growth. However, the above is subject to the fulfilment of the Government energy master plan and the urgent need to increase electricity access in the country.**

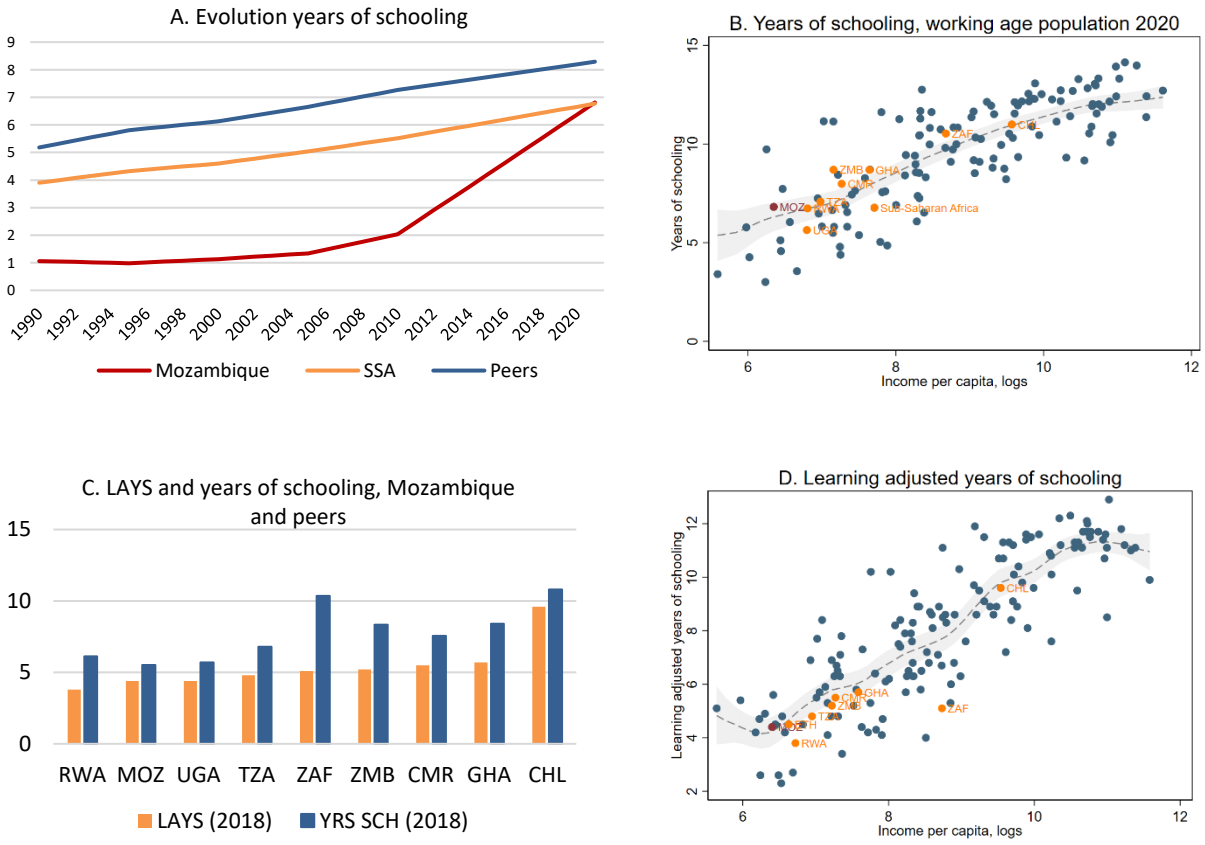
3.2.2. Human capital

Mozambique has achieved significant increases in average schooling in the last decade. Since the end of the civil war, Mozambique has come a long way in improving access to education. The above was accomplished by introducing several reforms and strategic plans in the past two decades. One of the most important reforms was introduced in 2004, followed by many other government's plans a focus not only in access, but also on quality of education[64] (UNICEF, 2017). In consequence, average years of schooling increased from 1 in 1995 (lowest in the peer group) to 6.8 in 2021, with a sharp acceleration since 2010. While in Sub-Saharan Africa the average years of schooling increased by a factor of 1.7 in the last 30 years, in Mozambique it increased

[64] Educational operation plans were launched in 2006 and 2012, looking to improve access to early learning and school readiness (for children between 3 and 6 years old), increase the quality of primary education through more competent and better-motivated teachers, and promote access for vulnerable children and retention of adolescent girls in primary school (UNICEF, 2017). Later, in April 2021, the government launched the "Educational Sector Plan 2020 -2029", centering the priorities around ensuring inclusion and equity in access, participation and retention, providing the quality of learning, and ensuring transparent, participatory, efficient and effective governance.

sixfold (Figure 89, panel A). As a result, the average years of schooling of the working age population is greater what we would expect given Mozambique per capita income and above the sub-Saharan Africa average (Figure 89, panel B). The Learning Adjusted Years of Schooling (LAYS) index, which adjusts years of schooling by the quality of education, is also where one would expect it given Mozambique's income level (Figure 89, panel D). Mozambique also has the smallest discrepancy among its peers between years of schooling and learning-adjusted years of schooling (Figure 89, panel C).

Figure 89: Average years of schooling, Mozambique and peers

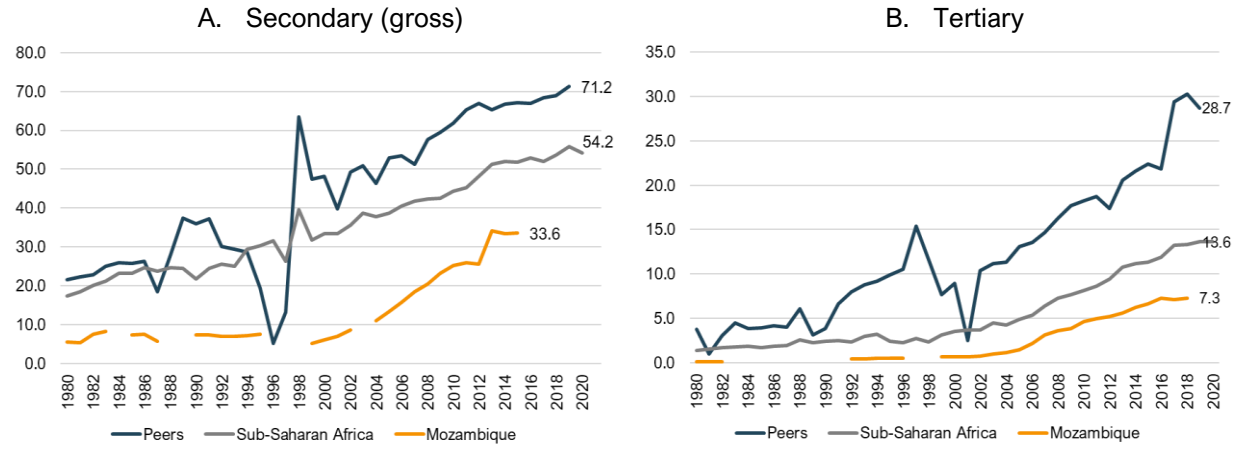


Source: WDI, Barro and Lee data, and LAYS database (2018). Note: The learning-adjusted years of schooling (LAYS) is a measure that combines quantity and quality of education.

Despite important educational improvements in the country, enrollment rates for secondary and tertiary education are very low compared to peers and countries in the region. One of the most significant reforms was introduced in 2004 when the Government of Mozambique decided to remove the national school fees for the primary level, provide free textbooks, introduce a new curriculum, and continue investing in the construction of new schools (Fox, 2012). The commitment to the reforms mentioned above is reflected in the government expenditures. From 2008 to 2019, the Government of Mozambique have spent 3.6 billion meticais in education on average every year, with an 83% coming from the government budget and the rest from donations or external loans (UNICEF, 2019). Education commands more than 17 of the state budget as of

2021[65]. The impact of these government efforts has been mixed. Primary (net)[66] enrollment rates have improved from 46% at the 90s to 94% in 2018. Despite improving secondary enrollment rates from 7.3% in 1990 to 33.6 in 2017, the country is still well below the region and peers. The same can be said about tertiary education, with an enrollment rate of 7.3% in 2017, far below peers and neighbors (Figure 90).[67]

Figure 90: Secondary and tertiary enrollment rates

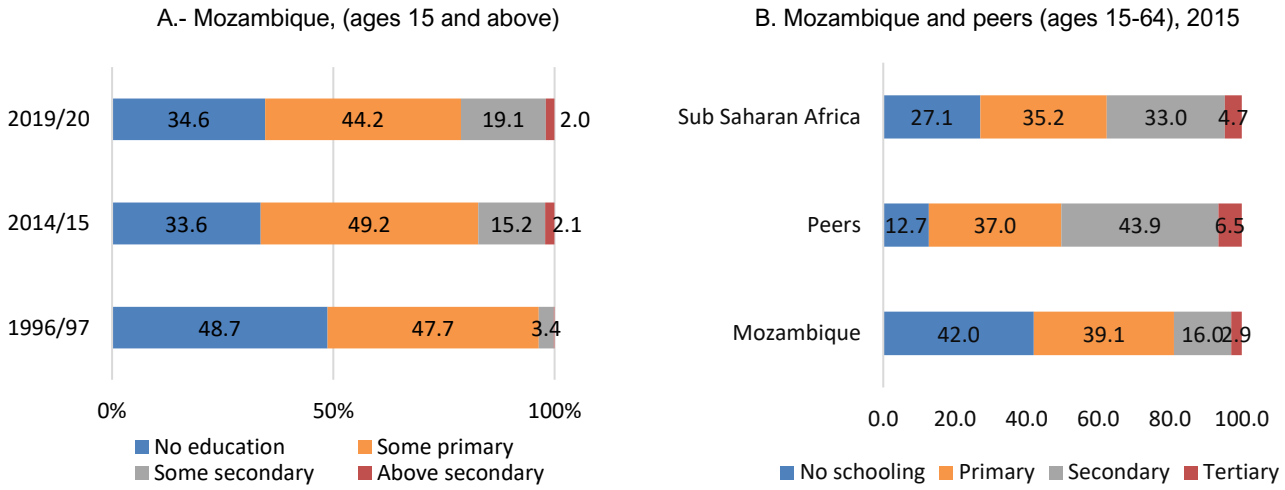


Source: WDI data. Notes: Gross enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown.

Because improvements have been recent, Mozambique's working-age population remains relatively uneducated. Data from the household survey (Inquérito sobre Orçamento familiar) shows that in 2019/20, of the population aged 15 and above, 34% have no formal education, 45% have completed primary education, 20% have completed a secondary education, and only 2% have more than a secondary education. (Figure 91, panel A). This is a significant improvement compared to 25 years earlier, thanks to the fivefold increase in individuals with some secondary school education. But it has had only a marginal impact on the labor market. Among individuals aged 15 to 64, a plurality (42%) had no formal education in 2015, a sharp contrast with peer countries. Over 80% had less than secondary schooling, many more than in the region and the peer group (Figure 91, panel B). Behind these statistics is a workforce that remains predominantly agricultural, with more than 70% of the workers engaged in small-scale family farming (Jones et al., 2018).

[65] See the following link.
[66] Net enrollment rate is the ratio of children of official school age who are enrolled in school to the population of the corresponding official school age.
[67] See the following link.

Figure 91: Working population age by educational attainment



Source: Barro and Lee data, IOF survey 2019/20, and Jones et al., 2018. Note: Working age population comprises individuals between 15-65 years old for Barro and Lee data. For Mozambique, the economically active population comprises individuals with ages 15 and above.

Although human capital is in short supply in Mozambique, it does not necessarily follow that human capital is a binding constraint on growth. Human capital holds back growth only if its supply falls short of what the economy (and, especially, the private sector) requires to grow. We must look beyond summary statistics about the composition of the labor force for evidence. It turns out that the evidence suggesting that human capital is a binding constraint is weak. If skilled labor is constraining investment and growth, we should see firms paying a premium for skilled workers, high returns to skills and education, relatively low unemployment of skilled workers, and firms indicating problems in finding an adequate workforce.

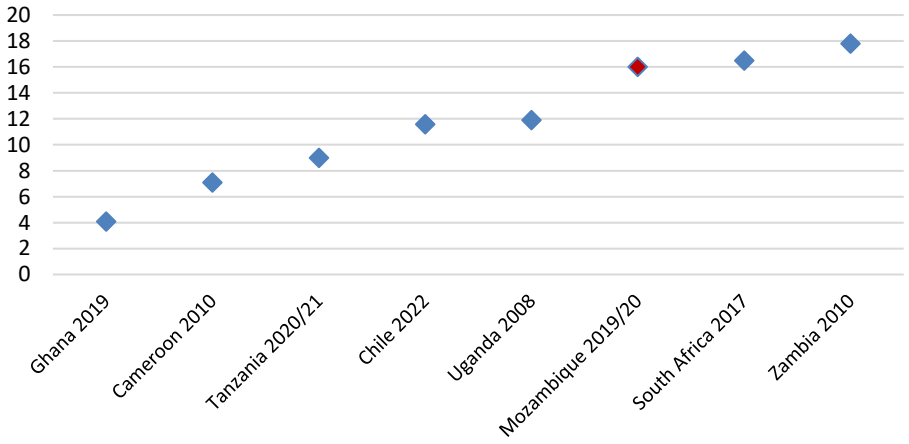
There is evidence from recent data of high returns to schooling in Mozambique, although these results apply mostly to wage earners who represent a low proportion of total employment. Based on the latest IOF conducted in Mozambique (2019/20), the average increase in income due to an additional year of schooling is 16% (controlling for experience) (Table 1, Column1). This return is high compared to peer countries (Figure 92), to sub-Sahara Africa (10.5%), and low-income countries in general (9.3%) (2018). Controlling for sociodemographic characteristics and the economic sector to the estimation, the return to schooling decreases only somewhat, to 13% (Table 2). Those in Maputo earn a 21% premium over those in other provinces. Women earn 14% less than men with comparable education, experience, location, and sector of work).

Table 2: Mincer regression coefficients

Variable	Estimation 1	Estimation 2
Years of schooling	0.157***	0.13***
Experience	0.051***	0.048***
Exp2	-0.0006***	-0.0006***
Women		-0.135***
Living in Maputo		0.21***
Urban		0.003*
Constant	6.646***	6.857***
Fixed effects by sector	No	Yes
Observations	1,602,900	1,601,133
Adjusted R-squared	0.352	0.404

Source: Own elaboration using IOF 2019/20. Notes: Notes: (i) Column 2 is the result of the following estimation: $\ln(income) = \alpha + \beta * years\ of\ schooling + \beta 2 * years\ of\ experience + \beta 3 * years\ of\ experience 2 + \beta 4 * female + \beta 5 * urban + \beta 6 * Maputo$ and includes fixed effect by economic sector. (iii) Standard errors in parentheses* p<0.1, ** p<0.05, *** p<0.001. Standard errors in parentheses, * p<0.1, ** p<0.05, *** p<0.001

Figure 92: Returns to schooling Mozambique and peers

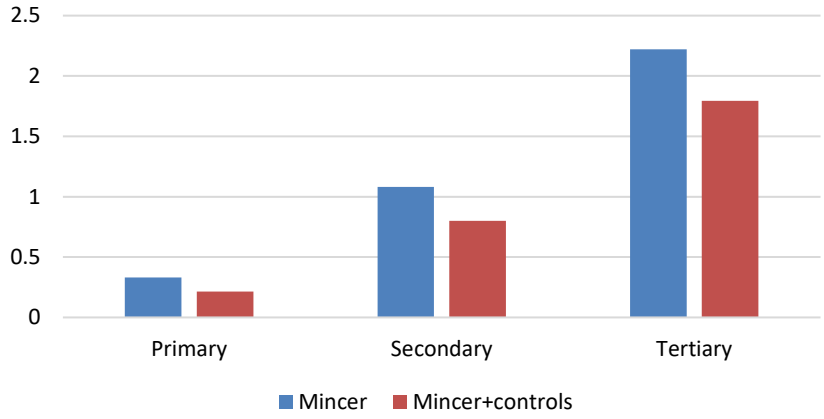


Source: Own elaboration using CASEN (2022) for Chile, PALMS (2017) for South Africa, IOF 2019/20 for Mozambique, and ILFS 2020/21 for Tanzania, estimations elaborated by Asravor (2021) for Ghana, Njifen & Aicha (2021) for Cameroon, Mphuka & Simumba (2012) for Zambia, Peet et al. (2015) for Uganda. Notes: (i) All the coefficients are significant at 95%. (ii) The estimates made by the Growth Co-Lab for Tanzania, South Africa, Chile and Mozambique follow the same specification: OLS Mincer equation with experience and square experience as controls.

Returns to tertiary education are notably high. Workers with a tertiary education earn twice as much as those with no education, a large increase compared to the average returns to schooling to higher education for low-income countries (23%) (Psacharopoulos & Padrinos, 2018). Returns to primary education are low (30%) but significant, and individuals with secondary education earn 80% more than those with no education (controlling for experience, economic sector, gender,

whether or not they live in Maputo, urban areas,) (Figure 93). The average for low-income countries for primary and secondary education is 25% and 19%, respectively (Psacharopoulos & Padrinos, 2018). Nevertheless, these results are potentially biased, since they rely heavily on workers earning salaries, which represent only about 14% of those employed, of which roughly 55% work for private companies and 25% work for the public sector. [68]

Figure 93: Returns by level of education (over not having education), Mozambique 2019/20



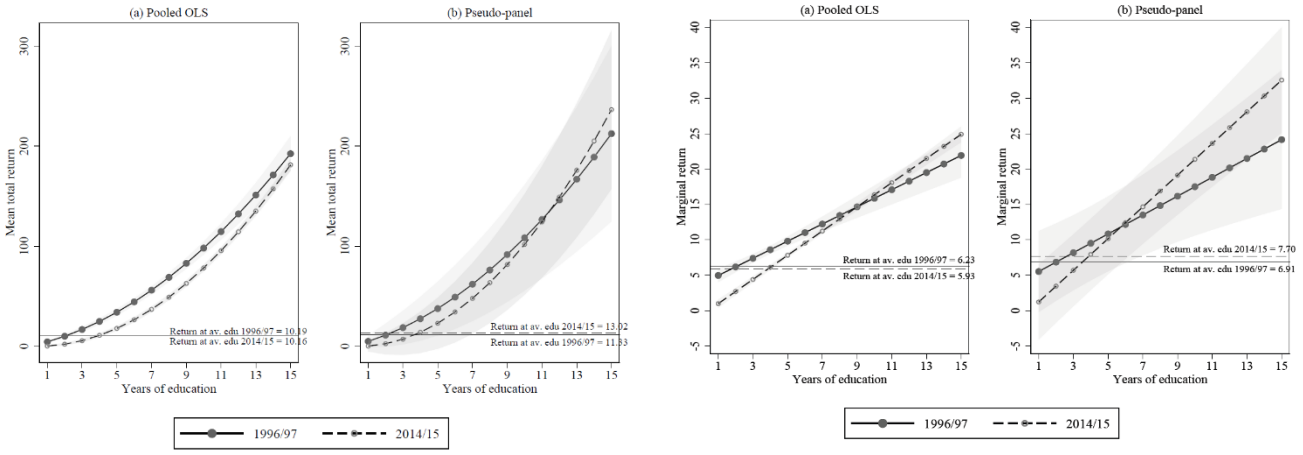
Source: Own elaboration using IOF 2019/20. Notes: (i) Mincer equation is the following: $\ln(wi)=\alpha+\beta 1\text{primary}+\beta 2secondary+\beta 3tertiary+\beta 4exp+\beta 5exp2$, leaving less than primary as the omitted level. (ii) Mincer equation + controls also includes gender, urban, Maputo dummy, and dummies for each economic sector. (iii) All coefficients are significant at 95%.

Taking into account the returns on consumption, it is evident that the returns to schooling for most levels of education have been decreasing over time. Jones et al. (2018) estimate the impact of education on consumption rather than income. Their estimates (using IOF survey data for 1996/97 and 2014/15) indicate that the returns to schooling have fallen and become more convex over time, (Figure 94) the latter because of a reduction in returns to primary and lower secondary education. Among those with an upper secondary education or higher, marginal returns have remained steady (and perhaps increased). This is consistent with an increase in the supply of workers at lower skill levels (due to expansion of access to primary schooling) combined with limited productivity improvements in traditional occupations (household agriculture) and technological improvements in more modern sectors (Jones et al., 2018). In complement, estimates of returns to schooling on per capita consumption made with the IOF 2014/15 database very low returns on primary education (2.9%) and low returns to secondary and tertiary education of 11.1% and 12.1% respectively (Baez et al., 2018).

[68] This estimation consider ILO definition of employment. The estimates were replicated using the government definition found in the IOF results report (INE, 2021) and the results are very similar.

Figure 94: Predicted marginal returns to additional year of schooling, Jones et al. (2018)

A. Predicted cumulative return B. Marginal return to additional year



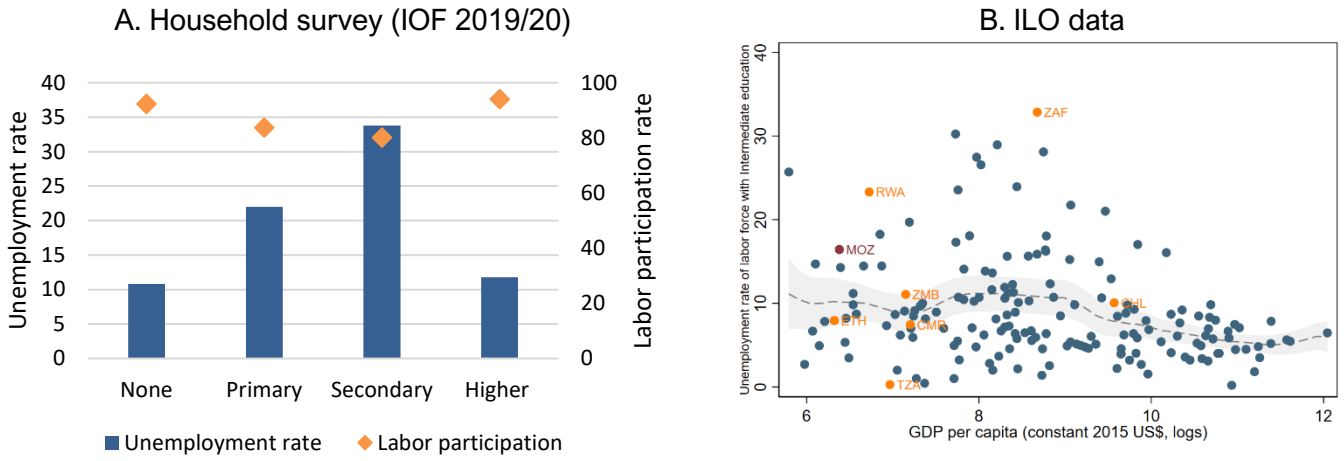
Source: Jones at al., 2018.

While the unemployment rate for those with tertiary education are low, the unemployment rates for individuals with secondary education are very high in Mozambique. If human capital constrained growth, one would expect unemployment to fall with higher education, as those with higher levels of education filled vacancies. This does not appear to be the case in Mozambique. Unemployment is lower among those with a tertiary education (Figure 95, panel A). But those with no education face the lowest unemployment rate, and individuals with a secondary education face among the highest unemployment rate for countries with Mozambique's level of income (Figure 95, panel B).[69]

The incipient demographic transition of the country has been accompanied by high unemployment in urban areas, especially for young people. Mozambique's demographic transition has only just begun, and the labor force is growing rapidly and increasingly young. Although they now have more education, young workers often find themselves with similar jobs and prospects to their parents. As a result, 24% of urban youth were unemployed and actively seeking work. This is an increase from the 21.4% reported in the 2014/15 IOF (Figure 96). In rural areas, young workers are more likely to enter agriculture when they leave school, likely because they have few other options (Lachler & Walker, 2018).

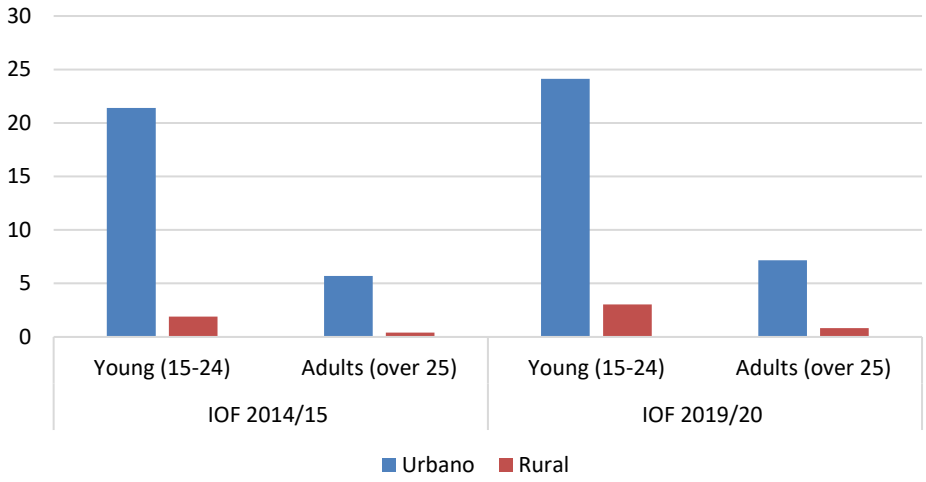
[69] See Appendix 5 - Figure A.9: Unemployment rates by levels of education, ILO.

Figure 95: Unemployment rates by educational level



Source: INE (2021), ILO data and WDI. Note: (i) The estimation considers individuals aged 15 or above. Source: ILO data and WDI. (ii) Intermediate education comprises upper secondary or post-secondary non tertiary education.

Figure 96: Unemployment rate by location and age



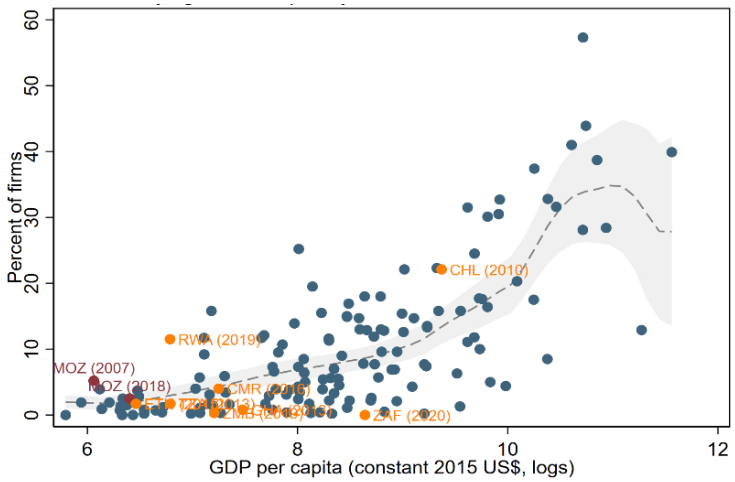
Source: Own elaboration from Lachler & Walker (2018) (IOF 2014/15), and IOF 2019/20. The calculations for the 2019/20 version were made using the same definition of unemployment as used by Lachler & Walker (2018).[70]

The proportion of firms indicating an inadequately educated workforce as the main obstacle is higher than most of the peers, but this proportion has decreased from 2007 to 2018. Firms' perceptions of the competence of the workforce speak to the scarcity or excess of skills. In the latest version of the World Bank Enterprise Survey for Mozambique, very few firms (2.5%) indicate an inadequately educated labor force as a main obstacle to growth is low (although this is high for Mozambique's peers), a proportion that has fallen since 2007, when about one in twenty firms

[70] Unemployment is defined as not having worked in the last seven days and having actively sought employment in the last 30 days.

cited a lack of adequate educated workforce as a main obstacle (Figure 97). The proportion of firms facing human capital barriers is also low compared to other constraints.[71]

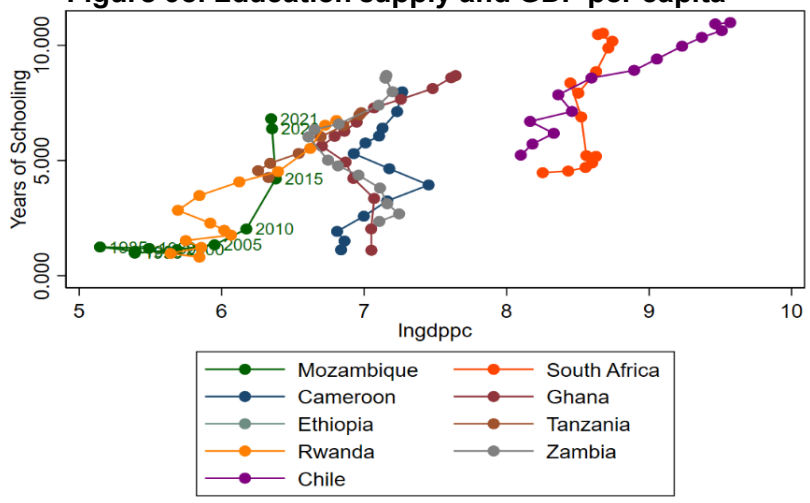
Figure 97: Percent of firms indicating an inadequately educated workforce as the main obstacle



Source: Own elaboration using WDI data and WBES.

The most recent expansion in the supply of education (measured by years of schooling) are not related positively with the value added per worker. If human capital is a binding constraint, increases in human capital should be accompanied by increases in GDP. In Mozambique, years of schooling of the working-age population increased sixfold in the last three decade (from 1.1 in 1990 to 6.8 in 2021), during which real GDP per capita increased 2.6 times. But this positive relationship has weakened in the past several years (Figure 98), as it has for Zambia and South Africa, but not for the rest of Mozambique's peers.

Figure 98: Education supply and GDP per capita

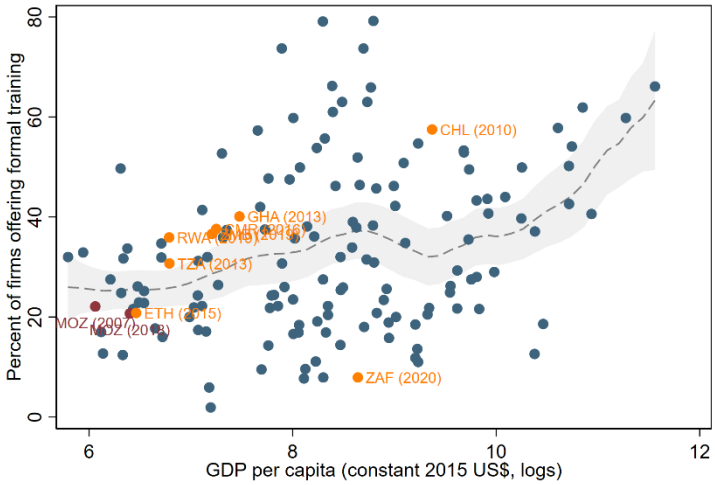


Source: Own elaboration using WDI data.

[71] See Appendix 5 - Figure A.5: Main problems for firms, Mozambique 2007 and 2018.

The proportion of firms offering formal training in Mozambique is below than the expected level given its income, and below most of the peers. We also do not see strong evidence of firms expending resources to overcome a human capital deficit. According to Figure 99, 20% of the manufacturing firms offered formal training for workers in 2018, less than one would expect for a country of Mozambique's income level, less than in peer countries.

Figure 99: Firms offering formal training vs. income per capita



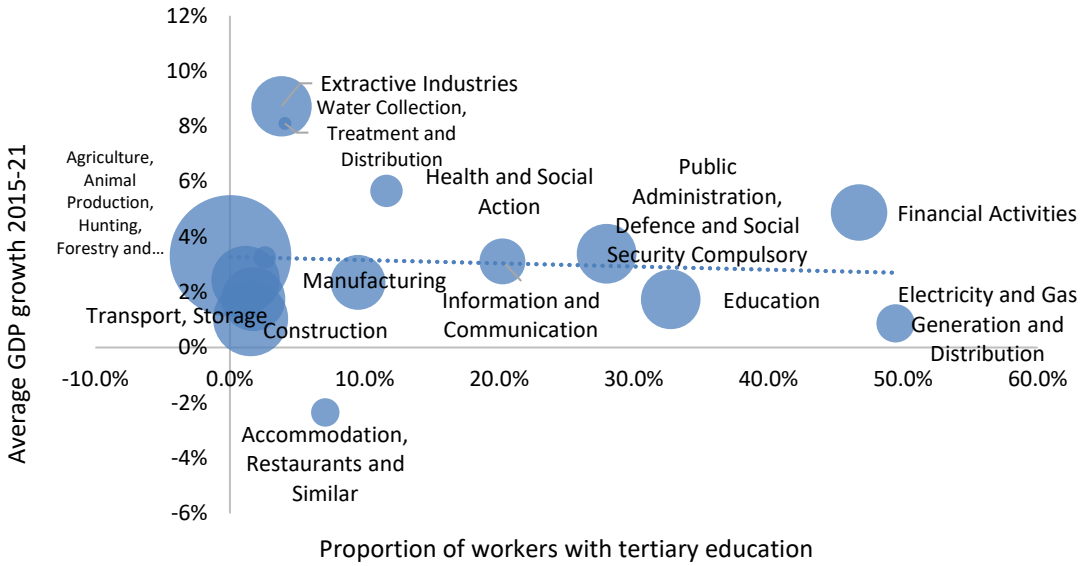
Source: Own elaboration using WBES 2018.

Growth in Mozambique has come from sector that do not necessarily require large proportions of high skill workers. A final test of whether human capital holds back growth is to ask whether firms that are more intensive in human capital are less prevalent in the economy. If human capital is a binding constraint, we would see firms moving away from skill-intensive to capital-intensive industries. Instead, in Mozambique there is no apparent relationship between the recent growth of the industries and how intensively they require advanced human capital (Figure 100). Some sectors with low human capital needs are growing (extractive industries) but others are not (agriculture). Indeed, some industries (as financial activities) that rely heavily on workers with tertiary degrees have grown quickly.[72]

Moreover, there is no apparent correlation between sector size and its share of workers with a tertiary education. Agriculture is Mozambique's largest sector (measured by real GDP) and employs virtually no one with a tertiary education (Figure 100). The same is essentially true for next largest sectors – retail, repair of motor vehicles, and manufacturing.[73]

[72] See Appendix 5 – Figure A.10. GDP growth and workers with tertiary education, by subsector.
[73] GDP at constant prices in 2021 for agriculture was 166,969 (10^6 MT), for manufacturing was 52,674 (10^6 MT), and for retail, repair of motor vehicles was 63,609 (10^6 MT).

Figure 100: GDP growth and workers with tertiary education, by subsector



Sources: Own elaboration using IOF 2019/20 and GDP Optica production database (Bank of Mozambique). Note: The size of the circles represents the GDP at constant prices in 2021.

The evidence suggests that human capital is not an immediate challenge to growth in Mozambique. Educational attainment is expanding while the economic returns to that education are shrinking. Although returns to education for salaried workers are high, few Mozambicans earn a salary. Using consumption as a proxy for earnings suggests that returns to most levels of education have been falling over time, especially for those with little to no education. Unemployment among those with a secondary education is high – suggesting an excess supply rather than a human capital deficit for this level of educational attainment. Unemployment is lower for those with a tertiary education, but this is a very small fraction of the labor force. Individuals with no education have the lowest unemployment rate. Few firms cite a skilled workforce as a major constraint. Few firms offer their own training to compensate for insufficient public training. There is no relationship between GDP growth and educational attainment. Finally, the sectors that have grown the most in Mozambique are not necessarily the ones that require large proportions of high skill workers.

Nevertheless, education is a key priority for medium and large term development. The evidence shows that there is a clearly long-run correlation between economic development and educational attainment, illustrating the importance of the investments and reforms carried out in the country. Our conclusion that human capital is not a constraint highlights the extent to which other constraints limit growth. Addressing these constraints should create additional demand for human capital, which in turn will warrant investment in education and make past and current investments pay off. If other constraints are removed, this will encourage more complex economic activity, which will require more skilled human capital. Without eliminating other constraints, the economy will continue to have a mismatch between the supply and demand of human capital (e.g., excess supply of highly skilled workers). Thus, the country must continue to promote education and its quality, in parallel with other policies that will diversify the economy and generate demand for the mass of skilled human capital that will be available in the country.

3.3. Government failures

3.3.1. Macroeconomic risks

Low returns to investment in more complex industries could be caused not by low social returns to such investment, but rather by the inability of investors to appropriate those returns via macroeconomic risks. This section provides a high-level analysis of the macroeconomic conditions in Mozambique as part of the low returns to economic activity of the Growth Diagnostics tree, examining if the evolution of the fiscal, monetary, and external accounts is likely to create binding restrictions for investment in more complex industries and promote the overall country's diversification and growth.

There is no evidence that macroeconomic performance is an immediate challenge in Mozambique. While the fiscal and external accounts face sustainability concerns in the aftermath of both the hidden debt crisis and the deterioration of global and domestic conditions, they do not seem to have constrained diversified private investment decisions in Mozambique. Before 2016, a period characterized by macro stability, relatively stable exchange rate, public investment, and large FDI inflows, the economy did not manage to develop more complex industries. Moreover, in the last decades, the monetary policy has continued to become more solid and predictable, which allowed the mitigation of external and domestic recent shocks to the economy and provided the necessary foundations and predictability for private investment.

While the macroeconomic environment is not an immediate challenge for complexity and diversification in Mozambique, addressing inefficiencies in the fiscal accounts is relevant to create fiscal space necessary and fund immediate challenges regarding poor infrastructure. Tangible efforts to improve the allocation of public spending as well as the efficiency of both public revenues and expenditures in critical sectors are necessary to mitigate delayed and limited potential economic and fiscal benefits from LNG production. These efforts are also relevant given the less favorable external global conditions, with serious implications for fiscal revenues.

3.3.1.1. Fiscal conditions

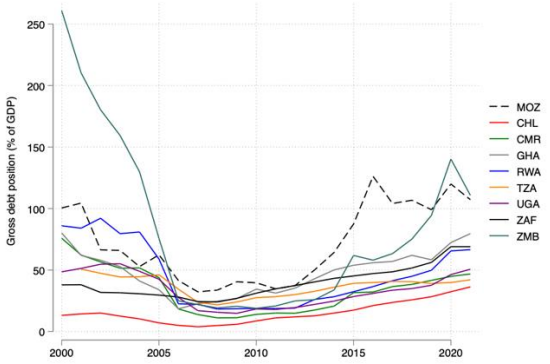
Mozambique had been steadily reducing its public debt, but the trend reversed since 2012 to reach the highest historical levels. In the context of sustained economic growth, Mozambique had achieved a continuous decline in its public debt, jumping from 100% of GDP in 2000 to 37% in 2012. With the reversal of favorable commodity prices and an increasing fiscal deficit, Mozambique's debt started to increase, misaligning from its peers except for Zambia[74] (Figure 101). During the 2012-2016 period, the gross public debt jumped almost 90pp to 126% of GDP, markedly above the average increase in peers (15 pp). During this period, the accumulation of public debt had been a general trend in the world, especially for emerging countries, which benefited from low interest rates from foreign creditors and international organizations (Kose et al., 2021). However, this starker uprising trend in Mozambique was driven by specific public finance conditions associated with fiscal mismanagement (Cortez et al., 2021; Ribeiro et al., 2011).

[74] Zambia benefited from the favorable external scenario for debt accumulation during the 2010s. However, its trend was explained due to declining tax revenues and the shift from concessionary bilateral debt to commercial loans from China, one of the principal lenders in Zambia. As such, the country achieved the highest contribution from China in a country in Africa (Brautigam, 2022), which later resulted in a debt default and debt restructuring (2020 and 2023, respectively).

Overall, the public debt amounted to 107% of the GDP in 2021, surpassing comparable peers and in terms of the level of income (Figure 101), with the exception of Zambia.

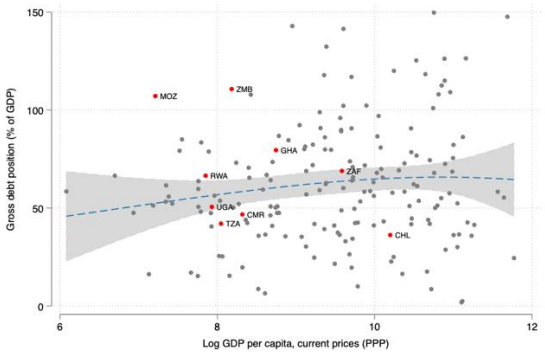
Figure 101: Gross public debt

Gross public debt (percentage of GDP)



Source: IMF

Gross public debt and income level (2021)



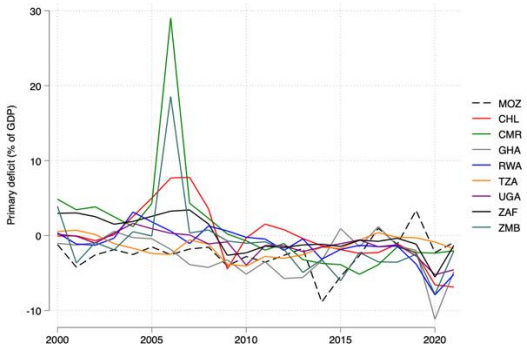
Source: IMF and WDI

The fiscal deficit also increased but the government's debt strategy and spending adjustment partially offset the deterioration. Since the early 2000s, Mozambique presented stable fiscal deficits that started to overperform peers in more recent years (Figure 102). A brief deterioration between 2013 and 2016, resulting from a decline in revenues and relatively higher spending, was explained by ambitious infrastructure and current public expenditure (wages)[75].This fiscal shortfall was covered by public debt accumulation, namely costly domestic non-concessional borrowing (World Bank 2014; Ribeiro et al., 2011), which accounted for 14% of the total finance sources in 2012 and almost 40% in 2014. In 2016, the discovery of a hidden debt changed the fiscal management. The episode corresponded to non-accounted loans and bonds issued by Credit Suisse and VTB to the SOEs ProIndicus, MAM, and EMATUM. The value was USD 2,000 million, representing 21.5% of Mozambique's foreign debt and 15% of the total public sector debt (Cortez et al., 2021). The international organizations and bilateral donors withheld financial support to Mozambique and the government has to reduce sharply its spending in response (Figure 100), especially on the current side, but the domestic debt participation continued increasing due to the cut of donor's support and lack of external finance access (World Bank, 2022).

[75] Fiscal impulse arose from the government's Five-Year Government Plan (PQG - Plano Quinquenal do Governo), Integrated Investment Plan (2013), and the Action Plan for Reducing Poverty (PARP, 2011-2014). The main target of the PQG was the reduction of poverty rates and boost of economic growth through investment in road networks (EN1), power generation, and access to water in rural areas. In 2014, this strategy approved a budget that increased the spending to 42% of the GDP.

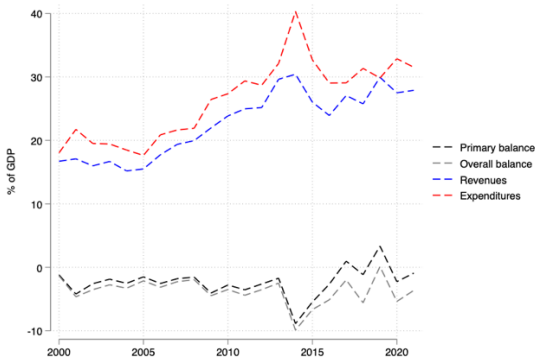
Figure 102

Primary balance of Mozambique and peers (percentage of GDP)



Source: IMF

Fiscal balance of Mozambique (percentage of GDP)



Source: IMF

The debt build-up and the worsening perspectives following the hidden debt leveraged negative credit risk adjustments. The shock was characterized by a strong metical depreciation (75%) and consequently high inflation (23%). The market internalized the potential unsustainability of the fiscal accounts and credit risks deteriorated accordingly (Figure 103). External confidence in the macroeconomic management and quality of institutions was undermined in Mozambique (World Bank, 2021), specifically, in the transparency and efficacy of the substantially large and generally uncompetitive sector of SOEs[76]. In response, in 2016 the government started to make commitments to fiscal transparency and accountability, particularly on new regulations for public debt management and SOE's new law of transparency and accountability. Currently, the government generates periodic debt reports, including detailed SOE financial information. On the debt side, Mozambique initiated a debt restructuring of the ProIndicus, MAM, and ENATUM with a continuous fiscal consolidation effort over the years. Despite these improvements, sovereign ratings are still low as several challenges remain, especially in terms of the budgetary process and spending prioritization (World Bank, 2021).

[76] According to IMF (2015), the scope of the SOE sector in Mozambique is difficult to estimate, despite the existence of IGEPE, a public entity that manages and controls the State's investments portfolio, serving as cross-shareholder. World Bank (2021) estimates that SOEs operate in more than 30 sectors, including natural monopolies and network sectors, and others that lack economic foundations for government intervention.

Figure 103: Sovereign ratings
(in local currency)

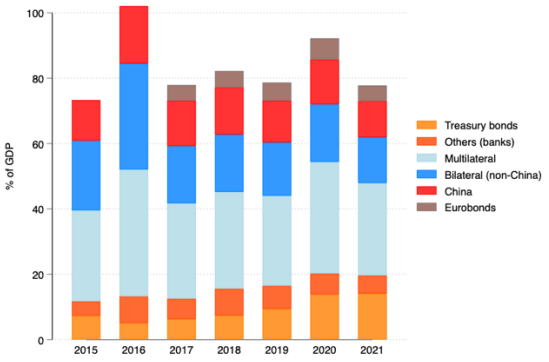
Year	Fitch	Moody's	S&P	Outlook
2003	B		B	Stable
2007			B+	Stable
2011	B			Stable
2012	B			Positive
2013		B+	B+	Stable
2014			B	Stable
2015	B	B	B-	Negative
2016	CC	CCC-	D	Negative
2017	D		D	Negative
2019	CCC	CCC-	CCC+	Neutral
2022	CCC+	CCC		N.A
2023	CCC+	CCC		N.A

Note: Moody's was standardized to be comparable with other credit ratings. Source: Own elaboration based of Fitch, Moody's and S&P; Fitch rating credit report, feb.23'.

Besides the debt upward trend, the composition changed to become more vulnerable to external conditions. Available data only permits assessing the debt accounts composition only since 2015. Around 80% of the central government stock comes from external sources for 2021 (60% of the GDP), specifically from multilateral, bilateral organizations and China (Figure 104). Among its peers, Mozambique presents the highest level of external public debt, implying a dependency from external creditors and a low capacity for diversification, which reduce the ability to manage or re-accommodate the debt to reduce the exposure to potential external shocks and foreign currency variation (World Bank, 2023a). It is worth noting that Mozambique has a strong positive correlation between the public debt and foreign currency exchange rate movements (Figure 105)[77] and is higher in comparison with its peers (Figure 106). This debt composition also creates risks on the primary balance alongside debt-to-service levels on the domestic side. The debt-to-service ratio increased from less than 5% of GDP in 2015 to almost 19% in 2021 (Figure 105). While external creditors only represent 12% of the total debt-to-service ratio by 2021 (2.3% of GDP), the remaining 88% is provided by domestic creditors. This is a risk in the short term as domestic credit is more costly credit and of lower maturity as almost 75% of the treasury bonds' stock was due between 2021 and 2023 (World Bank, 2023a).

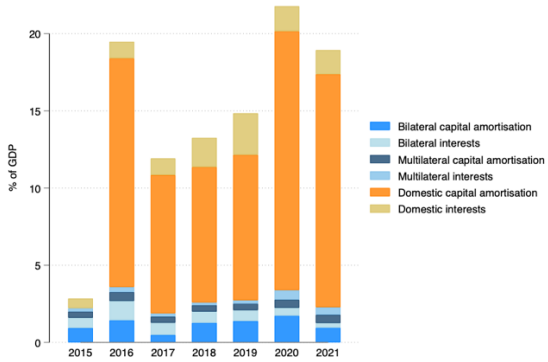
[77] For example, from 2021 to 2022 the public debt decline was explained mainly by the metical appreciation (World Bank, 2023a).

Figure 104: Central government public debt (percentage of GDP)



Source: Own elaboration based on MEF Annual Public Debt Reports (2016; 2021).

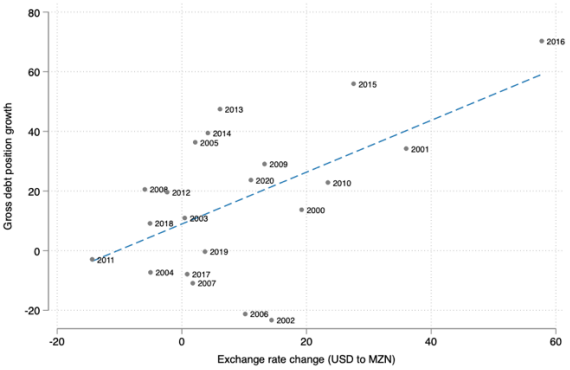
Figure 105: Debt to service by component (percentage of GDP)



Note: Public debt stock does not include guarantees. Source: Own elaboration based on MEF Annual Public Debt Reports (2016; 2021).

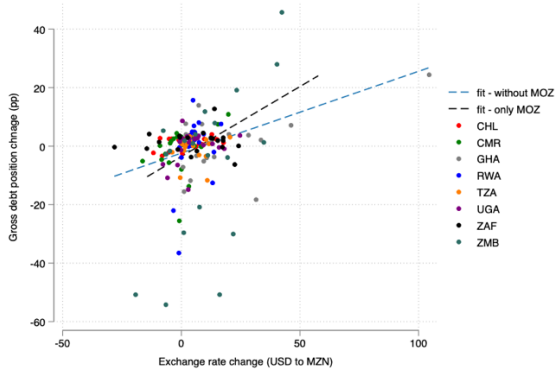
Figure 106: Public debt and exchange rate change

Mozambique (2000-2022)



Source: IMF and WB

Mozambique and peers (2000-2022)



Source: IMF and WB

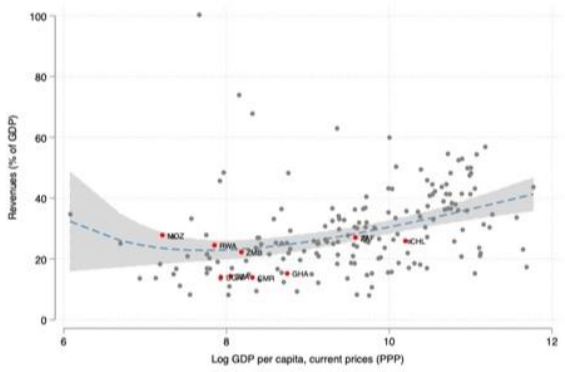
Despite these worsening macroeconomic conditions, they do not seem to have constrained diversified private investment decisions in Mozambique. Before 2016, a period characterized by macro stability, relatively stable exchange rate, public investment, and large FDI inflows, the economy did not manage to develop more complex industries. Moreover, in the last decades, the monetary policy has continued to become more solid and predictable, which allowed the mitigation of external and domestic recent shocks to the economy and provided the necessary foundations and predictability for private investment. However, looking ahead, better fiscal management will generate the fiscal space needed to address immediate challenges and less favorable external conditions.

Although Mozambique has large fiscal revenues, its public spending is largely allocated into current, more rigid components. Revenues collection is high for the country's income level and surpasses those in peer countries (Figure 107). This is explained by the large contribution of income and corporate as well as goods and services tax revenues (Figure 108). This high revenue

collection comes from past policies implemented since the 1990s and foreign aid support, including the modernization in the tax administration, creation of institutions such as the Mozambique Tax Authority and improvements in the revenue collection processes (Castro et al., 2009).[78] On the other side, while Mozambique's public spending is similar to its peers (Figure 109), since 2016, the employee's compensation has compromised more than half of the total current expenditure (13.5% of GDP in 2021), followed by the interest payments on the debt (2.6% of GDP in 2021) (Figure 110). Overall, comparing items of current public spending and its peers, Mozambique shows the highest levels of employee compensation, followed by good and services and social benefits spending (Figure 109).

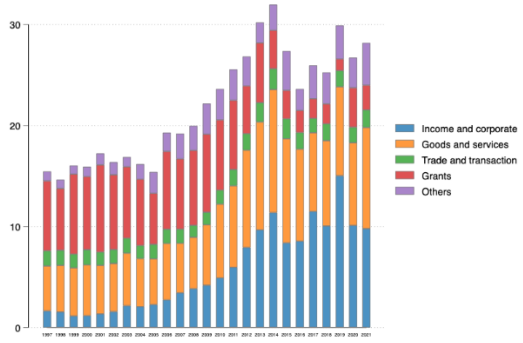
Figure 107: Public revenues

Revenues and income level (2021)



Source: IMF and WDI

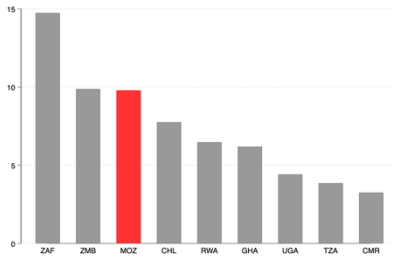
Revenues: Mozambique (percentage of total)



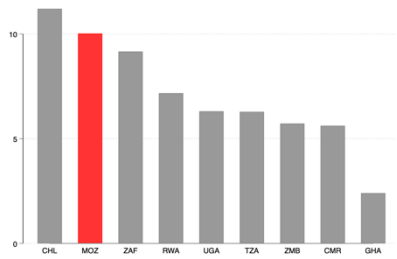
Note: Data from 1997 to 2016 used MEF data. From 2017 onwards IMF. Source: MEF and IMF

Figure 108: Government revenue composition, 2021 (% of GDP)

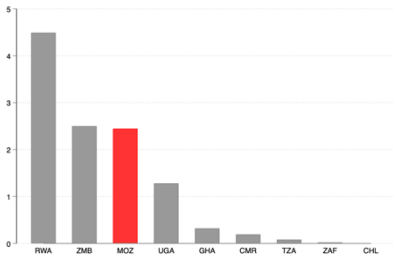
Corporate and income



Goods and services



Grants

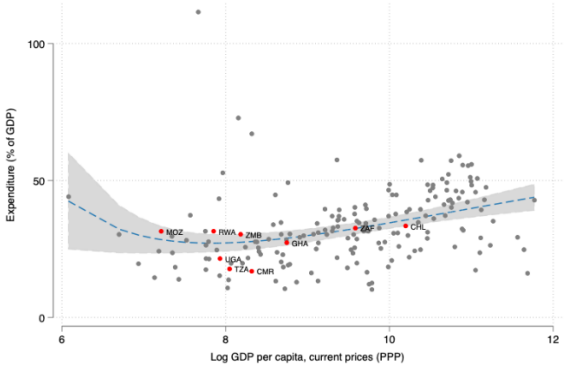


Note: Data correspond to the last budgetary expenses comparable for each country, with 2021 as the latest.
Source: IMF data

[78] Importantly, revenue component such as grants for foreign aid from international organization remains substantial in contrast to peers (2.5% of GDP).

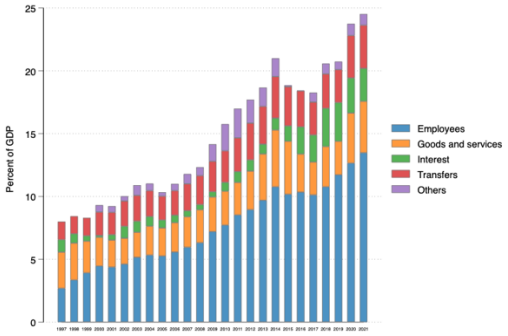
Figure 109: Public Spending

Public spending and income level (2021)



Source: IMF and WDI

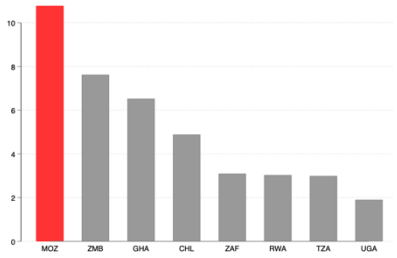
Central Government Current expenditure: Mozambique (percentage of total)



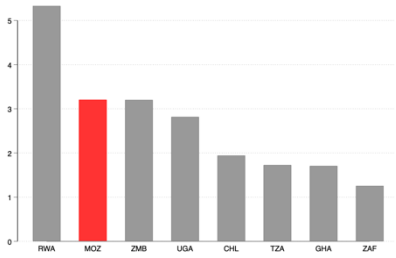
Note: Data from 1997 to 2016 used MEF data. From 2017 onwards IMF. Source: MEF and IMF

Figure 110: Public spending composition, 2021 (% of GDP)

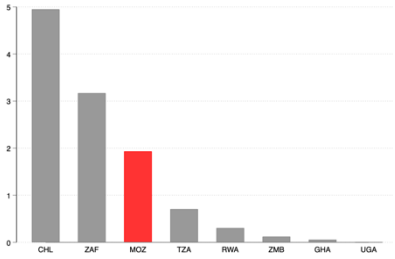
Employee's compensation



Goods and services



Social benefits

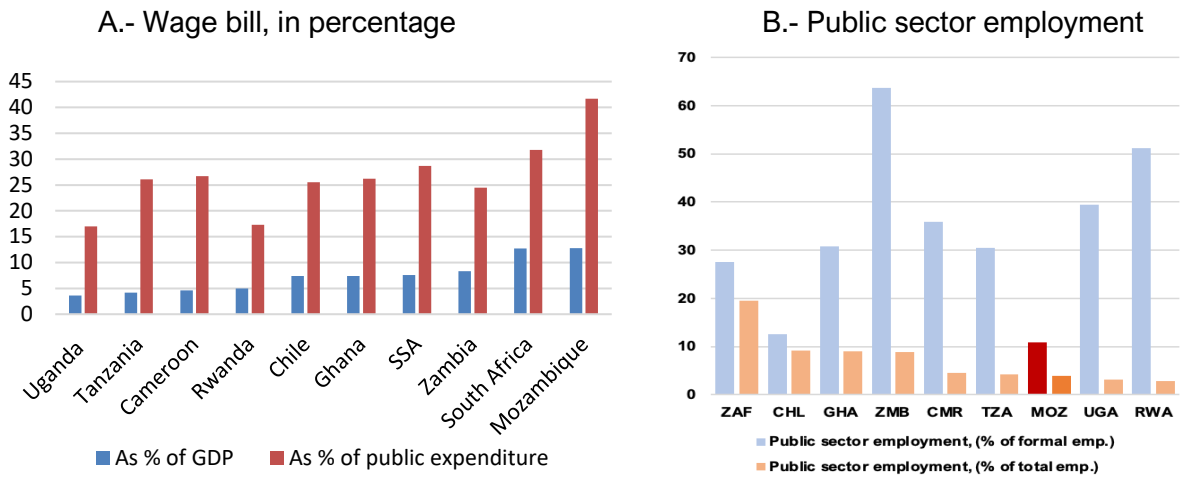


Note: Data correspond to the last budgetary expenses comparable for each country, with 2021 as the latest. Cameroon has no data available. Source: IMF data.

The high wage bill restricts the allocation of more fiscal resources towards critical areas, notably capital spending in priority sectors. As described, the wage bill compromises roughly half of the public expenditure in Mozambique, reflecting inefficiencies in the public resource allocation. The share of public employment as a percentage of total employment is relatively low compared to peers and the region (4% of total employment and 11% of formal employment versus 10% and 49%, respectively, in the SSA region) (Figure 111, panel B). Despite this, the size of the wage bill as percent of GDP and as a percent of the public expenditure is the highest in the peer group, reaching 12.8% and 41.7% respectively (Figure 111, panel A). This is in a context where public investment and social spending remain subdued. Moreover, while the wage bill increased steadily over the years, the gross capital expenditure of the government only increased in the

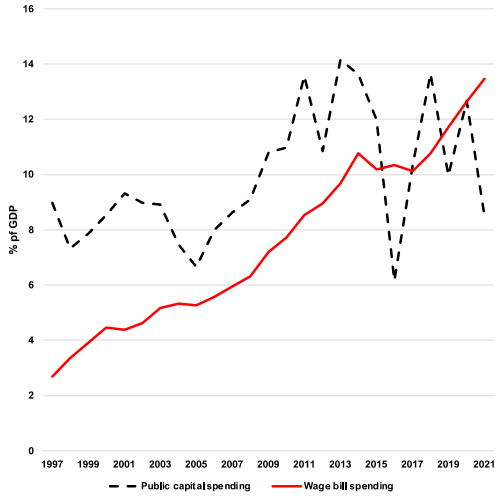
boom periods (2005 to the hidden debt episode) and became more irregular and volatile in more recent years (Figure 112).

Figure 111: Wage bill and public employment



Source: Worldwide Bureaucracy Indicators (WWBI), World Bank.

Figure 112: Public capital spending and wage bill (% of GDP)

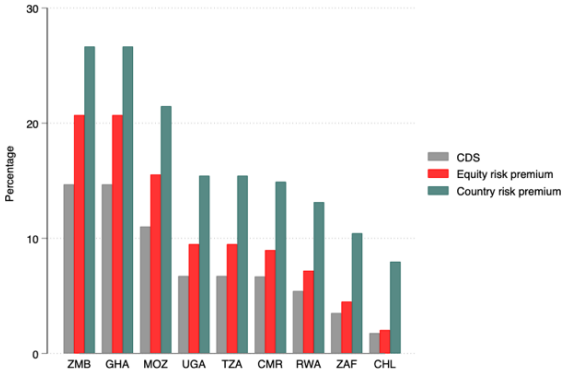


Note: Data from 1997 to 2016 used MEF data. From 2017 onwards IMF and World Bank. Source: Based on MEF, WB and IMF.

Rigid public spending and widening budgetary deficit make the perspectives on fiscal accounts' health uncertain. The government of Mozambique undertook a wide range of efforts to improve the profile of its fiscal accounts. It included the reduction of the public wage bill, simplification of the compensation structure, elimination of ad-hoc salary increases, and reduction of job placements (World Bank, 2022a). Complementarily, the government passed regulations to improve public financial management, public debt management, SOEs reform, and fiscal

transparency (World Bank, 2023b). However, they have not been sufficient to impact positively the risk indicators. The country risk premium such as the Credit Default Swap (CDS)[79] remains high and only below Zambia and Ghana (Figure 113). This responds to the higher service debt levels, especially from the domestic side, and represents a tight scenario for additional funding alternatives in the future[80]. Mozambique is at high risk of debt distress according to the last debt sustainability analysis (IDA and IMF, 2022)[81], as the main drivers, namely the evolution of public spending, given its high reliance on wages, and the contribution of the LNG sector revenues, are uncertain. Overall, worsening conditions can crucially restrict funding alternatives in the medium and long term.

Figure 113: CDS, country and equity risk premium (2023)



Note: Latest 2023 data. Mozambique, Rwanda, Tanzania, Uganda calculations based on ratings. Source: Based on Damoran (2020; 2020b) calculations and WB data.

3.3.1.2. Monetary and external conditions

Since the end of the civil war, stabilization, and liberalization of monetary laid the foundations for economic growth. After 1994, the Bank of Mozambique (BOM)'s emphasized price stability through tight control of the money supply (Figure 114) and the sophistication of tools and frameworks to manage inflation and exchange rate volatility. Overall, inflation in Mozambique performed as peers (Figure 115). Currently, the main objective of the BOM is to preserve the value of the national currency, promote economic growth, and supervise financial stability (Figure 116)[82]. And despite not having a direct objective of controlling or following an

[79] CDS reflects the risk associated with investing in a particular country, i.e., the risk of losing the investment in that country. There are many ways to measure country risks, such as agency credit ratings or market-determined measures, such as CDS.

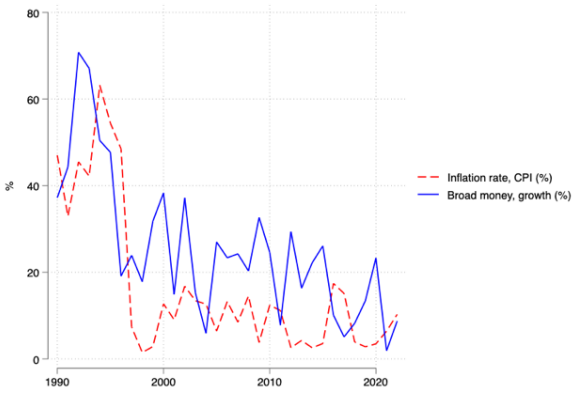
[80] According to World Bank (2022a) the recent domestic debt issues has been characterized by an interest rate above the real GDP growth: *"The effective average rate on treasury bills with a maturity of two months surpassed 15 percent in 2021, and the effective interest rate on domestic debt was above 10 percent in 2022."*

[81] Based on the assessment, there is a significant risk of debt distress for both the overall and external public debt of the country. However, looking ahead, the debt is still deemed sustainable due to the country's involvement in substantial LNG projects. These projects are expected to generate future gas revenues, which will be utilized to directly repay the borrowed funds.

[82] In practice, the objectives are translated into the advising of the government, regulation of commercial banks, supervision of the economic and insurance system, and foreign currency notes.

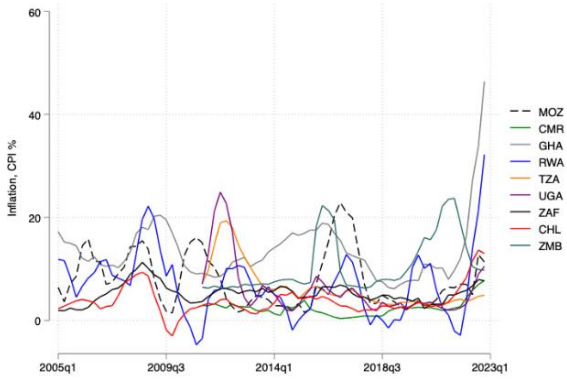
inflation target, inflation has remained relatively stable over the last ten years, except for the hidden debt crisis episode and Covid-19. Despite the domestic shock of the hidden debt crisis in 2016, which drove a substantial depreciation of the metical and increased inflation, the monetary policy successfully mitigated the increase in prices and exchange rate (Figure 117). The latter response was also observed during the Covid-19 shock, which in comparison with its peers, the BOM responded with tight monetary policy, even earlier than other countries, helping reduce the spike in inflation during 2021-22 rapidly.

Figure 114: Inflation and money supply growth: Mozambique, %



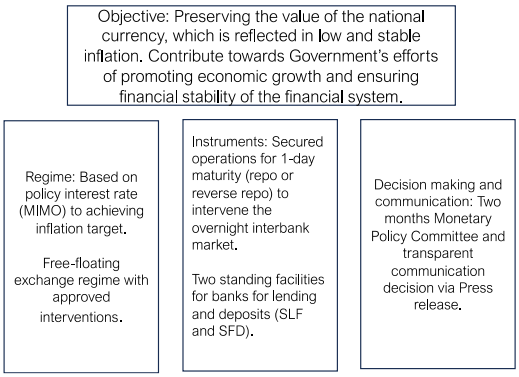
Source: Bank of Mozambique and WB.

Figure 115: Inflation (CPI annual - quarterly, percentage)



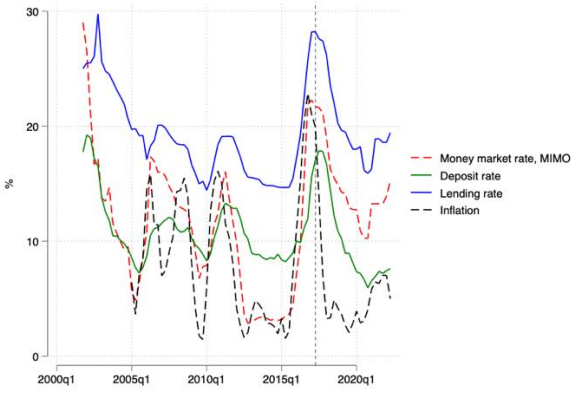
Source: IMF.

Figure 116: Bank of Mozambique, current monetary framework



Source: Own elaboration based on BOM.

Figure 117: Interest rates and inflation (CPI) (annual change)



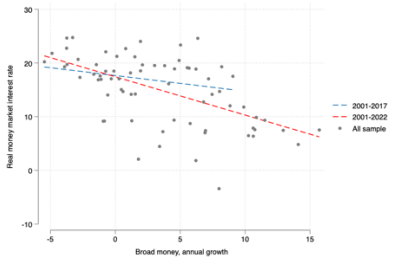
Source: IMF and Bank of Mozambique (BOM).

The interest-rate-based policy transition has supported a better monetary policy transmission regarding money supply, interest rates, and credit. Before 2017, there was a weak relationship between monetary aggregates and money market interest rates (Aisen and Simione, 2019). However, in 2017, the BOM adopted the interest rate (MIMO) as a monetary tool to anchor inflation expectations, replacing the previous aggregate economic targets, following the recommendation of the IMF (Aisen and Simione, 2019). Since then, the transmission channels

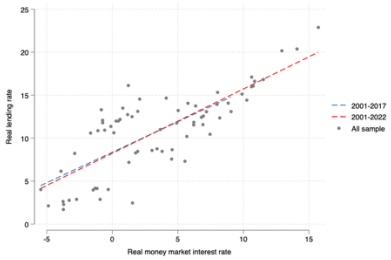
from the monetary policy improved consistently with the new regime in terms of money supply aggregates, interest market rate, and credit (Bank of Mozambique, 2017) (Figure 118), implying a relatively successful result from the transition. Still, like many small open economies worldwide, the exchange rate channel remains the most important transmission mechanism (Figure 119) (Board, F.S., 2022), reflecting the exposure of the Mozambican economy to the MT/USD exchange rate, which is largely influenced by its trade openness and dollarization of the domestic credit. Moreover, a weak and unstable relationship exists between the money supply and inflation (Figure 120), which in part reflects the un-unsophistication of the Mozambican financial market, weak competition of the bank system, and asymmetry in the change of the monetary policy, i.e. interest rate increases more rapidly than cuts (Aisen and Simione, 2019).

Figure 118: Monetary policy channels

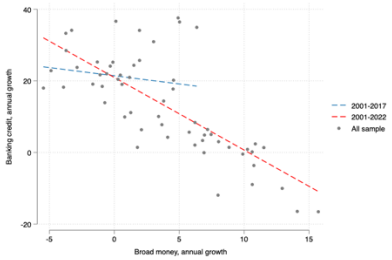
Real money market interest rate and money supply



Real money market interest rate and lending rate



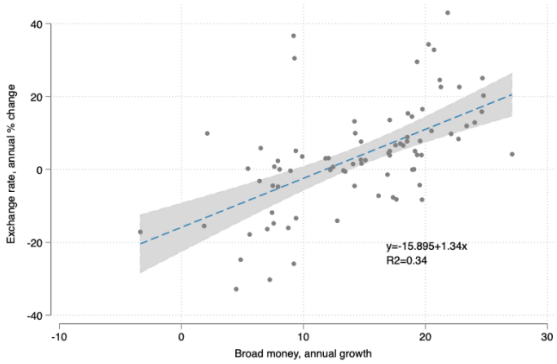
Real money market interest rate and credit growth



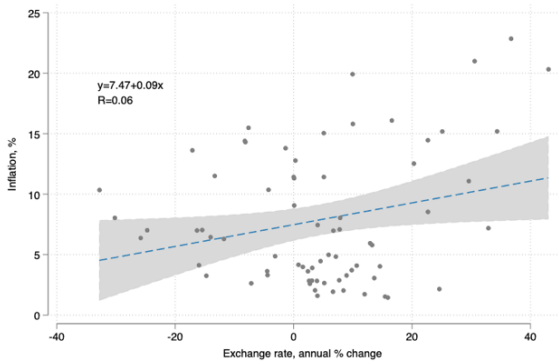
Note: Data used from 2008q4 to 2023q1. Source: Based on IMF and Bank of Mozambique data

Figure 119

Money supply and exchange rate (MZN/USD) (percentage)



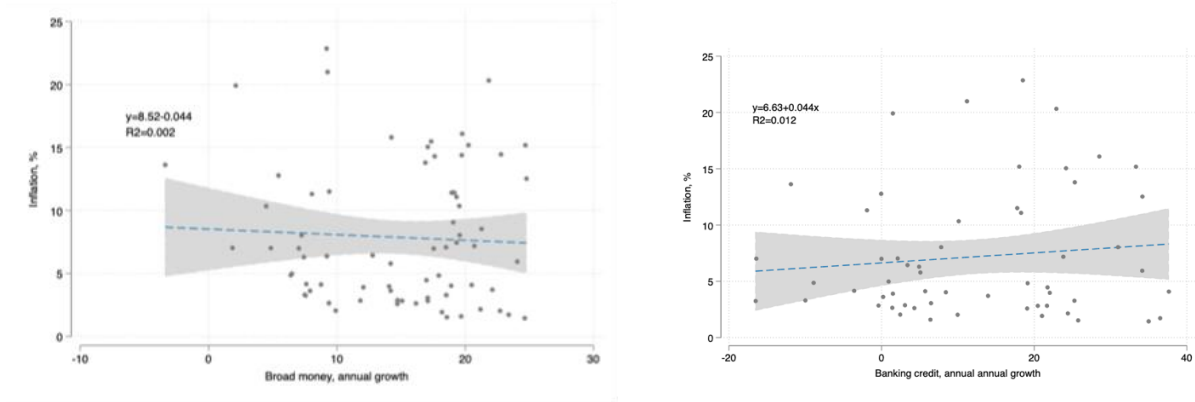
Exchange rate (MZN/USD) and inflation (percentage)



Note: Data used from 2008q4 to 2022q4. Source: Based on IMF and Bank of Mozambique data.

Figure 120

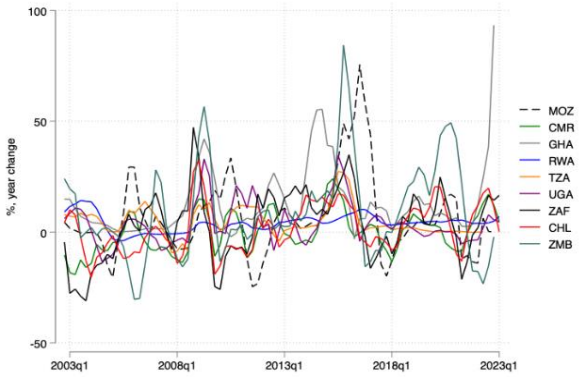
Money supply and inflation (%) Credit and inflation (%)



Note: Data used from 2008q4 to 2023q1. Source: Based on IMF and Bank of Mozambique data.

The BOM's suitable management also contributed to a relatively stable exchange rate. The exchange rate dynamic has been in line with peers (Figure 121), with the exemption of the hidden debt domestic shock, which triggered a significant depreciation. Moreover, in the context of the pandemic and the Ukrainian War, the depreciation of its currency was comparatively lower than peers, despite operating in a free-floating exchange regime. This corroborates the relatively adequate response of the BOM to domestic and external shocks that the county has suffered in the last years.

Figure 121: Exchange rate (MZN/USD)



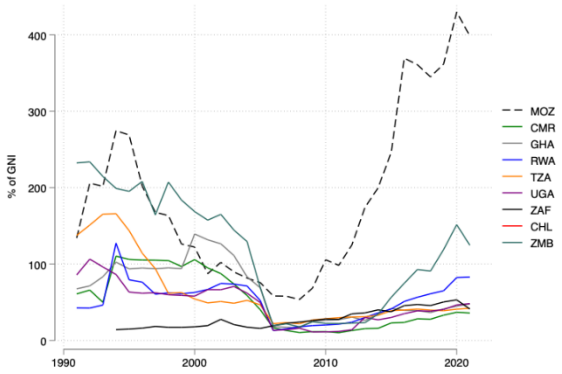
Source: IMF.

Mozambique's high external accounts seem also in distress, but the current account remains fully financed from conventional sources. In comparison with its peers, Mozambique presents the highest level of external debt (over 400% of the GNI for 2021), misaligning from its trend since 2010 (Figure 122). This trend was influenced by the favorable external financing conditions that facilitated access to funding for public and private infrastructure investment, especially the extractive sector. Besides the levels, external debt composition shows that financing principally comes from long-term private bank debt, followed by public debt from international

and bilateral creditors (Figure 122). While the external debt generates investment opportunities, in small open economies such as Mozambique could cause exposure to global financial conditions under stress scenarios such as sudden increases in interest rate spreads, roll-over debt problems, and currency mismatches, with are commonly accompanied by significant depreciation of the domestic currency (Board, F.S., 2022). However, these potential concerns are counterbalanced by the fact that the increasing current account deficit associated with massive extractive-related investments (Figure 123), is largely financed via FDI and credit without relying on the reserves. Indeed, reserves maintain adequate levels, at around four months of imports (World Bank, 2023a).

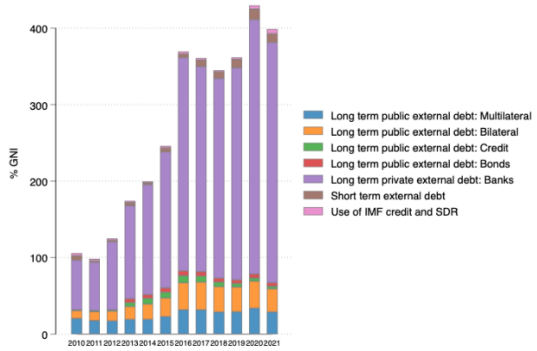
Figure 122

External debt
(percentage of GNI)



Source: WDI

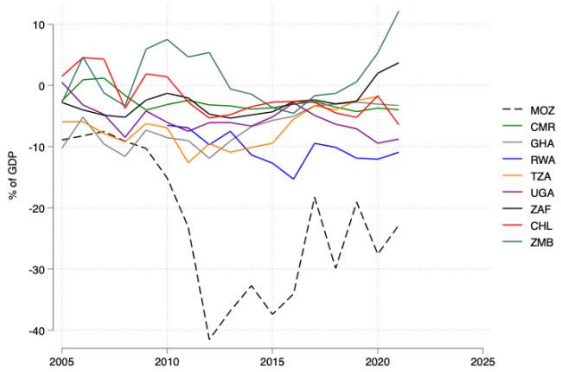
External debt composition
(percentage of GNI)



Source: WDI

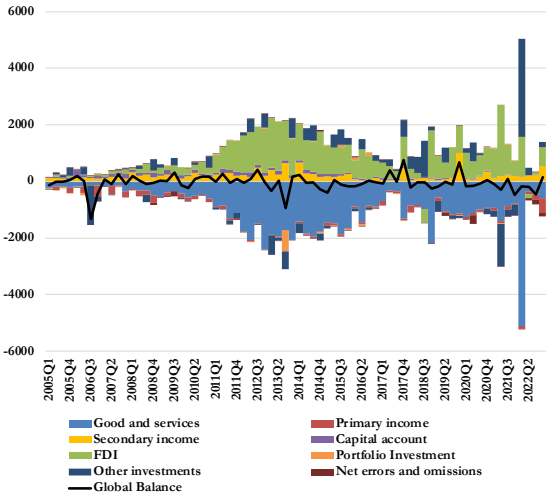
Figure 123

Current account (percentage of GDP)



Source: IMF

Balance of payment composition (million USD)



Source: IMF

3.3.2. Microeconomic risks

This section assesses a set of government failures as potential binding constraints (immediate challenges) for growth in Mozambique. The objective is to understand how government policies and actions obstruct potentially viable investments in the country and identify the most binding ones. To this end, this section studies red tape, land access, as well as labor, tax, and trade policies as main spheres of regulatory quality. Complementarily, the section studies government coordination to determine if the way the government operates and implements its policies conditions private investment. As accountability ensures that government policies and actions are conducted transparently, ethically, and in the best interest of the public, the section also assesses the extent to which corruption affects investment in the country.

The evidence suggests that, specifically, red tape, land access, and weak government coordination reflect the government's considerable inability to provide a bare minimum favorable business environment necessary to drive private investment and economic growth. Furthermore, these distortions perpetuate a feedback loop with extended petty corruption prominently presented as an escape route that entrepreneurs and investors find in order to advance their firms. In contrast, labor, tax regulations, and trade policy do not appear to be binding constraints for investment.

3.3.2.1. Immediate challenges: Poor Regulatory Quality and Weak Government Coordination

A good Business-Enable Environment (BEE) is critical for the economic development of a country, as it provides the fundamentals of steady private sector growth. A good BEE puts the fundamentals on business creation and investment, which improves the allocation of resources, entrepreneurs' choices, and business expansion (United Nations, 2012). Different factors reflect the BEE of a country. At a national level, good BEE involves a combination of appropriate public policies, regulations, administrative procedures, and the state of public infrastructure. World Bank (2023c) also underscores the relevance of studying the standpoint of the private sector as a whole and complementing traditional approaches that study an individual firm's ease of doing business. In that sense, "Business Ready" (that will improve and replace the "Doing Business" indexes) investigate the balance between (1) the quality or appropriateness of regulations, (2) the provision of relevant public services, and (3) the regulatory burden for firms to address the role of government in creating a conducive business environment (World Bank, 2023c).

Evidence suggests that in Mozambique, red tape and burdensome land access are signals of poor regulatory quality that reflect an obstructive BEE. Together, they have created an ecosystem of heavy regulatory and administrative burdens and entrepreneurship costs for existing and new firms. This situation may be behind the country's excessive levels of informality and substantially low presence of middle-size enterprises. In 2021, Mozambique had around a 96% informality rate among its workforce. When comparable informal firms were asked why they remain unregistered, almost 70% answered that it was because of time, fees and paperwork associated with becoming formal. The persistent underdevelopment of agriculture may also be attributed to the obstructive BEE, given that land, a crucial production factor, is extremely difficult to access and put to productive use. The administrative process to access land is also marked by the involvement of many state agencies and dysfunctional registries that together contribute to uncertainty surrounding land use rights and lower incentives for investment.

On top of that, weak coordination among several public actors and a lack of accountability have also hindered the BEE of the country and the day-to-day operation of firms. From the interviews conducted on our first visit to Mozambique (July 2023), and then confirmed in our second visit (November 2023), we gathered the apprehension of many actors about the lack of coordination among the government agencies. Issues such as overlapping responsibilities and ineffective policy implementation have hindered the trust of private firms in the government's capacity to ensure a conducive business environment. This weak government coordination has also created doubts regarding the direction of the government policies and its capacity to implement them. Examples of the above are testimonies about the absence of a general plan to promote commercial and industrial access to basic services, the long waits to access or change service providers, and the cumbersome processes to access existing sectorial investment incentives, among others. This situation has exacerbated the lack of trust in government and the reliance on different forms of micro corruption to deal with socially costly government action. Evidence points out that the use of briberies and illegitimate favors to operate and access public services has become endemic in the country. Approximately 21% of firms experienced at least one bribe payment request across six public transactions dealing with utility access, permits, licenses and taxes in 2018. This is one of the highest bribery incidents among Mozambique's peers, only behind Uganda (22%) and Cameroon (27%).

The combination of bad regulatory quality and weak government coordination, plus its feedback on corruption, have hindered the appropriability of investment and, therefore, become a binding constraint for growth in Mozambique. The following first sub-section gives evidence of the increasing red tape regarding doing business. The second sub-section describes the land regime and assesses the land access process. The third sub-section exposes the qualitative information regarding government coordination inefficiencies. Lastly, we dedicated a sub-section to address the corruption issues that are closely linked to the identified binding constraints.

3.3.2.1.1. Red tape - Poor Regulatory Quality

Businesses can face a significant challenge for their emergence and growth in the form of excessive regulations and rigid adherence to redundant bureaucratic rules, commonly known as red tape. In this section, we take a closer look at Mozambique's excessive bureaucracy and its economic effects. To do so, we first describe Mozambique's aggregate business environment and then explain how red tape has hindered it and affected growth.

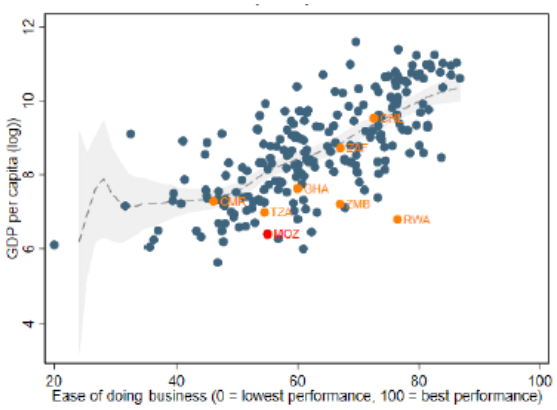
Authorities in Mozambique undertook relevant steps to improve BEE in the early 2000s, but efforts stagnated in recent years. Notably, strides were made in streamlining the business registration process, marked by the issuance of new regulations aimed at streamlining the establishment of commercial and industrial ventures in 2004. One clear policy is the One-Stop-Shops, which replaced a system of numerous and different agencies participating in the process, by a unique administrative center in every province (Lledó, 2007). Consequently, the time required to launch new businesses decreased significantly, with the average duration shrinking from 177 in 2004 to 17 days in 2020 (World Bank, 2020). Currently, there are usually different steps involved in registering a business. These include reserving a name, signing an incorporation contract, paying registration fees, putting the company's name and rules in the national gazette, registering with the tax authority, and letting the right people know when the business starts operating. However, in many of these areas, such as the number of procedures, notary fees and

inspections, received less attention and lacked significant improvements (Barletta et al., 2023; Franco & Katiyo, 2017).

As a result, the ease of doing business in Mozambique is one of the worst among its peers (Figure 124, panel A). Specifically, the business registration costs as a percentage of Gross National Income (GNI) per capita have been increasing since 2013, reaching a value of 106.9% in 2019, last available data. This cost surpassed its counterparts, making it the highest in the Sub-Saharan region and among the world's most elevated percentages (Figure 124, panel B). The current excessive bureaucracy in Mozambique associated to excessive procedures (10) and time invested (40 days) to register a business is in part explained by the existence of many paper-based procedures (more than any of its peers) (Figure 124, panels C and D). An example of this situation is that, to start a business, firms need to comply with the incorporation of the publication of the company statutes in the official Gazette (Boletim da República). Nowadays, this is the process's most expensive and time-consuming step, costing USD 397 on average and taking five days to complete (World Bank, 2020a). The Imprensa Nacional of Mozambique is responsible for the Gazette, and applicants must submit both a hard copy and a digital copy of the publication summary to the institution in Maputo. The total payable amount for publishing the statutes extract varies based on the number of pages estimated by the Imprensa Nacional.[83]

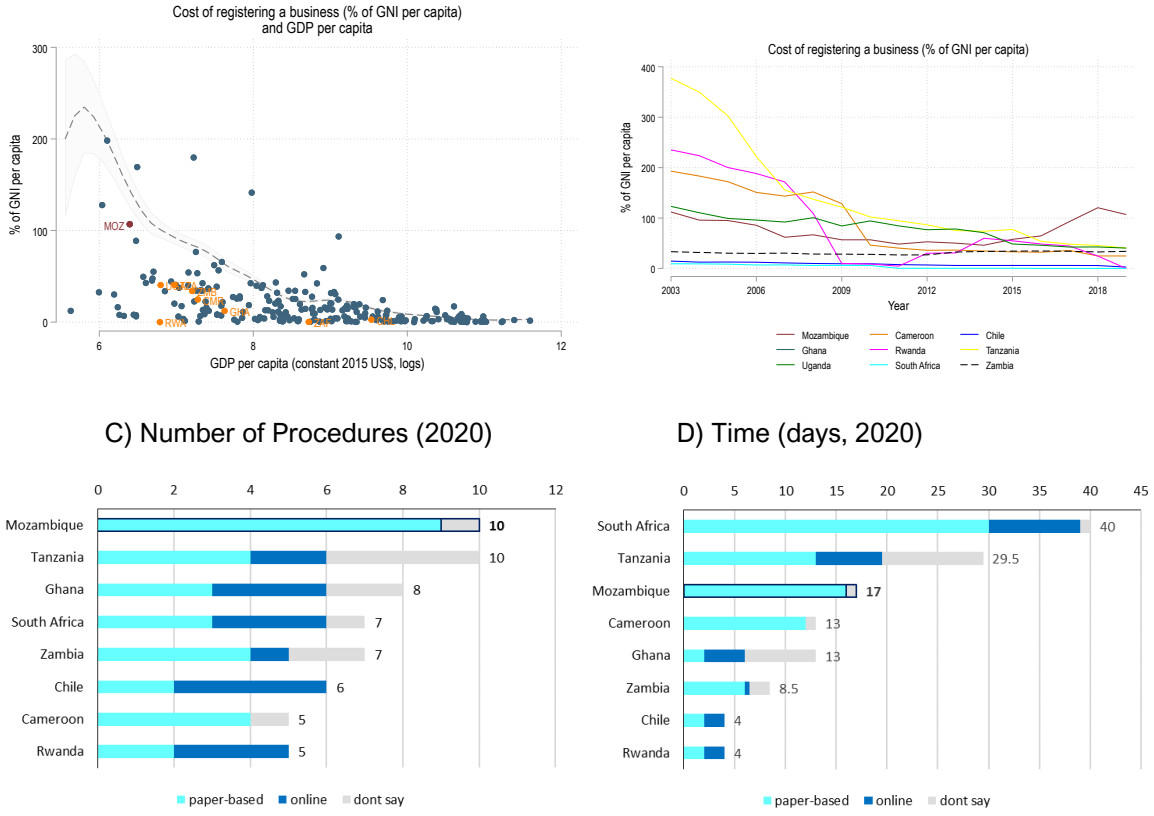
Figure 123: Doing Business in Mozambique and peers

A) Ease of doing business and GDP per capita



[83] The fee for publication of the Articles of Association is MZN 2,820 per 25-line page, or 9.5% of GNI per capita (Diploma Ministerial nº 79/2017 of December 27).

B) Monetary Costs to Start a Business (% of GNI per capita)

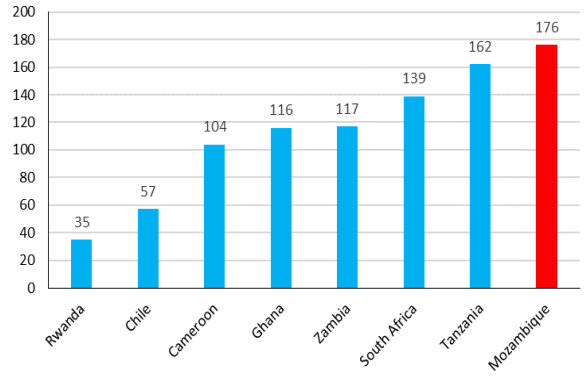


Source: World Bank – Doing Business Indicators (2020) & Doing Business Economy Profile (2020)

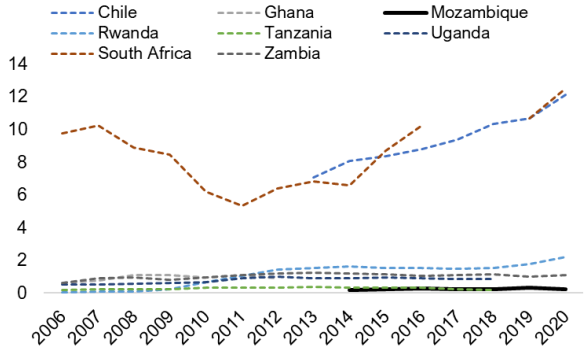
All the above hinders the entry of new businesses and the growth opportunities for the existing firms in the country. Mozambique stands 176 out of 190 countries in the ranking of starting a business, the lowest among its peers (Figure 125, panel A). It also presents one of the worst new business density indicators, which has not improved markedly throughout the period with available data (Figure 125, panel B). At the same time, over the last decade, most of Mozambique's peers have decreased their share of small firms and increased the percentage of large and medium-sized firms in the economy. However, in Mozambique, the share of large and medium-sized enterprises decreased from 37% in 2013 to 29% in 2018 (Figure 126). This evidence suggests that it is not only the start of a business, which already presents considerable problems, but the red tape appears to be obstructing the rest of the life cycle of businesses in the country. The above aligns with the World Bank's view, highlighting that due to high bureaucracy costs, limited infrastructure and poor access to finance, many sectors are dominated by a few large firms and several (most of them informal) small enterprises (World Bank, 2016b).

Figure 125: New Businesses in Mozambique and peers

A) Ranking of Starting a Business (2020)

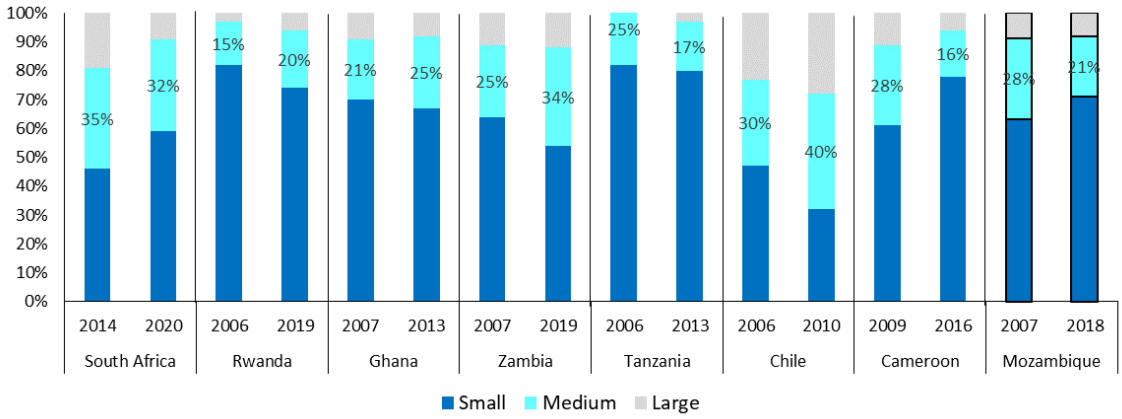


B) Number of new businesses registered (per 1,000 people ages 15-64)



Notes: The number of business data are unavailable for Cameroon. Source: Doing Business & World Development Indicators, World Bank

Figure 126: Firms by size in Mozambique and peers (share of the total)



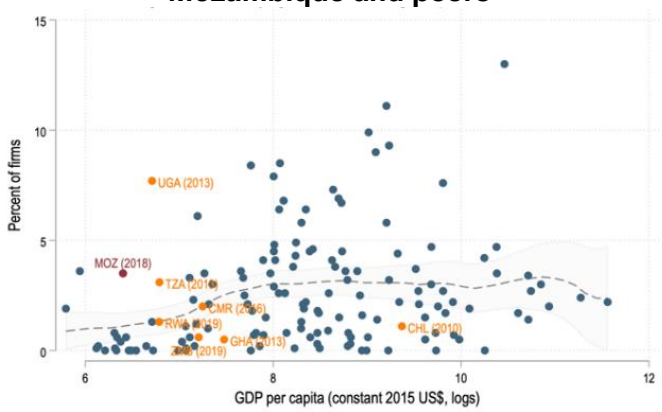
Source: Own elaboration based on the World Bank Enterprise Survey

The burdensome nature of formal registration and operation profoundly impacts productivity and economic development in Mozambique. Informal firms face various challenges, including limited access to essential resources like electricity and land and a lack of capital that hinders their expansion into more significant, formal enterprises (Aikaeli & Mkenda, 2014). A comparison between informal and formal microenterprises in Mozambique highlights significant sales, profits, and productivity disparities. Informal micro firms generate sales that are approximately 14 times lower, profits that are 17 times lower, and exhibit 2-3 times lower productivity than their formal counterparts (Aga et al., 2019). This discrepancy is primarily attributed to variations in number of employees, business practices, and the utilization of capital and production inputs.

The problems mentioned above align with the concerns raised in the interviews conducted during our visits to Maputo. During the discussions, firms highlighted numerous challenges stemming from red tape and inefficient regulatory coordination among national, district, and

municipal governments. As an illustrative example, a company shared an anecdote of spending two years to change its electricity provider. They also coincide with what was reported by several firms on the WBES 2018, where approximately 3.5% of firms identified business licensing and permits as the most obstructive factor for their day-to-day operations, one of the highest proportions among peer countries. Considering the country's income levels, this percentage exceeds the expected value (Figure 127).

Figure 127: Firms identifying business licensing and permits as the main obstacle in Mozambique and peers



Source: WBES last data available.

If red tape presents a constraint, we would observe firms adopting suboptimal strategies to navigate this hurdle. Such a scenario is evident in Mozambique, where enterprises opt to remain within the informal sector or stay as small enterprises to avoid excessive bureaucracy. It is estimated that around 96% of the total employment was working in the informal sector in Mozambique in 2015, last available data, a figure higher than any of its peers (Figure 128, panel A). Also, a significant 68.7% of informal firms[84] that closely resemble formal enterprises[85] in Mozambique cite time, fees, and paperwork as the key reasons for eschewing registration, well above other factors, including no benefits from informality (14.6%) and lack of information (14.6%) (Figure 128, panel B). Also, as was introduced in Figure 126, for the last decade, we have seen a downward trend in the presence of medium-sized enterprises in the country, suggesting the existence of constraints on the transition from small to medium-sized enterprises. From our field interviews, it has been evidenced that central issue preventing firms from growing is the regulatory burden and the number of inspections, which is increased according to the company's size. This has been confirmed by the representative survey for firms in manufacture: medium enterprises spent more than double that micro firms and face three times

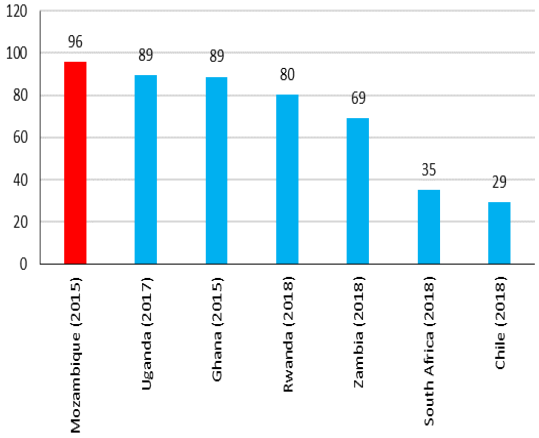
[84] In the survey, considered informal firms in Mozambique any business that lacks at least one of the following three items: i) operating license (e.g., from municipality or BAU); ii) business registration certificate (e.g., Conservatória Do Registo Das Entidades Legais Or Balcão De Atendimento Único (BAU)); and iii) taxpayer's identification number (or NUIT) in the name of the owner or business.

[85] In their study, the authors use an algorithm to classify firms within the sample that resemble those in the formal sector. The algorithm would classify a firm as resembling the formal sector if (1) it produces similar quantities or (2) meets similar skill, experience and business practice characteristics. Considering all informal firms of the sample, the percentage of firms selecting as the main reason to remain informal changed to (1) 33.5% - Not benefit for business, (2) 26.1% - Time, fees and paperwork, (3) 18.6% - Lack of information, (4) 10.9% - Taxation, (5) 1.8% - Bribes and (6) 1.4% - Inspections. See Appendix 5 - Figure A.11: Percentage of informal firms selecting a main reason for not registering.

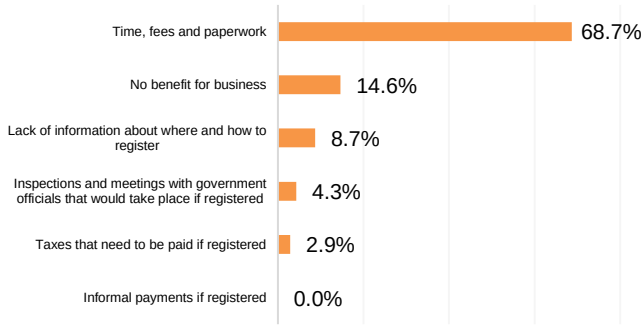
as many inspections. The exponential growth of bureaucracy creates incentives to remain informal and small as a firm. For example, from 355 micro, small and medium-sized manufacture firms, only 20 enterprises moved to a bigger size, with 18 micro firms becoming small, and two small firms achieving a medium size (Table 3).

Figure 128: Informal employment (% of total employment)

A) Informal employment (% of total employment)



B) Main reason to not register



Notes: Panel A: Last year available in parenthesis. Panel B: Percentage of informal firms resembling formal enterprises selecting a primary reason for not registering. Source: Informal Economy Database (2018), World Bank & Aga, Campos, Conconi, Davies, & Geginat (2019).

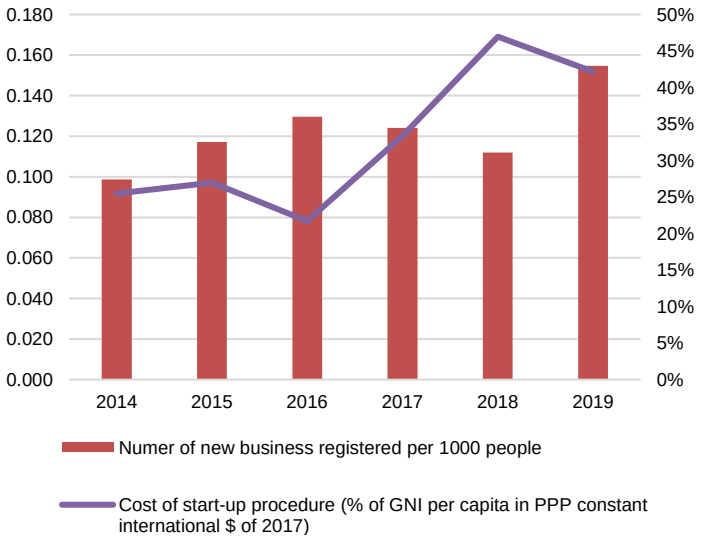
Table 3: Firms Size transition Matrix (2017-2022)

		Firms size 2022			
		Micro	Small	Medium	Total
Firms size 2017	Micro	239	18	0	257
	Small	24	45	2	71
	Medium	4	9	14	27
	Total	267	72	16	355

Source: Barletta et al. (2023) based on the Inquerito ás Indústrias Manufactureiras (IIM) 2017 and 2022.

At the same time, if excessive bureaucracy poses a constraint, one could anticipate that modifying the associated costs would increase or decrease the number of new businesses. In Mozambique, the rise in registration expenses has coincided with a decline in establishing new enterprises. In the periods when the costs of start-up procedures escalated, there was a decrease in the number of new businesses established (Figure 129), specially since 2018 when the government introduced the requirement to publish the company statutes in the official Gazette (Boletim da República), as described before.

Figure 129: New business density and cost of start-up



Source: Doing Business (2020), and own estimations using WDI (2021). The cost of start-up procedures for each country was estimated using the GNI per capita in PPP constant international $ of 2017 available in the WDI data set.

In conclusion, Mozambique's poor performance in terms of ease of doing business when compared to peers indicates significant hurdles that enterprises confront in registering and operating without further complications. Poor regulatory quality is manifested in particular by increased business registration prices, an excessive number of procedures and time required to comply with regulations, inefficiencies resulting from multiple paper-based procedures, and unpredictable inspections. As a result, firms prefer to remain in the informal sector or as small businesses in order to avoid unnecessary bureaucracy, which restricts the opportunities for more productive investments and aggregate economic growth.

3.3.2.1.2. Land access - Poor Regulatory Quality

Another primary source of bad regulatory quality in Mozambique is land regulations to register and transfer property. This section starts by describing the land-ownership regime in Mozambique to then proceeding to how feasible and predictable is the access to land for firms to put into productive use. The goal is to showcase how specific aspects of the existing system become a binding constraint for investment.

Land ownership systems directly condition the appropriability of land, which is necessary for broader investments in land-intensive industries. Ownership provides individuals or entities with secure and legally recognized property rights to possess, use, and/or manage the land. These rights are essential for encouraging long-term investments because investors need assurance that their rights will not be arbitrarily taken away or disrupted. Hence, enhancing land property rights and establishing robust land systems that dictate how land use is managed, are pivotal for stimulating investment (Commission for Africa, 2005). Specifically, a land ownership title often serves as collateral to access formal finance, and this can be key for the development of agriculture, especially in countries where the sector is a major source of employment and income. As it is well known, finance can help farmers invest in technology, equipment, inputs, and new markets, boosting output. Agriculture producers and investors can use financial services to save, borrow, pay, and buy insurance to manage working capital and daily transactions, fund

investments, market, and transport produce, and mitigate risks like weather, pests, diseases, and market volatility (Khandker, 2021). Thus, a land regime that facilitates access to finance has the potential to boost farmer production, income, consumption, and nutrition (Manysheva, 2022; Cull et al., 2014; Karlan et al., 2014).

To begin with, Mozambique's land ownership legal framework operates on the fundamental premise that the state owns all land. Under the Mozambican Constitution of 2004 (Articles 109 and 110) and the preceding Land Law of 1997 along with its associated regulations, the state holds ownership rights to land. The regime allows individuals, communities, and private enterprises to secure extended land-use privileges for wealth creation and social well-being (Article 109), but only through government-issued documents termed Land Utilization Rights (DUATs or "Direito de Uso e Aproveitamento dos Terras"). DUATs are available for individual and collective ownership, and they can be obtained either by legal recognition of prior sustained residence (defined as good-faith use for a minimum of ten years or in accordance with established customary norms) or through direct bestowal from the government. The authority to grant land-user rights is distributed as follows: for parcels under 1000 hectares, it lies within the purview of the Provincial Governor; for parcels ranging from 1,000 to 10,000 hectares, it falls under the jurisdiction of the Minister of Agriculture; and for parcels exceeding 10,000 hectares, it is vested in the Council of Ministers. The application process is overseen by the Provincial Services of Geography and Cadastre (SPGC). Importantly, these land use titles cannot be marketable or eligible as collateral, consequently restricting access to formal credit and the potential benefits described before (Aikeli & Markussen, 2022; Dinh & Monga, 2013).

Transferring land use rights for larger investments in rural areas is complex, lengthy, and somewhat uncertain (UNCTAD, 2012). In urban areas, the transfer of DUATs alongside the sale of buildings and other enhancements is possible without government approval, which means that private actors do not face administrative barriers to do it and can trade land use rights freely. This highly contrasts with the situation in rural areas (Rural Land Law of 1998; Locke, 2014). Once a suitable land parcel in rural areas has been identified, investors are required to initiate consultations with local communities. The primary purpose of these consultations is to pinpoint any contentious matters and potential conflicts related to land use. The government has a responsibility to verify that consultations occurred before granting approval for any investor's DUAT application to safeguard traditional land rights and promote local engagement in rural development (World Bank, 2016a).[86] In this context, foreign-owned companies can access land only if they have an approved investment project and land use plan, which in most cases means securing an investment license from the Investment Promotion Center (CPI) (Rose & Carrilho, 2012). Moreover, due to the high number of projects applying for DUATs to operate in areas above 10 thousand hectares and the large development implications, more complex requirements are applied for such applications (UNCTAD, 2012)[87]. Importantly, in contrast to other countries in the region, Mozambican legislation does not explicitly permit land partitioning under a DUAT, often leaving it unclear whether DUAT holders can subdivide land for alternative purposes (World Bank,

[86] Upon DUAT approval, the land must be surveyed, boundaries delineated, and the DUAT registered in the cadastral register. The allocation can be for a 50-year lease. It has been reported that consultations with affected communities frequently have restricted scope and are carried out without meaningful representation from the community (Rose & Carrilho, 2012; World Bank, 2016a).

[87] The procedures for community consultation and community land delimitation are not harmonized and there is lacking regulation to guarantee and safeguard the reception of funds by communities (DAI, 2018).

2016a). Overall, the existing land access process reduces incentives for long-term, large-scale investments in Mozambique.

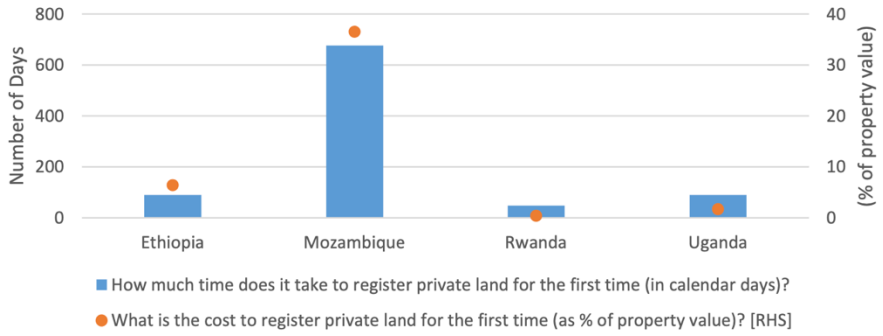
The administrative complexity to access land is further exacerbated by extended unregistered land and dysfunctional land registry systems. A large proportion of land is not registered, which further exacerbates the intangible cost that entrepreneurs and investors face to access land. By 2016, only 951 out of 5 thousand rural communities (13%) in Mozambique had completed the task of delimiting their lands, encompassing an area of roughly 17.2 million hectares (20% of the total area in the country). Among them, 80% had compiled the necessary documentation for registering their DUAT, and only 41% (6% of all rural communities) had successfully finished the entire registration process (USAID, 2018).[88] Absent land registers also affects investments in small-scale production that predominates in those areas. Around 90% of agricultural production still relies on small-scale subsistence agriculture, farmers own less than 1.5 hectares of land, on average, and most of their landholdings lack proper DUATs (Iimi, 2021; Rose & Carrilho, 2012; Jones & Tarp, 2016). Qualitative evidence from fieldwork trips also highlights the dysfunctional registry systems, which rely on old, out-of-date, and incomplete administrative information.

Moreover, entrepreneurs and investors incur costly fees to register land use rights formally for the first time and to keep the rights over time. Initial registration demands an average expense of 36.5% of the property's value, substantially exceeding costs below 8% in other SSA country peers. This procedure is also considerably more time-consuming, representing over 650 days, a figure that multiplies at least six times the time in other countries (Figure 130). Once land use rights have been registered, DUAT holders must additionally pay an annual usage fee, which varies depending on the type of activity, location, and size of the parcel. Fees range from 1000 MZN (USD 15.81) per hectare for livestock farming in priority development zones, to 400 thousand MZN (USD 6,324) per hectare for tourism along the coast of the Maputo province, and 30 thousand MZN (USD 474) per hectare for agriculture and plots above 1000 hectares (Locke, 2014).[89]

[88] More recent efforts to tackle unregistered land have been limited. The initiative "Acesso Seguro à Terra" (2010) had the objective of systematically registering individual land parcels in the northern provinces. The outcome was the registration of approximately 200 thousand parcels, primarily in urban areas. In 2015, another initiative known as "Terra Segura" intended to regularize five million land parcels and delineate four thousand communities. However, by 2016 the program's progress was the registration of only an additional 220 thousand parcels, and 400 communities, falling significantly short of the respective targets (Balas, Carrilho, & Lemmen, 2021; USAID, 2018).

[89] One of the land-intensive ventures that have struggled with the escalating demand for land in proximity to urban centers has been registered for biofuel production, a sector with associated comparative advantages in Mozambique. See more in Toulmin (2006).

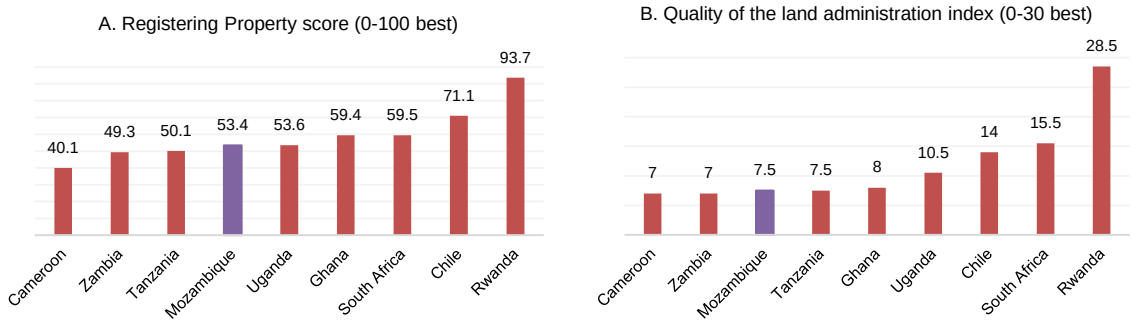
Figure 130: Cost and days required to register property in Mozambique and peers



Sources: World Bank (2016) using data from World Bank (2015).

Correspondingly, Mozambique underperforms in the property registration index and in measures of quality of land administration. Mozambique's performance in the property registration category of Doing Business is somewhat deficient when compared to its counterparts (Figure 131, panel A). Additionally, Mozambique exhibits the third-lowest quality level of land administration (Figure 131, panel B), an outcome explained by the limited technical and administrative capacity of entities responsible for land administration, especially at the local level (World Bank, 2017; USAID, 2018). Specifically, common inconsistencies in the dialogue between central and local government, as well as the former's centralist tendencies, coexist with a lack of integration among diverse government programs during land policies' implementation and an uncoordinated action among different state bodies (De Quadros, 2003).

Figure 131: Land access performance in Mozambique and peers

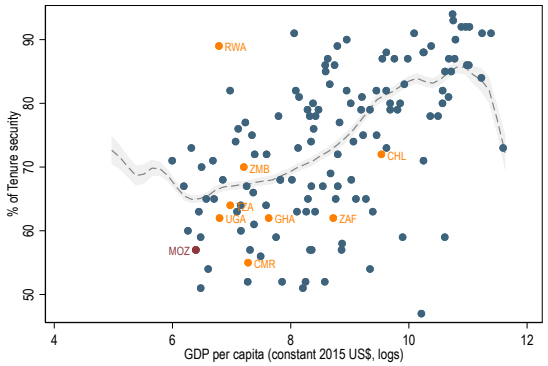


Sources: World Bank Doing Business (2018).

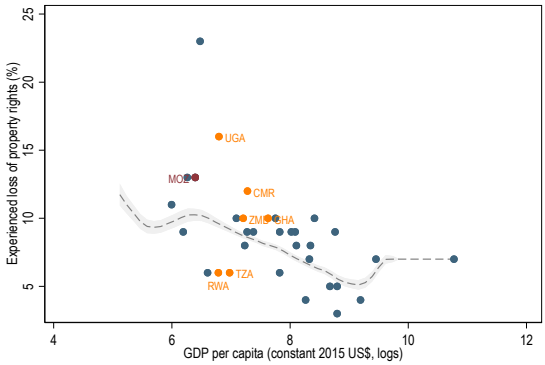
In addition to facing challenges in accessing land, the protection of the rights seems to be deficient. Prindex is a source that provides a global measure of land rights and perceptions of tenure security. Despite it targets individuals, it can help illustrate the institutional enforcement and protection of land use rights. In Mozambique, the proportion of individuals who believe that losing their property usage rights involuntarily in the medium term is either highly unlikely or unlikely amounted to 57%. This land security percentage is lower than expected, given Mozambique's income levels, and also lower than most peer countries (Figure 132, panel A). The main reasons involve the owner/renter asking to leave (13%) and the government seizing (11%). Equally concerning is the share of respondents who have experienced the loss of their right to reside or use a property against their will, which rises to 13% (Figure 132, panel B).

Figure 132: Tenure security and GDP per capita

A. Tenure security and GDP per capita



B. Loss of property rights (%) and GDP



Source: Prindex (2018) and WDI (2021).

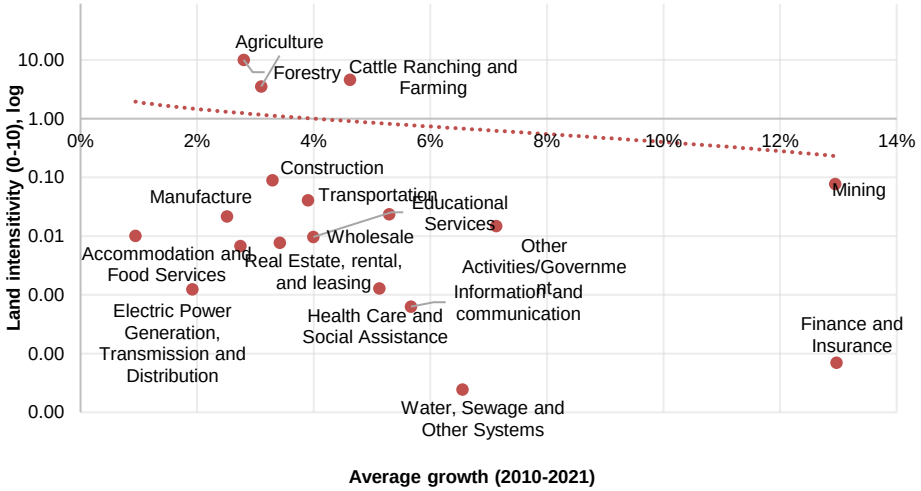
If the use of land is highly constraining for investment, it would be reasonable to anticipate that firms seek alternative, sub-optimal methods to overcome this obstacle. Qualitative evidence suggests that this is the case as entrepreneurs and investors have implemented other cooperation models to make investments in rural areas feasible. In meetings held between the Co-Growth Lab and the business sector of Mozambique, companies consistently pointed to land regulations as a constraint for investment. Particularly, forestry companies with significant investments and with DUATs issued by the government seem to be implementing the "Mosaico" model. This model respects the different uses of the land, allowing for the coexistence of planted forests with natural forests, houses, farmlands (machambas), areas of socio-cultural and religious interest, and other land uses by communities. As such, it enables communities not to be relocated to other areas or have their land uses reset. While this was argued to simplify the use of land and make investments feasible, the model demands direct negotiations with communities and landholders, which results in extended project timelines and additional costs.

Agents seek sub-optimal methods even in urban areas of Mozambique where regulation is supposed to be more enabling, giving rise to informal markets. First, smaller firms that are unable to struggle with costly registration processes to put land into productive use, resort to informal land markets. Almost 62% of inhabitants in urban areas acquire land use titles via the informal land market (USAID, 2018). This involves either leasing land from DUAT holders or, more frequently, purchasing the "improvements" on the land itself. This happens because any "improvements" carried out on the land, distinct from the land itself, are classified as private property and can be legally bought, sold, or used as collateral (USAID, 2018). This way to bypass the costly formal registration of land use titles gives rise to an informal land market because leasing and purchasing land are, from a technical standpoint, in violation of the existing constitutional framework and formal legal provisions.

Additionally, if land use were a binding constraint, firms that are more intensive in this resource would grow less than the others. Empirical evidence also shows that this is the case in Mozambique. We employ sector-level data and traditional definitions of land intensity to assess this association. Our results suggest that there's a negative correlation of (-21%) between land intensity and the average growth rate of each sector for the period 2010-2021 (Figure 133). Economic sectors such as mining and services, including finance and insurance, experienced higher average growth rates, surpassing 10% on average. In contrast, some of the most land-intensive economic activities, such as forestry, cattle ranching, farming, and agriculture, averaged

a growth rate below 5%. Large-scale agriculture producers often necessitate secure user rights over larger territories for effective long-cycle crop rotation and shifting agriculture. As such, the burdensome and costly access to land use titles might be behind the low growth of the sector.

Figure 133: Land Intensity and Average GDP growth (2010-2021)



Sources: INE (2023) for the GDP growth and US Environmentally Extended Input-Output (2013) for the land intensity.
Note: Correlation of -21% of land intensity and average growth.

Moreover, evidence from the mining sector points to the way in which lifting the constraint of access land facilitated required investments. Before the beginning of the mining boom, the government of Mozambique passed the Mining Law (2001), which facilitated land use in the sector. The law stipulates that if there is a land area with mining potential, the mining concession takes preference, and the current land user needs to be relocated with fair compensation, known as "fair and reasonable indemnity." This law also prioritizes mining activities over any other economic activity if it is assessed to be more socially optimal. As such, investments in this sector do not deal with the described costly registration of land use titles in rural areas, and fast speed the access to land.

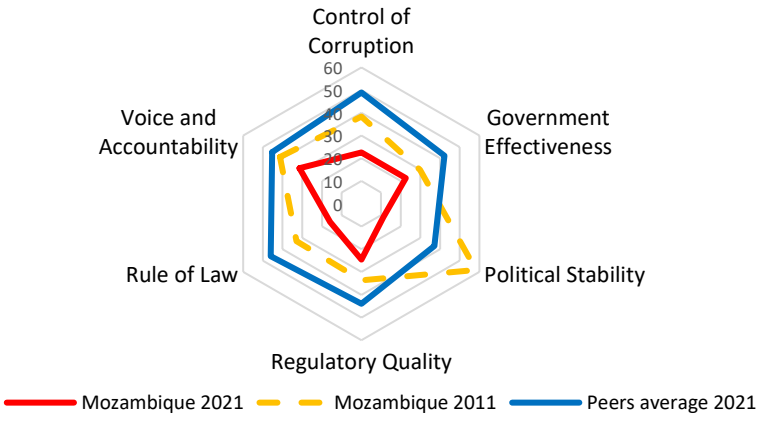
In conclusion, while the land-ownership regime does not seem to be a problem for land access by itself, the problem relies on poor regulatory quality and the governance pitfalls to access land and put it into productive use. As such, the land use system in Mozambique represents a binding constraint for investment, especially in land-intensive economic activities. Mozambique underperforms regional peers is in the land access process and the protection of land usage rights. Registering and transferring land involves substantial monetary and non-monetary costs for entrepreneurs and investors. And while firms are finding ways to navigate these constraints, these solutions often come at the cost of extended project timelines and increased complexities. Moreover, this constraint might in part hamper the growth of land-intensive activities, which have performed inferiorly compared to non-land-intensive sectors. In opposition, the mining sector's success after lifting land use regulations highlights the potential of clear and secure land use rights in fostering investment. Overall, poor regulatory quality of land use diminishes the appropriability of investments, especially discouraging the development of agriculture as a land-intensive sector, still characterized by massive small-scale, subsistence production and concentrating over 70% of the employment.

3.3.2.1.3. Weak government coordination

Aside from the poor regulatory quality, weak government coordination is also affecting the BEE of Mozambique. Weak governance is found in countries where the government cannot assume its role and responsibilities in protecting rights, providing essential services, and ensuring efficient and effective public management (OECD, 2003). Low forms of governance are usually associated with problems such as poverty, inequality, poorly planned urban development and corruption.

During our visit to Maputo earlier this year, we gathered the concerns of different actors regarding the government's inability to coordinate among the multiple public agencies that operate in the country. Issues such as overlapping responsibilities and lack of accountability when important decisions must be made were significant concerns among the country's economic actors. These concerns align with Mozambique's poor performance in international governance indicators. The country's governance indicators have declined considerably over the last decade and are significantly lower than the average of its peers (Figure 134). Mozambique also presents the highest time needed to enforce commercial contracts in the country, and its rule of law indicator, which describes the extent to which agents have confidence in and abide by the rules of society and the quality of rights enforcement, has been deteriorating since 2010 (Figure 135). This situation highlight the worsening public management and other governance-related issues.

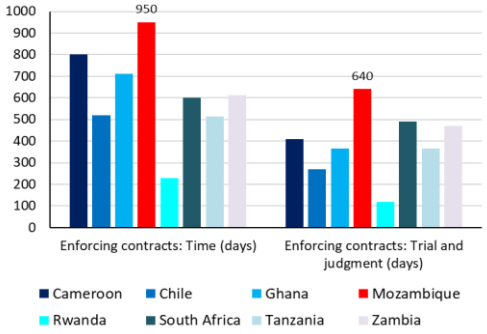
Figure 134: Governance Indicators in Mozambique and peers



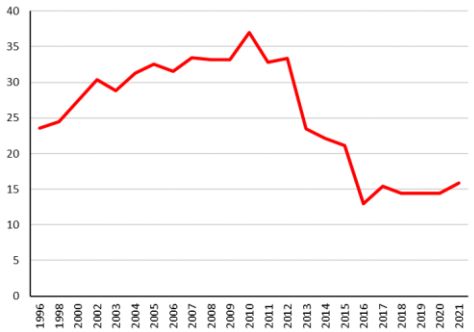
Source: World Bank - Worldwide Governance Indicators

Figure 135: Enforcing Contracts and Rule of Law indicators in Mozambique and peers

A) Enforcing contracts (days)



B) Rule of law (Percentile rank)



Source: World Bank - Worldwide Governance Indicators

Qualitative data shed light on the challenges firms face from the weak government coordination. Throughout both fieldwork trips, the Growth Co-Lab team met with 64 stakeholders, including Ministries and other public agencies, firms from the private sector, and international and national associations[90]. Considering all the stakeholders interviewed, we collected data from various sectors, such as transport, agriculture, commerce, education, energy and finance. We also gather the opinions of other centers that have been studying the country's development for some time now. While many issues were mentioned throughout the interviews, weak government coordination was a transversal concern throughout most sectors. Specifically, three related issues were mentioned the most during the interview process.

First, the presence of multiple public agencies and ministries with the same or similar functions overlap each other and reduce accountability when important decisions must be made. The lack of centralized and coordinated public offices, plus the excess of government authorizations required for most commercial activities (due to a duplication of responsibilities), were reported to create many opportunities for small-scale corruption and a complicated business environment. The inefficient government decision-making process was also claimed as a problem during our field interviews. These issues are such significant concerns that during some interviews, people described as "superheroes" are entrepreneurs who dare start a business in Mozambique. All the above is in line with the Diagnostic Report on Transparency, Governance and Corruption of the IMF (2019b), which also acknowledges low governance as a challenge of a systemic nature in Mozambique. In the report, the weak governance was attributed to constraints on the effective implementation of policies, explained, in part, by the poor oversight and accountability mechanisms and overlapping responsibilities (which leads to duplication, confusion and diffuse responsibility).

Second, even in those departments where the responsibilities are well assigned, the coordination between them was also mentioned as a problem. Stories about how important investment projects were not carried out due to a lack of coordination between ministers were mentioned during the interviews. The above includes implementing policy projects for providing essential public infrastructure (such as electricity) to new constructions for other economic areas, such as tourism, a sector with high potential in the country.

[90] See Appendix 2: List of meetings with stakeholders.

Third, as a consequence of both the lack of clarity on the separation of government responsibilities and agency coordination, firms perceive a sense of division in the government and the country, which has hampered the confidence in public policy continuity and direction. Phrases such as "the country is segmented as an island" or "coordination among departments is a problem" were mentioned during the interviews. The above concern applies to coordination between national and sub-national agencies and among different national agencies. This issue has hindered the public confidence in the government to prioritize and implement the necessary growth policies. The World Bank also addresses this issue by recognizing that the persistent institutional weakness undermines the social contract and discourages political engagement, exacerbating social unrest (World Bank, 2016b).

Despite being challenging to measure quantitively, our qualitative evidence suggests that weak government coordination obstructs investment and creates a less conducive business environment. The weak government coordination in Mozambique occurs in both forms: duplication of responsibilities (with its underlying lack of accountability) and deficiency coordination among important public actors. The above have damaged the country's business-enabled environment and appropriate political action to address the country's current issues.

3.3.2.1.4. Corruption – Symptom of poor regulatory quality and weak government coordination

The low quality of regulations and weak government coordination are binding constraints for growth that have together fueled various forms of corruption in Mozambique. Petty forms of corruption (such as bribery) coexisting with a large segment of firms operating in informality are common attempts to bypass a system with over-complicated regulation and a deficient provision of some public goods. In this section, we delve into the issue of corruption in a separate sub-section to examine its prevalence and shape and assess its effects on economic activity. We use this evidence to showcase how despite the growth diagnostics signals do not indicate that corruption is a binding constraint on its own, it is kept in a feedback loop with poor regulatory quality and weak government coordination that exacerbates the appropriability of returns on potential investments.

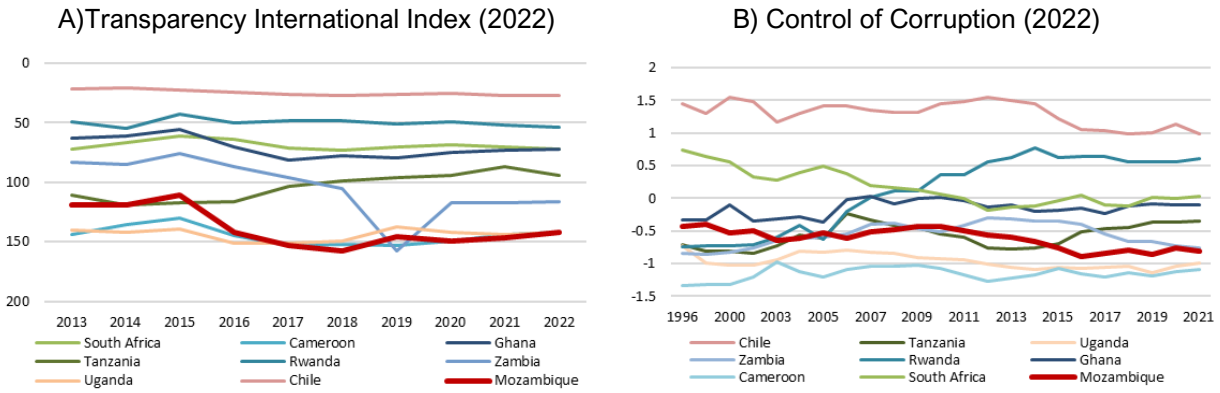
Corruption has a direct effect on growth, and it can also entrench and exacerbate other constraints. While the theft of public funds tends to reduce a government's fiscal capacity, the biggest cost comes from the distortion of allocative efficiency – decisions about investment, employment, and business creation are all distorted (Mauro et al., 2019, Cruz et al., 2023). Studies sometimes distinguish between four types of corruption depending on whether they involve theft or exchange, and non-elites or elites (Ang, 2020; Fisman & Golden, 2017). The "greasing wheels" activities involve types of exchange to facilitate economic activity. They include corrupt activities that are related to "speed money" (for example, paying a bribe to secure electrical connection faster) and "access money" (for example, bribing regulators to secure the rights to exploit an extractive opportunity). Nevertheless, these activities can also impose distortionary costs on firms and generate negative externalities by, for example, eroding public trust in government and lowering fiscal revenues (Mauro et al., 2019). In contrast, activities that involve theft are likely to be more damaging types of corruption as both drain public and private wealth while delivering no social benefits in return (Ang, 2020). They can be divided between petty theft (for example, police officers demanding bribes from motorists) and grand theft (for example, political leaders stealing aid). In addition, corruption can also entrench other constraints by, for example, creating powerful groups with vested interests in maintaining red tape and regulation that offer opportunities to

solicit bribes from firms and individuals who have to navigate complicated bureaucratic processes (for examples and theory of this see Kaufmann & Wei, 1999; Fisman & Golden, 2017; Cruz et al., 2023).

Mozambique faces a range of complex governance challenges that seem to encourage and entrench grand corruption. Fiscal governance is often opaque and poorly scrutinized, with weak auditing institutions and processes (Cruz et al., 2023). Competitive tendering occurs in only one-third of central and provincial procurement processes and public investment has been chronically affected by factors such as weak appraisal and monitoring capacity and delays in disbursements (World Bank, 2020b; IMF, 2019a). As such, corruption has been described as 'pervasive' in the telecom, transport and logistics, construction, customs, and public works sectors – all sectors in which the government is active, and which have strong linkages supporting economic activity in the rest of the economy (Soto et al., 2018; World Bank, 2020b). There are strong connections between major firms and political elites that have raised questions about public investment decisions and whether the regulatory environment promotes a level, competitive playing field or privileges some firms (Cruz et al., 2023). The public sector itself is large, complex, and relatively opaque, with 14 SOEs (IMF, 2023a) and about 116 firms in which the government is the majority shareholder, but for which oversight, beneficial ownership structures, and financial reporting obligations remain weak and obscure (Soto et al., 2018). Rapid growth in the banking sector combined with a large informal sector and the dominance of cash transactions also make it more difficult to monitor and control corruption and illicit transactions (Soto et al., 2018).

As such, Mozambique consistently compares poorly to peers in international rankings and comparisons of corruption (Cruz et al., forthcoming, p. 43). Transparency International (2022) has ranked Mozambique last amongst peers in their Corruption Perceptions Index for all but one of the last six years (Figure 136, panel A). Additionally, according to the World Bank, Mozambique also ranked third-last amongst peers since 2015 for 'control of corruption', ahead of Uganda and Cameroon (WDI, 2022) (Figure 136, panel B). Moreover, the Ibrahim Index of African Governance (2022) ranked Mozambique 21 out of 54 African countries for 'anti-corruption efforts' and 32 for 'accountability and transparency'. Individual-level data also confirms these findings as firms and citizens report extended corruption according to the Global Corruption Barometer (Transparency International, 2019). In the country, 35% of people reported paying bribes to access a public service, the highest rate in Southern Africa (Transparency International, 2019). Worryingly, these surveys also showcase that corruption is perceived to be worsening over time. The Afrobarometer (2021) found that 39% of respondents thought that 'most' or 'all' civil servants were corrupt, up from 19% in 2006.

Figure 136: Corruption perception indicators in Mozambique and peers

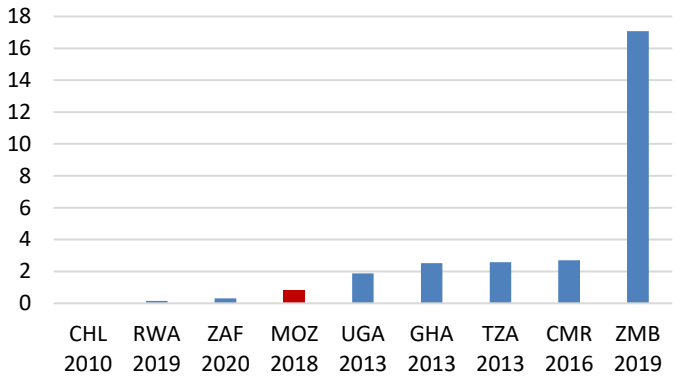


Source: Transparency International and World Bank

While these indices can be useful for benchmarking headline perceptions of corruption, they need to be interpreted with caution and alongside other diagnostic tests to assess its economic impact. By its nature, it is very difficult to get accurate data on the prevalence and impact of corruption. International comparisons have to rely on proxy metrics such as surveyed perceptions of corruption, expert estimates, or legislative comparisons (Fisman & Golden, 2017). Proxy measurements such as public perceptions of the prevalence of corruption can be affected by external factors such as when there is more media reporting on corruption or when macroeconomic conditions are deteriorating (World Bank, 2020b; Melgar et al., 2010). We should, therefore, interpret Mozambique's performance on these metrics in recent years with some caution – while they suggest that corruption is highly prevalent relative to peers, survey results may also partly reflect that corruption has been more 'front of mind' for Mozambicans after the hidden debt episode in 2016, during the recent economic slowdown, and even in part due to government efforts around anti-corruption reforms (IMF, 2019a).

Despite that the cost of corruption for the economy is significant, Mozambican firms appear to pay a low shadow price for corruption compared to peers. Employing different methodologies, various studies have found the economic cost of corruption in the economy of the country is quite high. A study by the Centro de Integrigade Publica (CIP) and Chr. Michelson Institute (CMI) indicated that the total cost of corruption to Mozambique in the 2004-2014 period was US$4.9 billion (an annual average of US$490 million, which is equal to about 2.8% of 2014 GDP or 6% of the 2015 Public Budget). The impact of corruption ends up being widespread across taxpayers, private businesses, financial institutions, and the international reputation of the country (CIP & CMI, 2016). Nevertheless, when considering the direct cost of informal payments for firms, Mozambican formal firms seem to spend less than the other countries in the peer group (Figure 137). On average, firms report spending in informal payments to "get things done" less than 1% of their total sales, which is low compared to other countries in the peer group. While firms can naturally underreport these numbers, these international comparisons can start to shed light on the extent of the problem.

Figure 137: Annual sales paid in informal payments in Mozambique and peers (%)

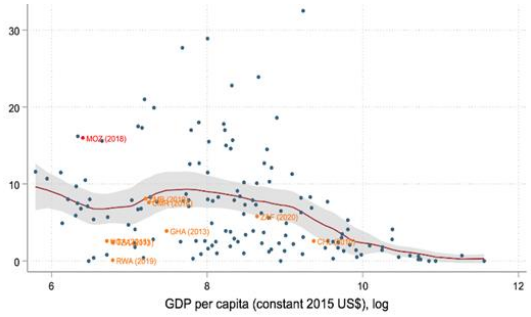


Source: Own elaboration using World Bank Enterprise survey.

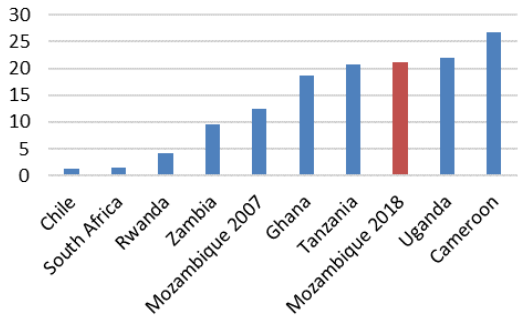
Despite the low *price* of corruption for firms, they find corruption and briberies to be a significant and frequent obstacle to their operations. The percentage of firms indicating corruption as their greatest obstacle is very high compared to peers and amongst the highest compared to countries with similar income (Figure 138, panel A). This figure also shows that this percentage increased significantly in the 11 years between WBES surveys from 4.1% to 16%. Moreover, Mozambique is amongst the countries with higher bribery incidence in their peer group, with approximately 21% of firms experiencing at least one bribe payment request across six transactions associated with public services (utilities access, permits, licenses, and taxes) (Figure 138, panel B). Mozambique also recorded the third-highest proportion of transactions where a gift or informal payment was requested (Figure 138, panel C), and the worst score (with Rwanda) in terms of irregular payments and bribery[91] across the peer group (Figure 138, panel D). These results are consistent with a forthcoming institutional diagnostic, where a survey to 'key opinion leaders and decision-makers in core private sectors' found that the top two 'major institutional weaknesses' respondents identified were that 'corruption distorts the business environment' and that 'corruption in public administration is prevalent' (Cruz et al., 2023).

Figure 138: Firms' exposure to corruption in Mozambique and peers

A) Corruption as the main obstacle

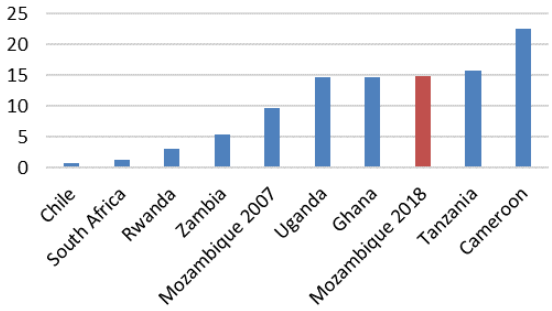


B) Bribery Incidence

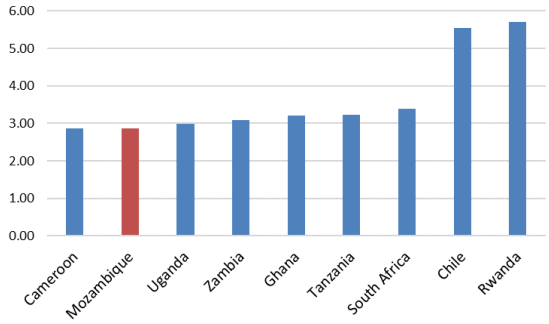


[91] The WEF indicator measures the average score across five components of the following Executive Opinion Survey question: In your country, how common is it for firms to make undocumented extra payments or bribes connected with (a) imports and exports; (b) public utilities; (c) annual tax payments; (d) awarding of public contracts and licenses; (e) obtaining favorable judicial decisions? In each case, the answer ranges from 1 (very common) to 7 (never occurs) (Schwab, 2019).

C) Bribery Depth



D) WEF Irregular payments and bribes, 1-7 (best)



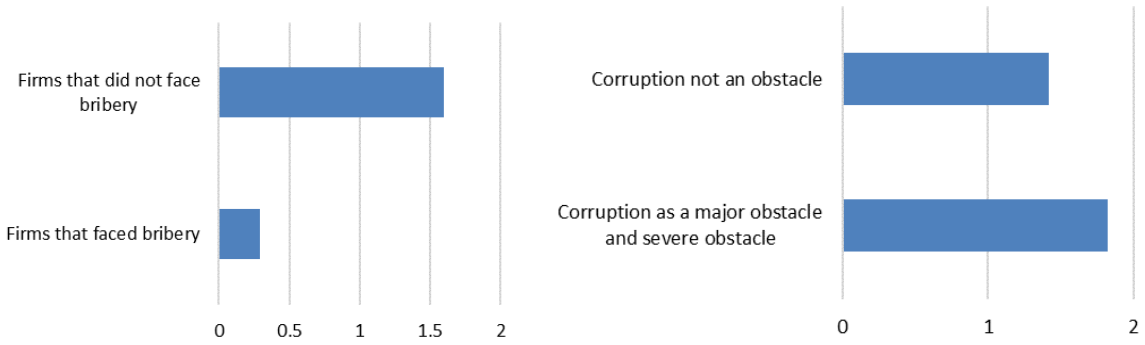
Source: World Bank Enterprise Survey and World Economic Forum indicators. Note: 'Bribery incidence' indicates the percent of firms who have experienced at least one bribe request across six public transactions dealing with utility access, permits, licenses, and taxes. 'Bribery depth' indicates the percentage of public transactions where a gift or bribe was requested.

If corruption on its own were a binding constraint, one would expect less exposed firms to perform better than the rest. There is mixed evidence on this issue for Mozambique. A World Bank (2021) analysis found a negative effect of corruption on both sales and productivity growth. The results of the estimations indicate that an additional percentage point (pp) spent on bribes reduces sales growth by 5.5%, and productivity growth by 8.8%[92]. This effect would depend on the firm's performance. For high-performance firms, an increase of bribe of 1% of annual sales translated into a sales growth loss of 1.4 pp, and a loss in productivity growth of 1.9 pp. On the other hand, for medium-performance firms, it translates into a sales growth loss of 0.6 pp and a productivity growth loss of 0.6 pp. For low-performing firms, the effect is limited or even positive (World Bank, 2021). We complement this analysis by dividing firms that 'face bribery', measured as experiencing at least one bribe payment across public transactions) and assessing their sales performance. Our own estimations show that there is no statistically significant difference (p-value score = 0.39) in annual sales growth (Figure 139, panel A). Further measures of corruption incidence confirm our findings. Firms for whom corruption was their 'greatest obstacle' and firms that reported corruption was a major or severe obstacle had similar rates of annual sales growth as other firms (p value=0.38) (Figure 139, panel B).

[92] The models use year-location-industry averages as an instrument. This is why the conclusions of the report suggest a causal effect of bribery over sales and productivity.

Figure 139: Bribery and Corruption Evidence

A) Sales growth of firms facing bribery B) Sales growth by how severe is corruption

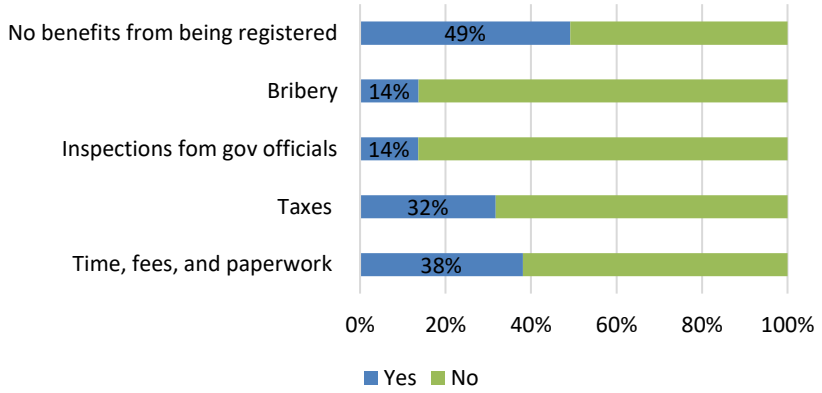


Source: World Bank Enterprise Survey. Note: (i) 'Facing bribery' is a variable that takes the value of 1 if the firm has experienced a bribe payment request across six public transactions dealing with utility access, permits, licenses, and taxes, and 0 otherwise. (ii) Firms considering corruption 'not an obstacle' comprises firms that indicated that corruption is not an obstacle, minor obstacle, and moderate obstacle.

Moreover, if corruption were a binding constraint, one would expect to see agents overcoming costly corruption. Despite data limitations, one data point suggests that this can be the case in Mozambique. The World Bank's 2018 Informal Sector Business Survey (ISBS) is one of the few global sources to assess informality with data at a firm level. For Mozambique, it covered a sample of informal businesses in Maputo, Beira, and Nampula. As Figure 140 shows, 13.7% of firms responded yes when asked if they were 'informal because of bribery'.[93] While this question is broad enough to contain several possible interpretations, and there is no comparable data available on peers, it suggests that some firms could be 'bypassing' the cost of corruption by remaining informal. An empirical correlation between corruption and informality has previously been found in studies in other settings (Campos et al., 2010; Krause et al., 2010). Informal firms are significantly less productive, sell less, and make much less profit than comparable formal microenterprises in Mozambique (Aga et al., 2021).

[93] This figure is different to the one depicted in the Red Tape section as it includes all unregistered firms, without isolating only those who resemble firms in the formal sector. The objective behind is to understand the informal segment as a whole regarding their exposure to corruption.

Figure 140: Causes to be unregistered

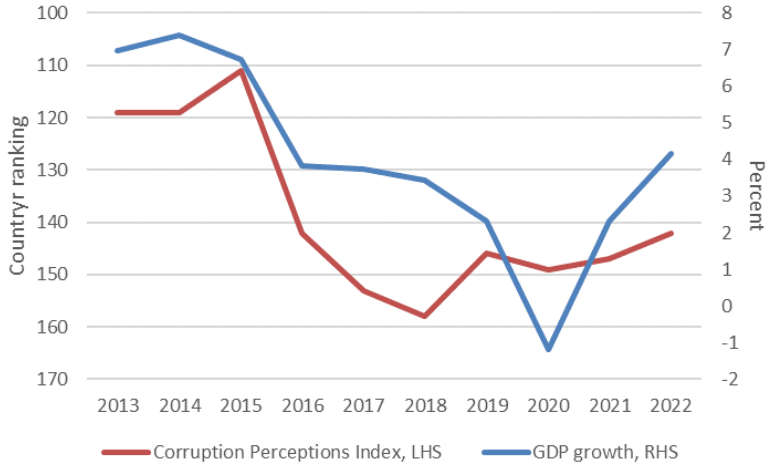


Source: World Bank Informal Sector Business Survey.

If corruption were a binding constraint in Mozambique, one might also expect to see movements in GDP growth correlated to movements in Mozambique's corruption ranking. The evidence is not strong enough. Figure 141 shows a somewhat co-movement between Transparency International's Corruption Perception Index and GDP growth. There are certainly confounding factors affecting GDP growth and the Corruption Perception Index is only one proxy for the prevalence and perception of corruption, but Figure 140 is suggestive of the impact of 'grand theft' in the hidden debt episode. Perceptions of corruption dramatically worsened following the revelation of the episode, at the same time that GDP growth slowed. However, this information should be treated with caution. In the first place, because the decline in GDP growth after 2015 was also explained by other macroeconomic shocks (such as the end of the super commodity cycle)[94]. Second, Corruption Perception Index is an index that summarizes different corruption measures including bribery, diversion of public funds, ability of government to contain corruption in the public sector, among others[95]. Therefore, the decline in the corruption index in 2016, which in part captures the impact of 'grand theft' in the hidden debt episode, may have increased the perception of corruption even though in practice the firms and their productive activity were not more prone to bribe requests.

[94] See the Growth Trajectory section of this report.
[95] See the following link.

Figure 141: Correlation between annual GDP growth (RHS) and Transparency International's Corruption Perception Index country ranking (LHS) (2013 – 2022)



Despite methodological challenges makes it difficult to assess if corruption on its own is a binding constraint, more comprehensive evidence does suggest that corruption is more a way to bypass other evident constraints. Firms in Mozambique reported relying on 'speed money' and pay bribes (informal payments) to access public services such as operating licenses, permits, utility connections, among others (World Bank, 2021). The public transactions in which Mozambique has a higher percentage of firms facing bribe requests compared to peers include securing a construction permit (34.8%), an electrical connection (30.2%), a water connection (21.1%), meetings with tax officials (13.5%), and securing an import license (10.7%). This kind of corruption helps 'grease the wheels' of economic activity by allowing firms to bypass inefficiencies from heavy regulatory constraints and facilitate their registration and day-to-day operations, as we described in previous sections.

Overall, corruption appears to be highly prevalent in Mozambique but does not appear to be a binding constraint on diversification and productivity. While corruption appears as one of the top main obstacles for formal firms, the shadow price of corruption paid by firms appears to be low. Besides, there is unclear evidence that firms that are less constrained by corruption are performing better than firms that are more constrained and that changes in corruption incidence at the national level come with better macroeconomic outcomes. The type of corruption that appears most prevalent in Mozambique relative to peers seems to be 'speed money' corruption, sometimes referred to as 'greasing the wheels', and, interestingly, this coexists with large levels of informality to bypass the exposure to briberies that happen when firms operate in the formal sector. Both pieces of evidence suggests that corruption itself is not a constraint but a symptom of firms bypassing other regulatory and logistical hurdles and frictions.

3.3.2.2. Not immediate challenges: Labor regulations, taxes and trade policy

As was mentioned before, there are many ways in which a government can obstruct investment in a country. In this sub-section, we analyze other essential government policies that could affect investment and explain why they are not considered binding constraints to growth. In particular, we analyze labor regulations, taxes and trade policy.

3.3.2.2.1. Labor regulations

Labor regulations, while crafted to safeguard workers and foster equitable labor practices, have the potential to impede economic growth through various channels. Stringent regulations may elevate labor costs, curtail the essential flexibility of the workforce, particularly in response to dynamic market conditions (OECD, 2019), discourage entrepreneurship due to their associated high expenses (ILO, 2014), promote the emergence of informal labor markets due to cumbersome processes (IMF, 2021), dissuade investments in labor-intensive economic activities (Hou, Tang, & Teng, 2021), and reduce productivity by discouraging practices that enhance it, such as flexible work arrangements, performance-based incentives, or innovations in work processes (OECD, 2019a). Ultimately, these factors can erode competitiveness and potentially limit the ability to fully harness the benefits of economic activity, constraining both growth and diversification. Thus, balancing the need for labor protections with fostering economic growth is a nuanced challenge.

Overall, these labor regulations do not seem to be a binding constraint in Mozambique, although the stricter regulations to hire foreigners are potentially limiting the development of economic activities that depend more on specialized knowledge and skills. In 2018, only 1.2% of firms cited labor regulations as their primary obstacle, and just 2.1% considered them a "major constraint". Regarding price competitiveness and ancillary costs, Mozambique's minimum wages and earnings are not notably high compared to similar countries, making them competitive within their peer group. Additionally, redundancy costs are not significantly different from those in comparable nations, and there's no apparent trend of companies evading high costs or burdensome procedures by hiring more temporary workers. Furthermore, the correlation between labor intensity and average growth from 2010 to 2021 is low (-0.16). However, while overall labor market regulations don't seem to hinder Mozambique's growth, the specific restrictions on hiring and retaining foreign labor could pose significant challenges for industries relying on specialized expertise. Mozambique has stricter hiring rules for foreigners compared to peers. These restrictions and administrative challenges pose significant barriers to the growth of the Information and Communication Technology (ICT) industry and the progression of digital entrepreneurship. Thus, the limitations associated with hiring international talent may impede Mozambique's ability to acquire the necessary complementary skills and knowledge required for the effective exploration of high-potential diversification opportunities.

Since 2007, Mozambique's labor market has been overseen by the Labor Law (23/2007). This law introduced fundamental reforms to regulate the labor market, aiming to balance the flexibility demanded by employers in the formal sector and the need to protect workers' rights and interests. These reforms, while welcomed, exposed a key challenge: difficulties in recruiting expatriates, a concern for foreign and local investors (UNCTAD, 2012). The main terms and conditions of the Labor Law apply universally. However, it's important to note that distinct sectors and specific contractual relationships are also regulated by specialized legislation. Sectors such as mining, ports, and maritime activities exemplify these contractual relationships. Additionally, the employment of foreign nationals is governed by a separate set of regulations[96].

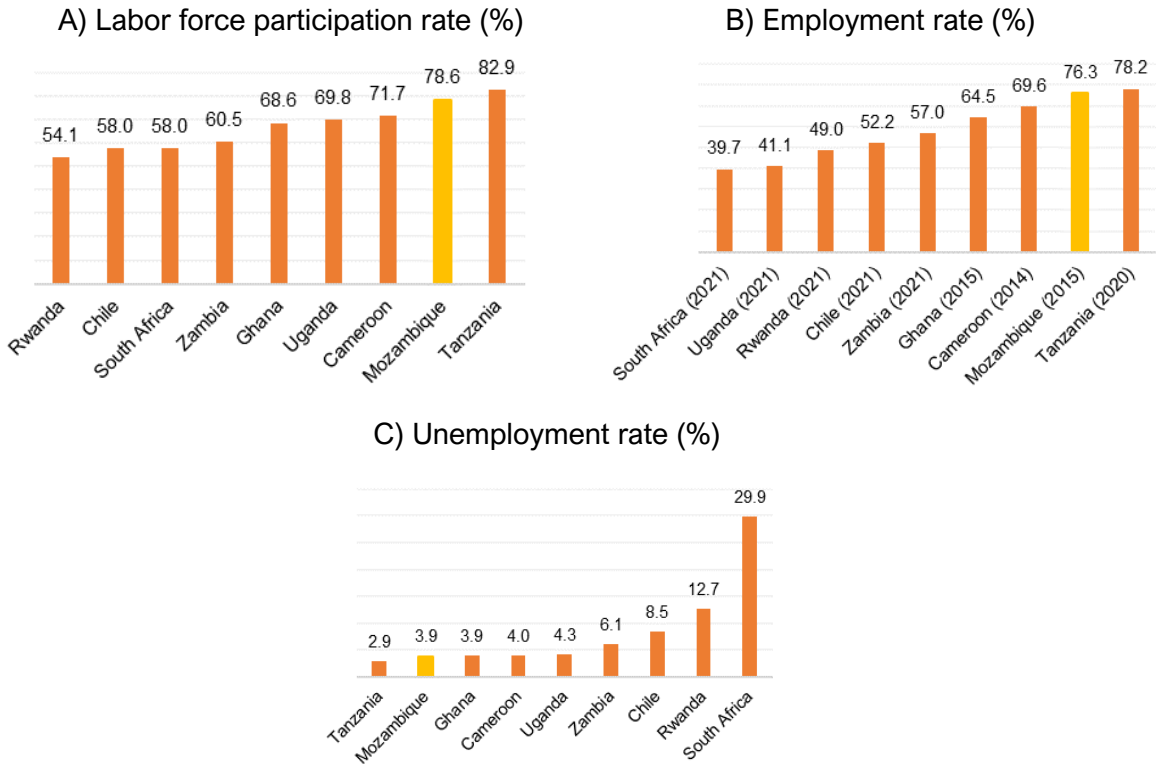
The right of workers to form unions is meticulously safeguarded, and Mozambique boasts a robust union presence (UNCTAD, 2012). The trade union movement has witnessed growth in

[96] The reforms introduced with the Labor Law 23/2007, in conjunction with the General Hiring of Expats Regulation (Decree 55/2008) and the Immigration Law Regulation (Decree 108/2014), collectively establish the framework for granting work permits to expatriates.

absolute membership terms, achieving a union density of 3.6 per cent of the workforce, including members from affiliated unions in the informal economy (Danish Trade Union Development Agency, 2017). Additionally, mediation and arbitration procedures with a tripartite structure are operational throughout the country, extending their reach to all provinces. Notably, these provincial mediation bodies exhibit a success rate of 80 per cent for resolving requested labor disputes (Danish Trade Union Development Agency, 2017).

The labor market is dominated by the informal economy. Mozambique exhibits relatively high labor force participation rates, and comparably low unemployment rates compared to its peers. Notably, the country boasts a large force participation rate of 78.6% among working-age individuals, ranking second highest among benchmark countries. As of 2020, the unemployment rate stood at a relatively low 3.9%, only slightly higher than that of Tanzania (Figure 142). However, out of the total employed individuals, the formal sector employment is estimated to account for merely 6.4% (INE, 2021). As agriculture (which accounts for 70% of the workforce) is an intrinsically informal sector, national informality rates are substantially high in Mozambique. Among the total of individuals engaged in the informal sector, 74.8% are involved in agriculture. Notably, services—an economic sector that experienced a growth in participation from 13.1% in 1991 to 21.2% in 2019—constitute 8.6% of the informal workforce. Together with agriculture, these activities collectively account for 83.4% of informal employment (INE, 2021). Additionally, although the extractive industry has stimulated economic expansion, its connections to other sectors remain tenuous, and its contribution to formal employment has been relatively limited.

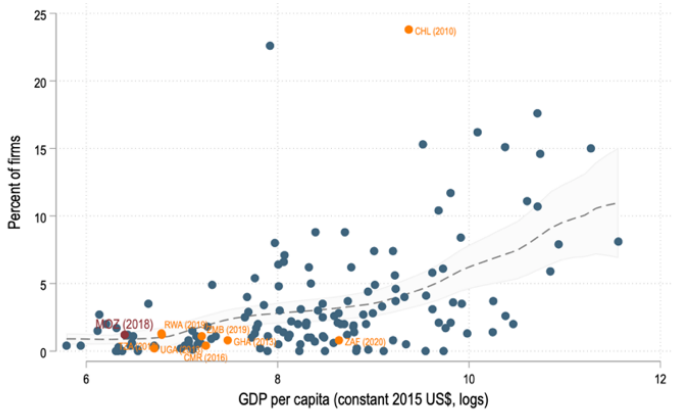
Figure 142: Labor Market Indicators (2021)



Note: If data refers to another year, it is indicated within brackets. The labor force participation rate is for the share of the population aged 15-64. Unemployment is for the share of the total labor force. The employment rate is as a share of the population aged 15 and older. Source: ILOSTAT (2021).

The rate at which firms report labor regulations and costs as a constraint is very low. According to the latest Enterprise Survey (2018), Mozambique's firms cited labor regulation as a less common obstacle to their growth than benchmark peers. Considering the country's income level, the percentage of firms identifying labor regulations as their main constraint aligns closely with the expected value (Figure 143). Merely 1.2% of firms reported labor regulations as their primary obstacle. Moreover, only 2.1% of firms considered labor regulations a "major constraint," falling below the Sub-Saharan and world averages. Trends over time show that the percentage of firms identifying labor regulations and labor tax contributions as their main obstacle has not changed significantly. In 2007, only 0.8% of firms mentioned labor regulations as the primary obstacle.

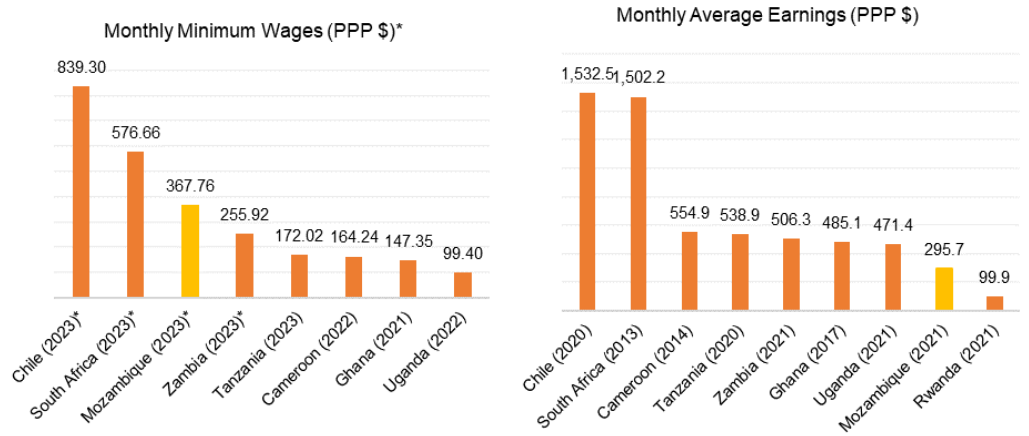
Figure 143: Per cent of firms identifying labor regulations as their main obstacle



Sources: WBES last data available and WDI (2021).

If labor regulations were a binding constraint, we would expect to see a high price of labor reflected in elevated salaries and overhead costs. This does not seem to be the case in Mozambique. When comparing the monthly minimum wage for the manufacturing sector in Mozambique (PPP $ 367.76), with the minimum wages in the peer countries, it falls below the average within the benchmark group. Additionally, Mozambique's monthly average earning per worker stands at PPP $295.66, just slightly higher than Rwanda's figure of PPP $99.88 (Figure 144). Overall, low wages characterize the country’s significantly low productivity levels across most sectors.

Figure 144: Monthly minimum wages and average earnings Mozambique and peers



Source: ILO (2023) & own estimations using IMF WEO Database (2023). Notes: Mozambique: sectoral manufacturing minimum wage. Rwanda has no minimum salary. Chile: For people between 18-65 years. South Africa: estimated for 40 hours per week. Zambia: yearly minimum wage divided by 12. Monthly Minimum Wages (PPP $) were obtained using the Implied PPP conversion rate of the IMF WEO Database for the years 2021, 2022, and 2023.

Likewise, Mozambique's redundancy rules do not impose fundamentally stringent conditions for employers. According to the information from the Doing Business (2020) report, the probationary period is shorter than in other countries, and the regulations for retraining are not overly strict (Table 4). Referring to Articles 46-50 of the Labor Law 23/2007 in Mozambique, it is stipulated that for permanent contracts, the probationary term cannot surpass 90 days (equivalent to 3 months) for regular employees, excluding those holding leadership and management roles[97]. This time frame is notably briefer in contrast to countries like Uganda (12 months), Rwanda, and Tanzania (6 months), and just longer than Cameroon's (2 months). Nevertheless, for more intricate positions, especially those demanding specialized skills or expertise, a prolonged probationary duration can be applied. In Mozambique, this extended probationary window can extend up to 180 days for intermediate to higher-level employees and individuals occupying leadership or management positions. Regarding retraining, the law does not necessitate the employer to reallocate or provide training to a worker prior to declaring them redundant in Mozambique, the only country that applies this provision in the benchmark group is South Africa (Table 4).

[97] Regarding permanent contracts, the probationary period must not exceed 180 days for intermediate, higher-level employees, and those in leadership or management positions. As for term contracts: The probationary period should not surpass 15 days for unspecified term contracts lasting 90 days or more. It should not exceed 15 days for fixed-term contracts of up to 6 months. For fixed-term contracts ranging from 6 months to one year, the probationary period must not exceed 30 days. And for fixed-term contracts lasting more than one year, the probationary period should not exceed 90 days (Labor Law 23/2007, 2007).

Table 4: Redundancy rules

	Redundancy Rules								
	Maximum length of probationary period (months)	Dismissal due to redundancy allowed by law?	Third-party notification if one worker is dismissed?	Third-party approval if one worker is dismissed?	Third-party notification if nine workers are dismissed?	Third-party approval if nine workers are dismissed?	Retraining or reassignment? (a)	Priority rules for redundancies?	Priority rules for reemployment?
Mozambique	**3.0**	**Yes**	**Yes**	**No**	**Yes**	**No**	**No**	**No**	**No**
Cameroon	2.0	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Chile	No provision	Yes	Yes	No	Yes	No	No	No	No
Ghana	No provision	Yes	Yes	Yes	Yes	Yes	No	No	No
Rwanda	6.0	Yes	Yes	No	Yes	No	No	Yes	Yes
South Africa	No provision	Yes	Yes	No	Yes	No	Yes	No	No
Tanzania	6.0	Yes	Yes	Yes	Yes	Yes	No	No	Yes
Uganda	12.0	Yes	No	No	No	No	No	No	No
Zambia	No provision	Yes	Yes	No	Yes	No	No	No	No

Source: Doing Business (2020). Notes: (a) This indicator analyses whether the law necessitates the employer to reallocate or provide training to a worker prior to declaring them redundant.

In terms of redundancy costs, employers in Mozambique bear a relatively manageable burden. The notice period in Mozambique is nearly in line with that of its counterparts. Although the severance pay is comparatively higher than the average, it falls short of the figures observed in Ghana and Zambia (Table 5). The redundancy dismissal notice period in Mozambique is 4.3 weeks for all workers, regardless of their tenure. This duration aligns with the requirement in most benchmark countries (Chile, Ghana, Rwanda, and Zambia). Therefore, Mozambique does not stand out as a country with unusually high demands concerning this indicator. Furthermore, according to Mozambique's Labor Law 23/2007, employers are obliged to provide a termination notice based on factors like structural, technological, or market-related reasons. Such a notice must be substantiated by clear evidence of its necessity for maintaining enterprise competitiveness, facilitating economic restructuring, or conducting administrative reorganization. These conditions are relatively less stringent compared to those of peer countries. Regarding severance pay for redundancy dismissal in Mozambique, an employer must offer 32.5 weeks of salary for a worker with 5 years of tenure and 65 weeks for a worker with 10 years of tenure[98]. While these values are higher than the average within the benchmark group of countries, they are not the highest. In Ghana and Zambia, employers must pay 43.3 and 86.7 weeks of salary for workers with 5 years of tenure and 10 years of tenure, respectively (Table 5).

[98] According Art. 130-131 of the Labor Law 23/2007, upon termination, severance pay is distributed as follows: 30 days of wages for each year of service if the employee's basic monthly wage, along with the length of service bonus, falls between one and seven times the national minimum wage; 15 days of wages for each year of service if it ranges from eight to ten times the national minimum wage; 10 days of wages for each year of service if it falls between eleven and sixteen times the national minimum wage; and 3 days of wages for each year of service if it surpasses sixteen times the national minimum wage. In instances of terminated fixed-term contracts, employers are obliged to provide affected employees with monetary compensation equivalent to the wages they would have earned until the contract's intended expiry date.

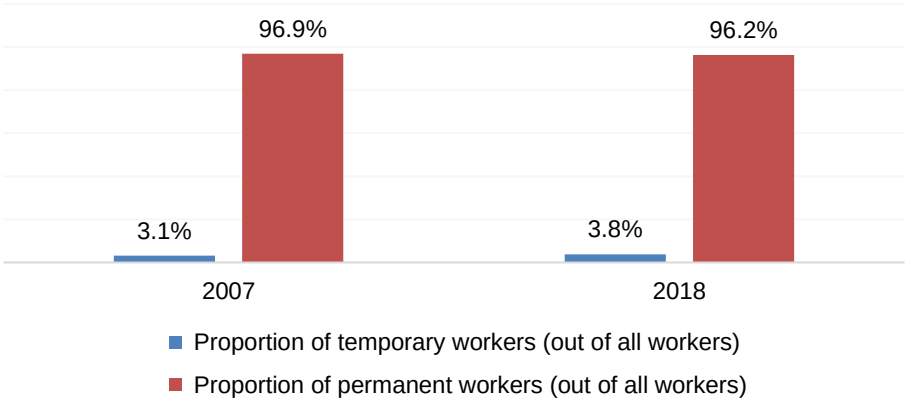
Table 5: Redundancy Costs

	Redundancy Costs							
	Notice period for redundancy dismissal (for a worker with 1 year of tenure, in salary weeks)	Notice period for redundancy dismissal (for a worker with 5 years of tenure, in salary weeks)	Notice period for redundancy dismissal (for a worker with 10 years of tenure, in salary weeks)	Notice period for redundancy dismissal (in salary weeks), average for workers with 1, 5, 10 years of tenure	Severance pay for redundancy dismissal (for a worker with 1 year of tenure, in salary weeks)	Severance pay for redundancy dismissal (for a worker with 5 years of tenure, in salary weeks)	Severance pay for redundancy dismissal (for a worker with 10 years of tenure, in salary weeks)	Severance pay for redundancy dismissal (in weeks of salary), average for workers with 1, 5 and 10 years of tenure
Mozambique	**4.3**	**4.3**	**4.3**	**4.3**	**2.2**	**32.5**	**65.0**	**33.2**
Cameroon	8.7	13.0	13.0	11.6	1.1	6.5	17.3	8.3
Chile	4.3	4.3	4.3	4.3	4.3	21.7	43.3	23.1
Ghana	2.0	4.3	4.3	3.6	8.7	43.3	86.7	46.2
Rwanda	4.3	4.3	4.3	4.3	8.7	13.0	17.3	13.0
South Africa	4.0	4.0	4.0	4.0	1.0	5.0	10.0	5.3
Tanzania	4.0	4.0	4.0	4.0	1.0	5.0	10.0	5.3
Uganda	4.3	8.7	13.0	8.7	0.0	0.0	0.0	0.0
Zambia	4.3	4.3	4.3	4.3	8.7	43.3	86.7	46.2

Source: Doing Business (2020).

Moreover, if labor regulations posed a constraint, it would be expected that companies would often resort to utilizing temporary workers, contractors, trainees, etc., who don't enjoy the same benefits as permanent employees, to bypass such constraints. However, this pattern doesn't apply to Mozambique. According to the World Bank Enterprise Survey, the average percentage of temporary workers was 3.1% in 2007 and 3.8% in 2018. It's worth noting that 2007 a new Labor Law 23/2007 was enacted. If this law were an obstacle for businesses, one would anticipate a decrease in the proportion of permanent workers. Nevertheless, this trend does not appear in the data (see Figure 145).

Figure 145: Monthly minimum wages and average earnings Mozambique and peers

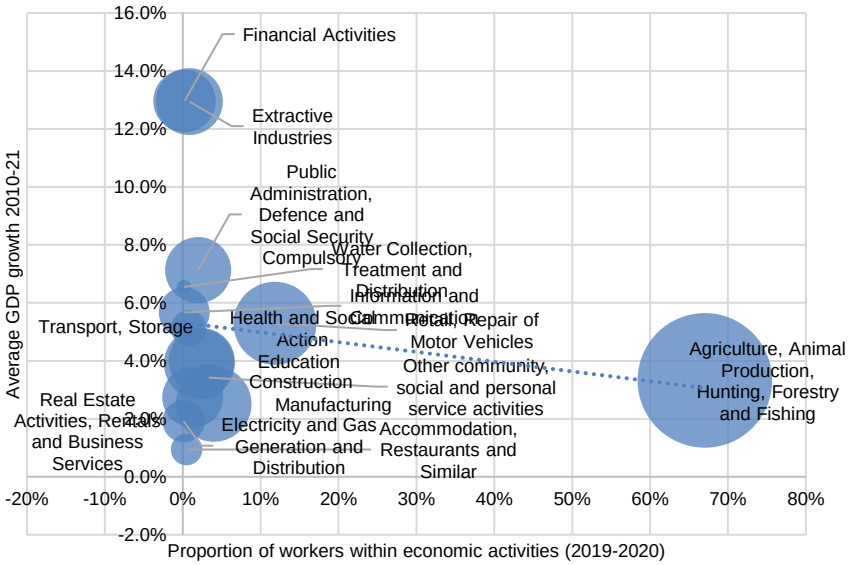


Source: WBES (2007, 2018).

If labor regulations were a constraint, we would also expect labor-intensive sectors to be more adversely affected, leading to poorer performance compared to less labor-intensive sectors. This is because stringent labor regulations would hit labor-heavy sectors harder, as they heavily depend on the workforce and could face increased costs and compliance issues. There exists a negative correlation between labor intensity and average growth, although it is not strongly pronounced (-0.16). Among various economic activities, extractive industries and financial activities, which are the least labor-intensive, exhibit the highest average growth rate during the period from 2010 to 2021. Conversely, the most labor-intensive sectors, such as

agriculture, animal production, hunting, forestry, and fishing, display one of the lowest average growth rates. This is notable even though the participation of this economic activity in millions of MZN is the largest in 2021 (as indicated by the bubble size in Figure 146.

Figure 146: Average growth (2010-2021) and labor intensity (2019-2020)



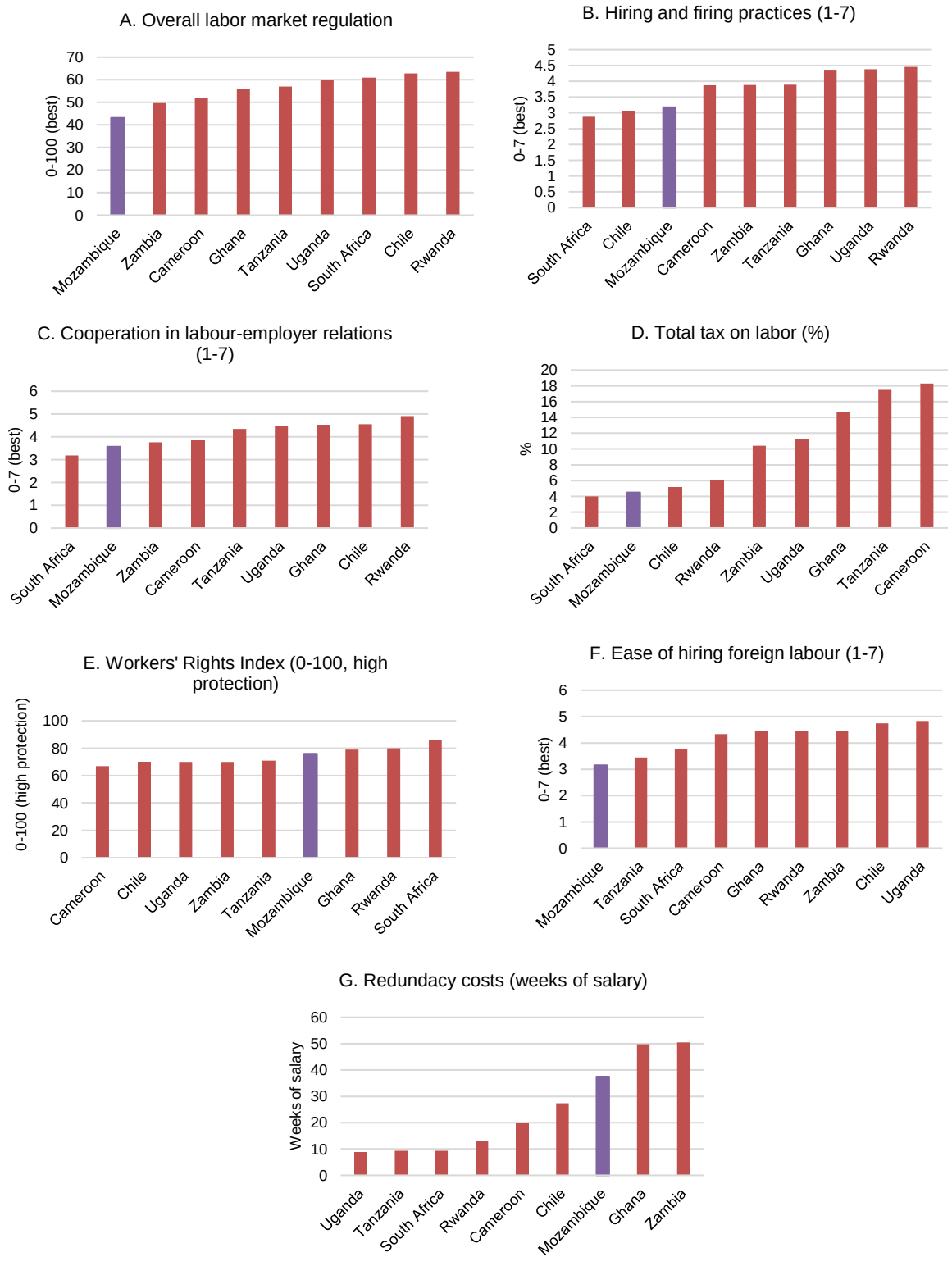
Source: Instituto Nacional de Estatística (2020, 2021). Note: The bubble size corresponds to the total value added of each industry in 2021, measured in millions of MZN in constant prices.

Despite performing at an average level in most indicators used to assess the overall labor market, Mozambique has the lower scores in terms of ease of hiring foreign labor. Mozambique demonstrates average performance in indicators such as hiring and firing practices, total tax on labor, worker's rights index, and redundancy costs. In none of these indicators does Mozambique significantly diverge from its peers in the region or the overall average. However, in the ease of hiring foreign labor indicator, Mozambique receives the lowest score in the Sub-Saharan Africa region and among its peers in the benchmark group (Figure 147). This issue arises from the country's labor law that imposes specific requirements for hiring foreign employees. The existing regulations demand that foreign companies adhere to domestic employment quotas, potentially leading to a scarcity of skilled workers and impacting foreign investment and overall business operations. Under the Labor Law 23/2007 in Mozambique, companies are assigned quotas based on their size[99][100].

[99] It is important to mention that an alternative channel allows investors to recruit larger numbers of expatriates. Under the Investment Law, companies can negotiate either a higher percentage of foreign workers or a predetermined number of work permits. These negotiations are conducted with the Investment Promotion Centre (CPI) or the Free Zones and Industrial Areas Development Entity (GAZEDA) as part of the investment license application process. The law imposes no restrictions on negotiated quotas, which are determined on a case-by-case basis. Through the agreement, quotas are specified in an investment license and become mandatory. Although negotiations are conducted by CPI and GAZEDA, the Ministry of Labor must provide consent. Therefore, the issuance of work and residence permits follows the same rules as the quota system (JICA & JLA Advogados, 2019).

[100] It is important to mention that the existing regime largely discriminates against small investors when negotiating quotas under the Investment License from the CPI (Investment Promotion Centre) (UNCTAD, 2012).

Figure 147: Labor market regulations



Source: Global Competitiveness Index (2019).

It's worth mentioning that recruiting expatriates within the quotas is a legal right; however, ensuring work permits involves a rigorous declaration procedure with the Ministry of Labor. No formal requirement is established regarding the technical level and/or recognition of qualifications or diplomas within the quota. This means that investors can hire the workers they desire as long as they operate within the regulations. Nevertheless, Mozambique implements a very restrictive work permit allocation system. The philosophy underlying the work permit policy is rooted in the desire to promote and protect employment opportunities for nationals rather than ensuring that companies can access the professionals they need to grow and develop (UNCTAD, 2012). Thus, the application process required for each work permit is complex and lengthy, and the outcomes are uncertain. Work permits under quotas are applied on a case-by-case basis and only when the employer can demonstrate that no Mozambican with the required knowledge can be found (based on a labor market study). The opinion of the company's union regarding the relevance of the application must be heard, and academic qualifications obtained abroad must be validated and certified by the Ministry of Education, which is complicated (JICA, 2017).

The ability to access professionals poses substantial issues for companies operating in Mozambique (UNCTAD, 2012). The main problems and issues related to labor market regulations and access to professionals for companies are as follows: "By adopting a strict and restrictive policy in issuing work permits for foreigners, Mozambique is complicating operations and hindering the expansion of existing investors. Similarly, this poses a barrier to certain investments and may inhibit their implementation, particularly in small projects in highly specialized sectors. Several factors must be considered: In most cases, recruiting expatriates is more expensive than hiring Mozambican workers, creating a natural incentive to rely on nationals whenever possible." Furthermore, a survey of companies revealed that the educational level of workers has increasingly become a hindrance to doing business in Mozambique. This is particularly true for export-oriented foreign companies, with 23 and 27 per cent of respondents citing this issue as a major problem. As a result, foreign skilled workers are in high demand, and investors often seek ways to hire foreigners beyond the set quota (UNCTAD, 2012). Moreover, the limitations and bureaucratic obstacles in the recruitment of overseas workforce present notable hurdles for the expansion of the Information and Communication Technology (ICT) sector and the advancement of digital entrepreneurship. Although regulations governing the ICT sector underline the significance of attracting both domestic and foreign investments and fostering competition, the prevailing constraints and protracted procedures concerning foreign labor ultimately undermine these objectives (World Bank, 2023a).

In light of these challenges, the significance of hiring foreign workers and gaining access to technical expertise becomes evident, prompting efforts to address this constraint. Recent government initiatives have been geared towards enhancing the flexibility of these regulations to address unmet skills demand by firms. As part of its new reform strategy, known as the Pacote de Medidas de Aceleração Económica—PAE 2022, the government is preparing an upcoming labor law. While specific measures are yet to be defined, it is anticipated that this new law could mitigate some of the challenges linked to the uneasiness of hiring foreign labor (World Bank, 2023a).

3.3.2.2.2. Tax system

Contemporary tax systems pursue a diverse range of objectives, aiming not only to raise government revenue but also to contribute to income redistribution, economic stabilization, and resource allocation while fostering economic growth (OECD, 2018)**.** A well-designed tax

system should efficiently achieve these fiscal policy goals by limiting distortions, minimizing collection costs, and promoting growth (Stoilova, 2017). Tax efficiency and the overall tax structure play a pivotal role in driving economic growth (OECD, 2018) by incentivizing investment, influencing consumer spending, and impacting business decisions (Bonucchi et al., 2015).

Since its main reform in 1994, the Mozambican tax system has provided generous incentives to attract investments across most economic activities, beyond the extractives. Under the general regime (Law 34/2007), firms face a 32% corporate income tax (CIT) and a 16% Value Added Tax (VAT) rate.[101] Simultaneously, the Tax Benefits Statute (or *Código de Benefícios Fiscais - CBF*, 2009) provides various incentives including customs duty and VAT exemptions for imported capital goods (such as plastics and machinery), tax credits, accelerated depreciation rates, and deductibility of infrastructure expenses. [102] For instance, the exemption from customs duties and VAT is granted for the import of capital goods with a tax credit that amounts to 5% of the CIT in Maputo or 10% in other provinces. Firms can also accelerate depreciation rates, allowing for up to 50, and deduct expenses related to basic infrastructure, new technologies, and professional training for up to 110% percent in Maputo and 120% in other provinces (PWC, 2023; UNCTAD, 2012). These benefits are not applicable to the mining and petroleum sectors.[103] Overall, in 2021, the value of exemptions granted was estimated at 15.3% of the total fiscal revenues (Anuário Estatístico - Estatísticas Tributárias, 2021).

Sector-specific and project-specific tax incentives are available. They target the Processing Industry, Agriculture and Fisheries, and Upstream Petroleum and Mining on one side and specific large investments on the other side. For instance, projects involving Science and Technology Parks enjoy complete exemption from CIT during the initial five fiscal years, followed by discounted rates for the subsequent ten years. These projects also benefit from exemptions on customs duties and VAT on relevant imports. Similarly, investments in the development of essential infrastructure receive discounted CIT rates over fifteen years, complemented by customs duties exemptions on equipment imports. Furthermore, large-scale projects exceeding 12.5 billion meticals (USD 196 million) can avail of generic income tax incentives along with exemptions on customs duties and VAT (PWC, 2023). Among sectors accumulating the most exemptions in domestic transactions, the industry sector stands out with 72.2%, followed by services with 12.2%, transport and communications with 8.3%, and agriculture with 3.5%.

Mozambique also offers specific tax incentives for investments in special geographical areas. In Special Economic Zones (SEZs), investors enjoy CIT exemptions for three to five fiscal years, followed by discounted rates of 50% for the next six to ten years and 25% for the subsequent five years. Customs duties and VAT on imports are also exempted. Similarly, investments in Industrial Free Zones (IFZs) receive CIT exemptions for the first ten fiscal years, followed by discounted rates of 50% for the next five years and 25% for the business's life, along

[101] The standard VAT rate stands at 16%, yet there are specific categories of supplies subject to a reduced rate of 5% applicable to medical, health, educational, and vocational services from private institutions (PWC, 2023).
[102] Obtaining an investment license from the CPI is required to access incentives provided, with three exceptions: (1) investments in commercial and industrial activities in rural zones; (2) investments in the construction of retail and wholesale trade infrastructure; and (3) manufacturing and assembly industries.
[103] The sole concession granted is the right for investors to import Class K goods or other deemed duty and VAT-exempt items, considering their absence of local production with desired quality levels. This tax exemption lasts for five years from the start of exploration activities. These sectors also pay royalties of between 1.5% and 8% plus a surface tax calculated in accordance with the fixed amount per hectare of land included in the mining title.

with customs duties and VAT exemptions on imports, promoting investment in these specialized zones (PWC, 2023).

Mozambique also introduced a Simplified Income Tax (ISPC) system to promote the creation and growth of formal smaller firms. The ISPC (Law 5/2009) serves as a streamlined tax framework applicable to taxpayers with annual business volume below 2.5 million meticals. This simplified system levies a flat 3% tax on the firms' business volume, and replaces the CIT, VAT, and Personal Income Tax (PIT). Further, individuals whose annual business volume is lower than 36 times the minimum wage are eligible for tax exemption (Swistak et al., 2017).

In this context, Mozambique's tax-to-GDP ratio is relatively high, outperforms most peers, and has been increasing over time. In comparison to other economies in the benchmark group, Mozambique had the second-highest tax-to-GDP ratio (21.8%) in 2020, only surpassed by South Africa with 23.5% (Figure 148). This ratio was comparable to the one achieved by more developed member states of the Southern African Development Community (SADC), and it notably stands out among countries sharing a similar economic structure worldwide (Swistak et al., 2017).. Even after adjusting GDP by incorporating the informal economy, estimations reveal that the ratio is still higher than in other countries (Swistak et al., 2017). Between 2010 and 2022, tax revenues increased from 15% to 22% of GDP, with direct taxes (PIT) driving the growth (Figure 149, following the expansion in the government wage bill and the rapid growth of the well-compensated expatriate community.[104,105] Overall, Mozambique's increasingly higher reliance on direct taxes compared to most peer countries makes it aligned more with what is typically observed in more developed nations (Figure 150) (Swistak et al., 2017).

Figure 148: Tax to GDP ratio (%) for Mozambique and peers

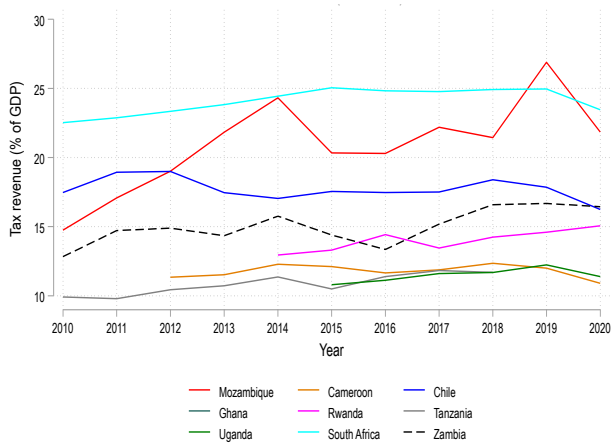
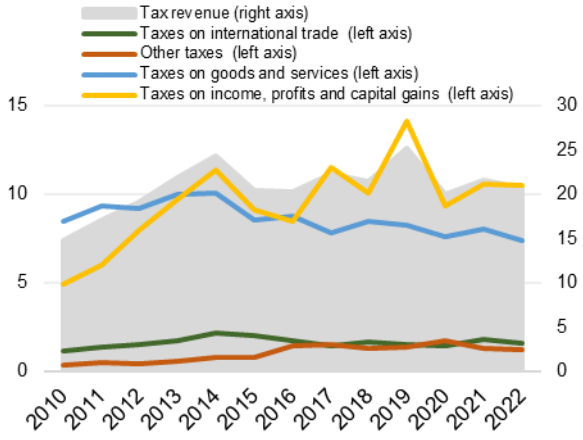


Figure 149: Tax to GDP ratio (%)

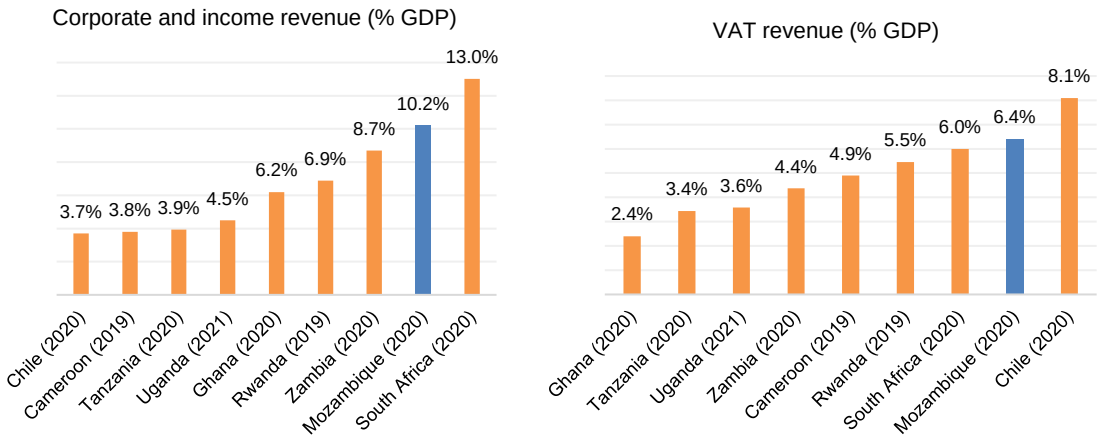


Source: Own estimations using WDI and DataBank

[104] CIT collections also grew substantially because of larger Capital Gains Tax (CGT) in mining and petroleum concessions and the imposition of withholding taxes on payments to non-resident service and finance providers (Swistak et al., 2017).

[105] Taxes collected from mega projects in the energy and oil sectors are increasingly contributing a larger proportion of tax revenues. Just in 2021, this source reached 10.7% of the total (Anuário Estatístico - Estatísticas Tributárias, 2021).

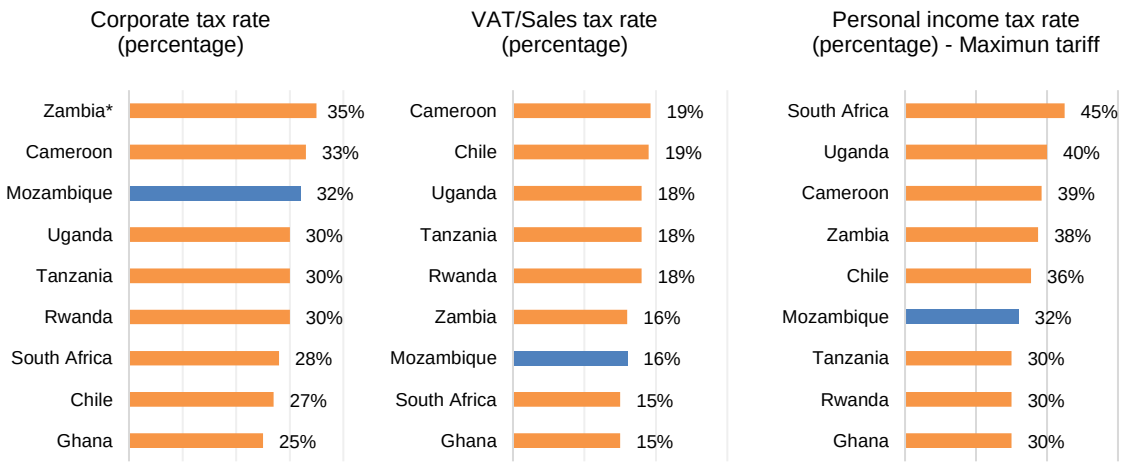
Figure 150: Taxes revenues, Mozambique and peers



Source: WDI

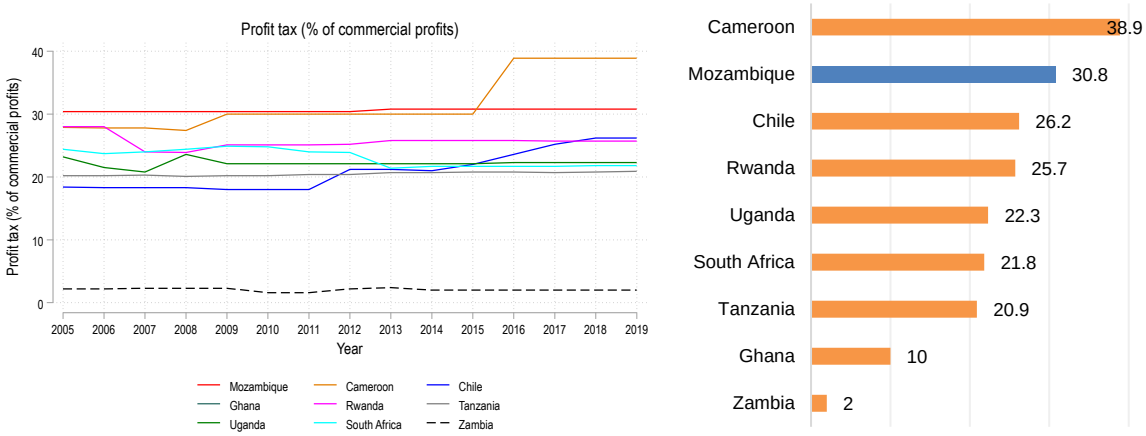
Despite Mozambique's corporate and profit taxes exceed most country peers, widespread tax incentives make the effective tax burden substantially lower. Mozambique's Corporate Income Tax rate of 32% ranks third among its peers, standing 2 percentage points higher than other regional counterparts like Uganda, Tanzania, and Rwanda (30%), and 4 percentage points above South Africa's (28%) (Figure 151). Moreover, in 2019, the profit tax accounted for 30.8% of commercial profits, the second-highest profit tax, trailing only behind Cameroon's 38.9% (Figure 152). It is important to mention that, despite Mozambique's high corporate income tax, it has remained unchanged since 2007, when the new Tax Law was established. Additionally, the trend in profit tax is steady, displaying no variations that correspond to the economic cycle. As such, while Mozambique does possess elevated tax rates; due to widespread tax incentives, the effective corporate income tax rate is half of the nominal rate (Swistak, et al., 2017). Furthermore, other tax rates, such as the value-added tax and personal income tax, are not considerably high compared to the benchmark group countries (Figure 151).

Figure 151: Tax rates, Mozambique and peers



Notes: *The highest Corporate Income Tax for telecommunications sector. Source: PWC (2023).

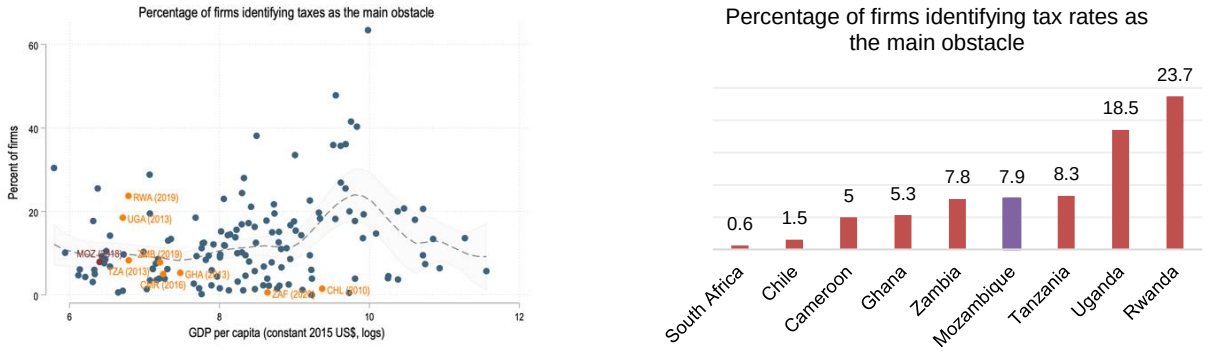
Figure 152: Profit tax (% of commercial profits), Mozambique and peers



Notes: *Profit tax is the amount of taxes on profits paid by the business. Source: WDI (2021).

As such, the percentage of firms that claim high taxes and tax administration as their main obstacle is notably low and has been improving over time. In 2018, only 7.9% of firms reported high taxes as their primary obstacle (Figure 153), ranking it sixth among the main limitations to developing their businesses. Furthermore, less than 1% of firms identified tax administration as their primary obstacle (Figure 154). It is worth noting that these percentages remain relatively low for the country's income level. Furthermore, this perception has improved among firms over the last decade. Between 2007 and 2018, the time taken to prepare and pay taxes showed a decline from 230 hours in 2007 to 200 hours in 2018. Accordingly, the perception of tax administration as the main obstacle for firms changed from 1.4% of firms to 0.7% in 2018.[106] Importantly, during meetings with the Co-Growth Lab, private companies did not identify the tax system as a hindrance in developing their businesses. These positive trends confirm that the tax regulation and system do not seem to be a binding constraint for investment.

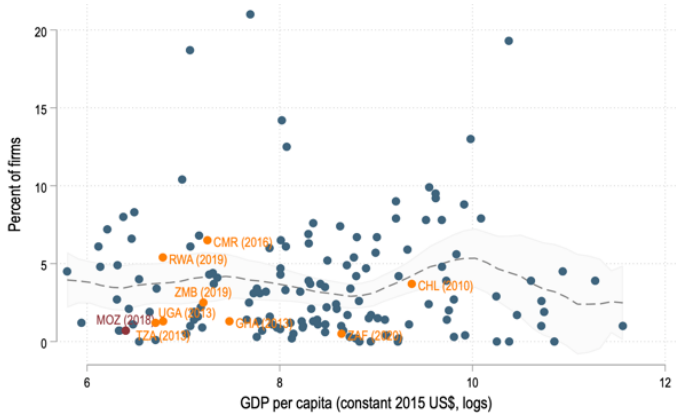
Figure 153: Percentage of firms identifying tax rates as the main obstacle



Source: WBES (2018)

[106] In fact, the Mozambican Tax Authority introduced online platforms for tax filing and payments in the aftermath of COVID-19. One platform handles the submission of income returns while a different platform is dedicated to filing monthly VAT returns. Taxpayers registered on these platforms can generate reference numbers and thus facilitate their tax payments through commercial banks. This advancement not only addressed COVID-19 transmission risks but also sought to diminish administrative expenses and payment fraud, all while bolstering revenue accounting (PWC, 2023).

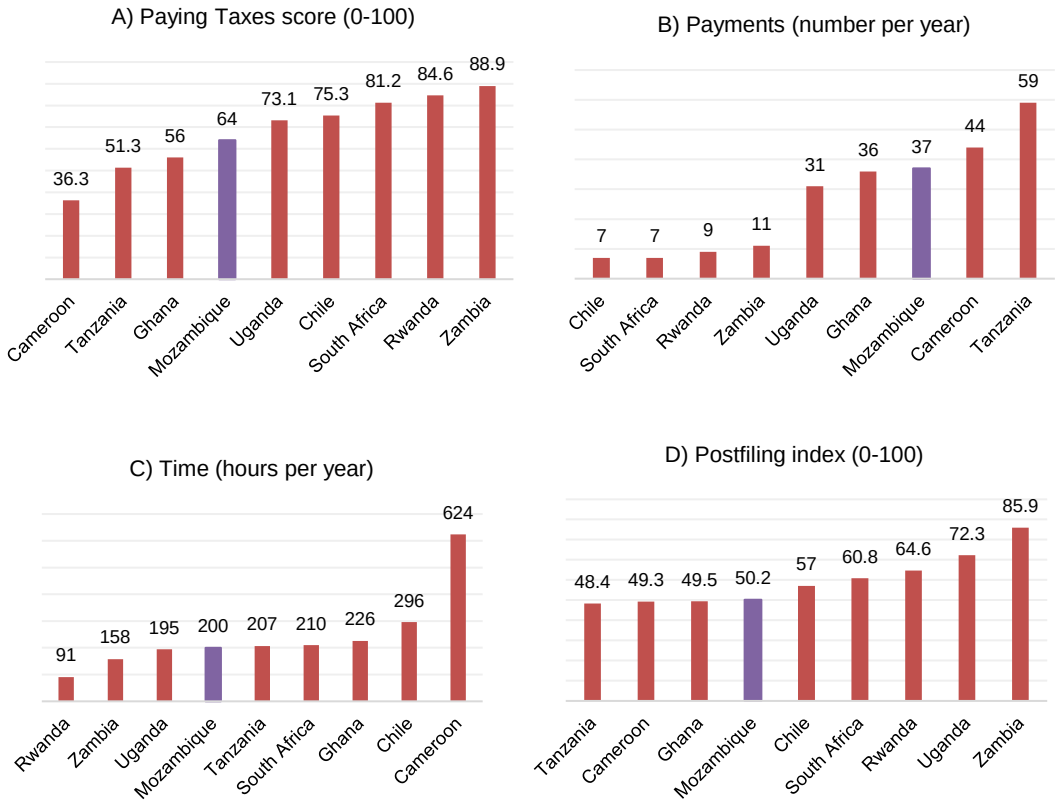
Figure 154: Percentage of firms identifying tax rates as the main obstacle



Source: WBES (2018)

Moreover, Mozambique's overall performance in the tax payment subindex of the Doing Business (2020) is generally average, without standing out as a country with poor performance. While it may be slightly below average in some aspects, such as the number of annual payments required and the time taken to pay taxes, in other areas, it exhibits better performance compared to its peers (Figure 155).

Figure 155: Tax payment system indicators



Source: Doing Business Indicators (2020).

Mozambique's tax rates and the tax system do not appear to impose a binding constraint on its economic growth. While Mozambique's tax rates and taxes as a percentage of profits might appear high compared to other countries, a more thorough analysis of the effective tax rate—considering incentives and exemptions—reveals a substantial reduction to half of the nominal rate. In fact, incentives are widespread and benefit sectors beyond the extractives such as industry. This is perceived by the firms and thus the tax rates and the tax system are not reported to be obstacles for their operations, a situation that has improved over time. This evidence was reinforced by the qualitative data gathered from meetings with the private sector and the Co-Growth Lab, suggesting that this issue is not hindering growth and diversification in Mozambique.

3.3.2.2.3. Trade policy

Mozambique's trade policy and gradual trade liberalization have facilitated the country's development and economic progress, especially supporting the growth of the extractive sector. Therefore, other factors beyond trade policy could be hindering economic growth. During the 1990s and 2000s, Mozambique implemented trade strategies that gradually opened up trade and encouraged the development of extractive sectors with the help of foreign financing, such as FDI and imports supplies. As a result, Mozambique has one of the highest levels of trade openness among its peers, acknowledges to policies that simplified tariff structures and incentivized foreign investment, as well as trade agreements and memberships like SADC that promote regional and international integration and reduce trade restrictions. Furthermore, Mozambique effective tariffs have declined over time, and the trade restrictiveness indicator is low. As a result, the proportion of formal firms indicating that trade regulation is the main obstacle is low and aligned with peers.

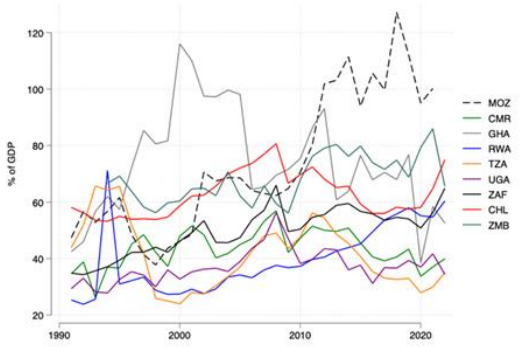
On balance, the data does not suggest that trade regulation is particularly binding to growth in Mozambique, but there are some concerns related non-tariff barriers that appear as an obstacle to firms. These barriers are mainly related to bureaucratic processes, which is complemented by the evidence found in red tape.

Mozambique has displayed the highest trade openness among its peers and for its income level, sustained principally by exports during 2000s, and by imported goods since the 2010s from the extractive sector. Since the early 2000s, economic changes have led to the gradual reintegration of the nation's economy into both regional and global markets. This has had a direct influence on the country's trade framework, allowing trade to assume a significant role in promoting economic growth (MIC, 2016). In fact, in the last two decades imports and exports have increased substantially in Mozambique, reaching levels above 100% of its GDP, and outperforming all the peer group countries (Figure 156, panel A). When compared to all the countries in the world, Mozambique also stands out as having a higher level of trade openness than other countries with similar income (Figure 156, panel B). In terms of its composition, the trade dynamic can be divided into two waves, the first one since the 2000s, sustained by exports, and a second from the 2010s, with a relative stagnation of exports and an increase of imports (Figure 156, panel C). The export phase was driven by commodities such as metals (aluminum) and minerals (coal and natural gas), which were accompanied by trade reforms (WTO, 2017) and supported by the commodity super-cycle. However, since the 2010s, the discovery of natural gas in Cabo Delgado has boosted large-scale mega projects, increasing the imports, especially in

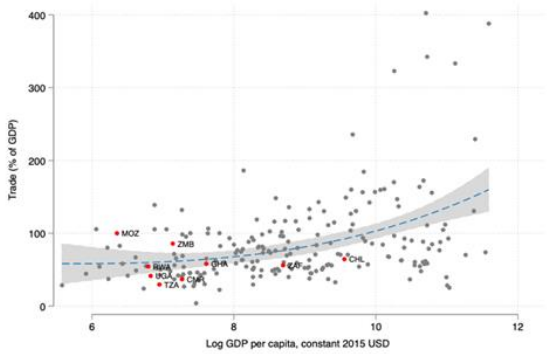
intermediated supplies[107], which are highly capital intensive, reaching nearly 60% of total imports (WTO, 2017).

Figure 156

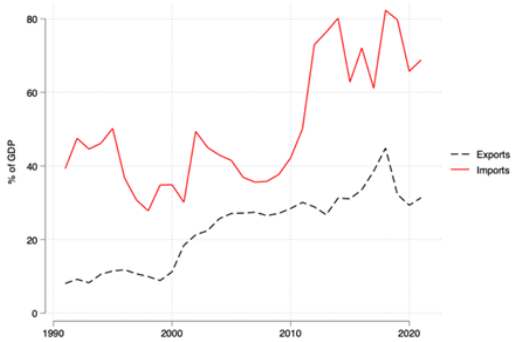
A. Trade openness (% GDP)



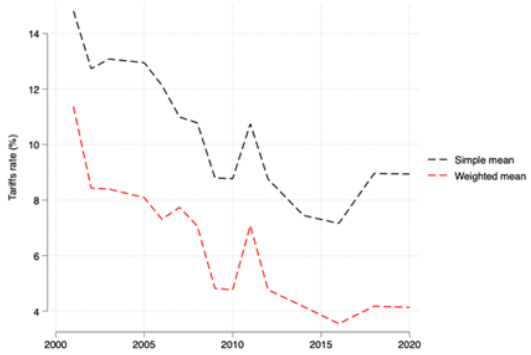
B. Trade openness and income level, 2021



C. Exports and imports: Mozambique (% of GDP)



D. Average tariff rate (all products, %)



Source: WDI

Trade liberalization and economic reforms have been promoted in Mozambique since the late 80s, and have gradually accelerated in the 1990s and 2000s. This resulted in reduced trade barriers and increased extractive sector's trade importance. During the late 1980s, Mozambique initiated economic reforms to liberalize its economy; however, the pace was slow. After the Civil War in mid 1990s, the country accelerated its efforts to reform and trade, particularly in pursuit of macroeconomic stabilization (WTO, 2001). During this period, the government fostered the business environment, incentivizing domestic and foreign investors through trade regime liberalization with the technical assistance of international organizations, especially regarding tariffs, reforms to attract foreign investment [108]the establishment of special economic

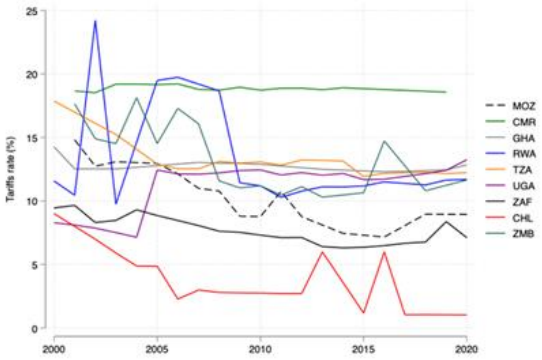
[107] Due to the long-life cycle of LNG projects, natural gas exports still are not a primary contributor to trade in Mozambique, reaching 5% of the total exports for 2021. However, the first stage of the mega-projects is highly capital intensive, requiring the supply via imports, reflecting import growth during the 2010s.

[108] Guarantees and incentives for investment are set out in the 1993 Investment Code, its 2009 implementing regulations, and the 2009/20 Code of Fiscal Benefits. All these incentives allow investment with 100% of ownership in the country, return profits, as well as multiple fiscal benefits in terms of corporate and income, and VAT tax exemptions, accelerated depreciation, and investment tax credits.

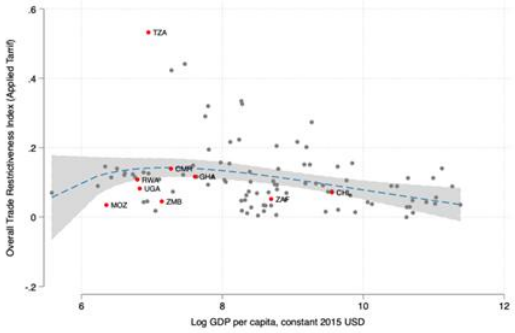
zones[109] . As for tariffs, since 2000 there has been a downward trend in the average trade tariff (Figure 157, panel A), which correlates with the evidence of trade openness in the same period (Figure 156). This is reflected in the simplification in the tariffs' structure, elimination of import quotas, full elimination of export restrictions (WTO, 2001), and change in tariffs ranging from 0 to 30% in the 2000s from 0 to 20% in 2016, primarily related to supply imports and food items tariff reduction[110] . In this context, Mozambique presents the lowest tariffs in the peer group, only above Chile, and South Africa (Figure 157, panel A). All these trade policy and liberalization developments resulted in Mozambique's overall trade restrictiveness index, which is the lowest among its peers and in terms of its income level (Figure 157, panel B).

Figure 157

A. Average tariff rate, all products (2020): peers



B. Trade restrictiveness index and income level (2021)



Source: WDI.

Improvements in trade liberalization were accompanied by trade agreements and memberships. However, non-tariff barriers are considered a burden for trade partners, especially in custom clearance times and bureaucratic cost. Mozambique has been a member of the WTO since 1995, being one of the organization's founding members, grating Most-favored nation (MFN) tariffs[111] to all its trading partners and eligible for unilateral preferences. In 2016, the country ratified the Trade Facilitation Agreement with trade agreements consistent with the objective of trade liberalization. In this context, Mozambique forms part of the South African Development Community (SADC) has bilateral agreements with Malawi and Zimbabwe, and forms part of the Economic Partnership Agreement (EPA-SADC) with the EU, which allows to facilitate investment and trade[112] , implying several benefits in terms of work with the EU, and total trade

[109] The Industrial Free Trade Zone (IFZ) and Special Economic Zone (SEZ) regimes were established in 1993 and 2007, respectively. The requirements specify that 75% - 85% of the annual production must be exported and introduced in specific geographical areas (physically closed). Firms in these regimes can use fiscal benefits such as exemption from corporate income tax for the first three fiscal years, with reductions every year until the 15th fiscal year, and exemption of import taxes, including VAT on supplies.

[110] Despite this reduction, the agriculture sector remains the most protected sector in Mozambique (WTO, 2017), with an average tariff of 12.4% (8.94% total average) and several items with a maximum rate of 20%.

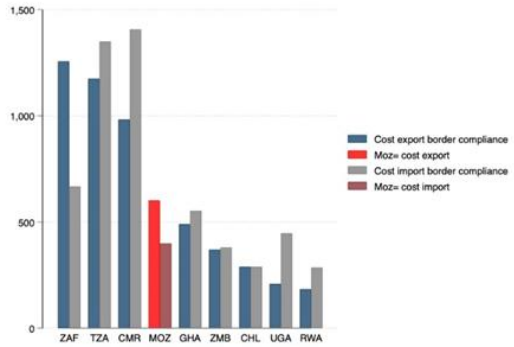
[111] Most-favored nation (MFN) tariffs are tariff rates a country applies to imports from all trading partners members of the World Trade Organization (WTO), unless the country has a preferential trade agreement.

[112] The SADC-EPA is a trade agreement that prioritizes development and provides asymmetric access to the members of the SADC-EPA group (Botswana, Lesotho, Mozambique, Namibia, South Africa, and Eswatini). The agreement offers improved trading terms, particularly in agriculture and fisheries. Additionally, the EU will gain significant new market

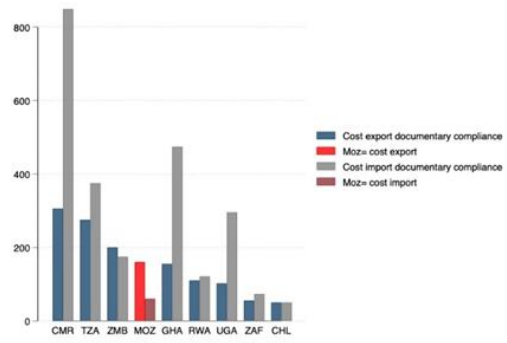
area with almost 100% of zero duties in imported good among SADC members. Additionally, the country agreed on a unilateral initiative with the US and other countries in the African Growth and Opportunity Act (AGOA), and bilateral investment agreements since 1990[113] . These trends ratified the effort of Mozambique in its trade policy, which explicitly states the objective to promote its products in global markets, including Europe, America, and Asia, while also considering regional trade (WTO, 2017). However, some trade partners, such as the US, raise concerns about non-tariff barriers, stating that exporting companies often face time-consuming and bureaucratic customs clearance procedures.[114] The non-tariff barriers that increase costs for firms includes scanning fees, import and export licenses, excessive documentary requirements, cumbersome procedures, inefficient customs checks along major corridors (World Bank, 2016b). This is in line with the fact that non-tariff barriers to trade are more limited in Mozambique compared to the peer group (Figure 158, panel B)[115] . Still, the cost and time to ship and import align with or below its peers regarding border and documentary compliance (Figure 158, panel B). Similarly, this is observed in the trading across borders score in the Doing Business indicators from the World Bank for 2016-17, where Mozambique presents a high score compared to its peers (Figure 159).

Figure 158

A. Cost of exports and imports, border compliance (2021) USD



B. Cost of exports and imports, documentary compliance (2021) USD



Source: WDI

access to the Southern African Customs Union, allowing trade in products such as wheat, barley, cheese, meat, and butter.

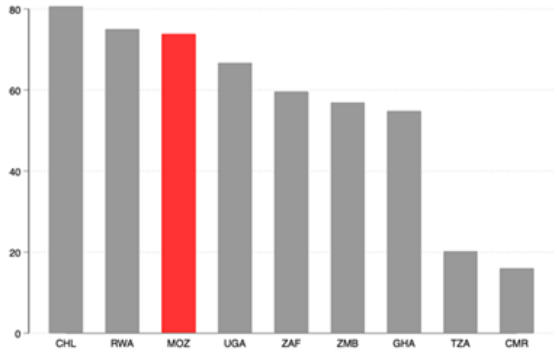
[113] Bilateral investment agreements correspond to Zimbabwe (1990), Portugal (1996), Mauritius (1997), South Africa (1997), Algeria (1998), Egypt (1998), Italy (1998), US (1998), Indonesia (1999), China (2001), Cuba (2001), Netherlands (2001), Sweden (2001), Denmark (2002), France (2002), Germany (2002), Switzerland (2002), UAE (2003), Finland (2004), UK (2004) Vietnam (20078), India (2009), Spain (2010), Japan (2013), Brazil (2015), and Singapore (2016).

[114] https://www.trade.gov/country-commercial-guides/mozambique-trade-barriers

[115] The index for prevalence of non-tariff barriers (1-7) indicates the response to the question: “In your country, to what extent do non-tariff barriers (e.g. health and product standards, technical and labelling requirements, etc.) limit the ability of imported goods to compete in the domestic market?” (1 = strongly limit; 7 = do not limit at all).

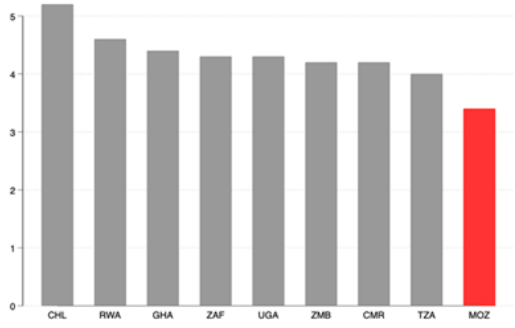
Figure 159

A. Trading across border, score (0-100) (2017)



Source: WDI, Doing Business indices

B. Prevalence of Non-Tariff Barriers (1-7, best)



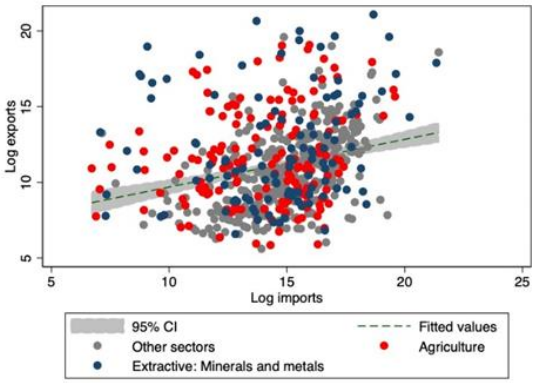
Source: Global Competitiveness Index 2019

Despite the trade liberalization, a weak relationship exists between imports and exports. To enter to the global supply chains, exporting firms must import materials that usually comes from the same product code as what they export[116] . In the case of Mozambique, the correlation between imports and exports (at the same product level) is weak (correlation coefficient of 0.35), despite the country's openness to trade. Further, it is one of the lowest among its peers, over Tanzania, Cameroon, and Rwanda (Figure 160). In the case of Mozambique, the reliance on the extractive sector explain this low correlation. For this sector (minerals, and metals), the correlation between imported and exported goods is very low (correlation coefficient of 0.18). This is aligned with other African countries, where a combination of minimal incorporation of imported goods in their exporter goods, and the minimal local value addition, leads to those countries to be active at the lower levels of value chains (supply mainly unprocessed primary materials with modest benefits) (UNCTAD, 2022). This, however, is not related to trade barriers but to other constraints identified in this study.

[116] Global Value Chains (GVCs) embody a system where finished products are no longer exclusively manufactured in a single country or location. Instead, the different components of a product are both produced and assembled in various locations worldwide. Consequently, a nation's production capacity and economic prosperity are influenced by its capability to integrate into and sustain involvement in one or more global value chains.

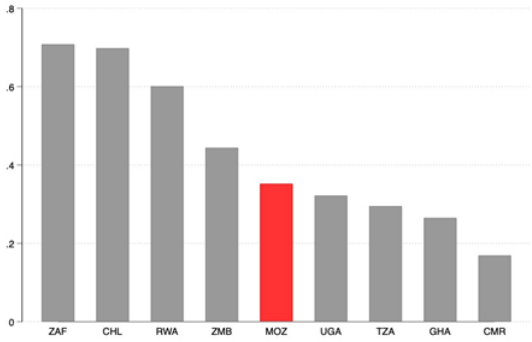
Figure 160

A. Imports and exports: Mozambique (2021)



Notes: Each marker represents export/import of a product at the HS4 level. R2=0.056 Source: UN COMTRADE, via CID.

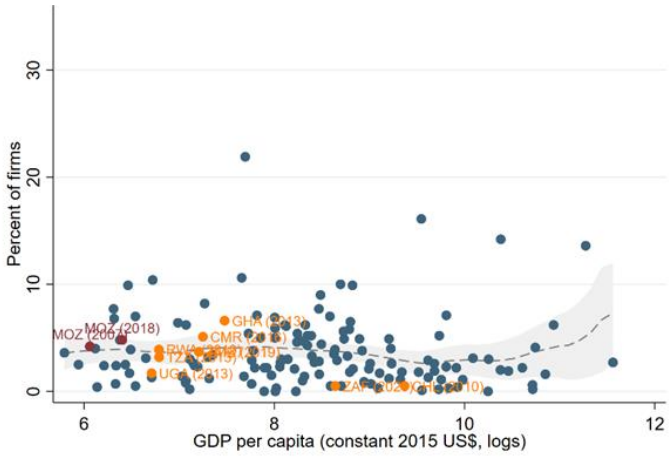
B. Imports and exports correlation: peers (2021)



Notes: Correlations correspond to an OLS estimation of log(exports) and log(imports) for 2020 data. All coefficients are significant at 1%, except for Rwanda. Source: UN COMTRADE, via CID.

Moreover, the proportion of firms choosing customs and trade regulations as the main obstacle is comparable to peers. Less than 5% of the formal firms indicated that trade is the main obstacle to grow. This proportion is in line with most of the peers (Ghana, Cameroon, Tanzania, Rwanda, Uganda), but over the aspirational countries in the group, South Africa and Chile (Figure 161).

Figure 161: Percent of firms indicating trade regulations as the main obstacle



Source: World Bank Enterprise Survey.

In summary, the data and evidence indicated that trade policy is not particularly binding to growth in Mozambique. Since the late 1990s, Mozambique's economy has been characterized by trade liberalization and openness. The country has implemented gradual and consistent reforms, initiatives, and trade agreements over the years, leading to a stronger trade position. Compared to its peers, Mozambique has relatively low and decreasing tariffs, a higher level of

trade openness compared to peers and other countries with similar income level, the lowest trade restrictiveness indicator, and a low proportion of firms indicating trade policy as the main obstacle. Nevertheless, the non-trade tariffs appear to be more limited in Mozambique compared to benchmark countries. Resulting in an increase of costs for firms in the form of bureaucratic processes.

3.4. Market failures

Following Hausmann and Klinger (2008), economic activities require many inputs of one sort or another, being these tradable, such as raw materials or equipment, and non-tradable such as labor, infrastructure, and other services. While the former could be easier to access, this is not the case for the latter. This limits the development of new industries that require these inputs to produce or makes production less efficient. Hausmann and Rodrik (2002) identify two market failures, namely coordination failures and self-discovery, as two distortions that can prevent new industries and products from emerging and therefore constrain economic growth.

Coordination failures are situations where simultaneous public and private investments that are needed to make a new industry feasible cannot happen because the market does not naturally provide the necessary information and coordination. The existence of this market failure prevents diversification because each firm can't invest without the other firms also investing at the same time, and the state doesn't have the appropriate knowledge of the set of public goods needed nor the ability to effectively deliver them across different levels of public institutions.

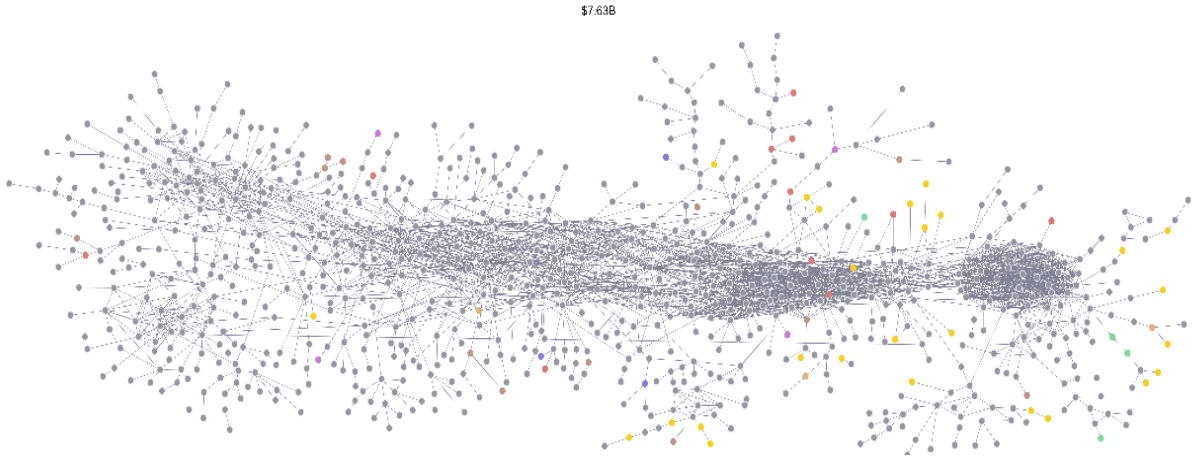
Meanwhile, self-discovery failures are situations where innovators who invest to discover new products can only capture a fraction of the social value of the knowledge generated because subsequent entrants can free-ride on that investment in discovery. Innovators, or pioneers, undertake these investments to figure out how to adapt the production of a certain product given the set of existing country capabilities, namely those non-tradable inputs mentioned before such as human skills, services, public goods, among others. By not appropriating the returns of those costs, they underinvest in innovation that would be socially optimal.

Overall, market failures in Mozambique are not a binding constraint for export diversification on their own. While the country's current capabilities are poorly related and, therefore, constrain the jumpstart of new and more complex industries, firms are relatively more capable to deal with these conditions and have also managed to diversify into existing industries, when compared to country peers. This diversification has tended to happen only in new industries where Mozambique has discovered a comparative advantage, namely extractives that are exported by other poor countries. Nevertheless, firms in manufacturing are increasingly more able to innovate for accessing new markets and developing new processes, methods, and designs. However, when simultaneously impacted by infrastructure and government-related constraints as well as by poor connections to global chains and know-how, firms do see less attractive and feasible diversifying into more products and other industries. This is what happens to the most extended sector, namely, agriculture, which has seen little transformation over the last decades. Overall, despite economic structural transformation in the direction of new sectors more intensive in labor will require longer jumps, prioritizing reforms in infrastructure and government-related constraints can still offer the largest returns for diversification.

3.4.1. Coordination failures

Mozambique's exports are concentrated in a few parts of the periphery of the Product Space which means that existing industries have a narrow relatedness in terms of their capabilities. Hausmann and Klinger (2006) propose a measure of the position of a country in the "product space", which can be seen as the option value to move towards other goods, weighted by how "far they are". The structure of this product space determines the ability of the country to move into new products, and can be useful to predict the capacity of a country to upgrade its exports and grow. The structure of the product space holds significant implications for the pace of a country's structural transformation. Countries tend to diversify by moving into nearby and related products or into those that require similar knowhow. Then, a country's ability to transition to more complex products is influenced by its initial position within the product space[117]. In the case of Mozambique, the product space indicates the current productive knowledge possessed[118] by the country is composed mainly by products in the agriculture sector (yellow), stones (light brown), metals (red) and minerals (dark brown). Moreover, Mozambique's exports are concentrated in a few parts of the periphery of the Product Space which means that existing industries have a narrow relatedness in terms of their capabilities. In other words, the products that Mozambique is skilled in exporting demand only a handful of capabilities that can be applied to the exportation of other goods. This implies that the country might encounter challenges in acquiring the know how to produce and export more complex products (Sørensen et al., 2020).

Figure 162: Mozambique's Exports, 2021



Sources: Atlas of Economic Complexity

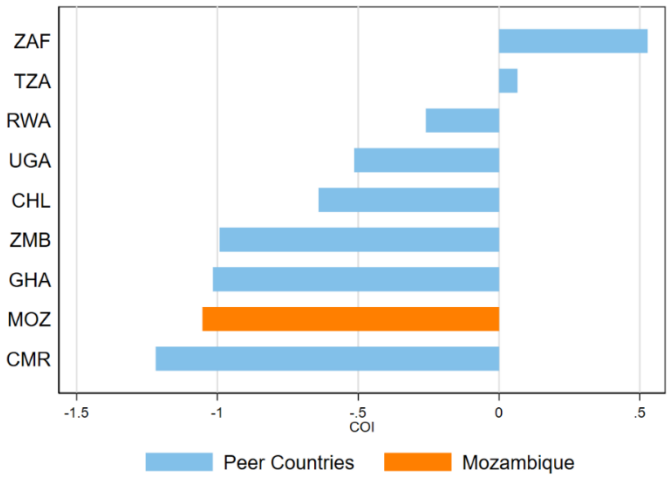
Existing capabilities restrain the jumpstart of more complex products at a rate higher than most peer countries. The Complexity Outlook Index (COI) is a measure of how many complex products are near the country´s current set of productive capabilities, and it captures how easy is for a country to diversify into more complex products. A high COI reflects an abundance of nearby complex products that rely on similar capabilities or know-how as that present in current

[117] For example, countries that produce agriculture products are highly likely to be able to produce other agriculture products, but share few links to the knowhow requires to produce machinery. For more information see Appendix 4: Economic Complexity framework.

[118] The product space indicates only products in which Mozambique has a relative comparative advantage. See Appendix 4: Economic Complexity framework for more information.

production. Figure 163 illustrates that Mozambique has a few complex products within a short distance (low COI), and the country is positioned among the worst in the peer group. This would indicate that the country needs to make greater efforts to diversify into more complex products, which would imply a greater need for coordination between actors.

Figure 163: Complexity Outlook Index, 2021



Sources: Atlas Complexity Database, 2021

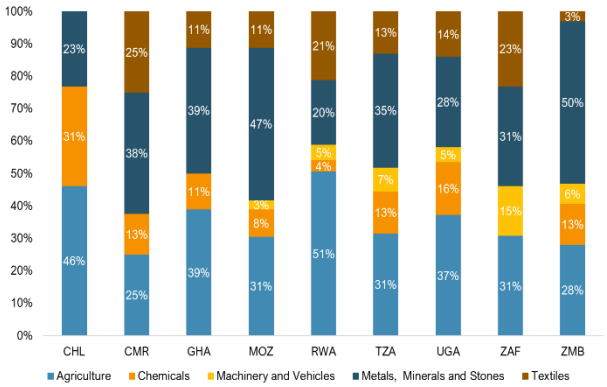
Despite this, Mozambique has proven to develop and export new products with a global comparative advantage in the past, but most of them were from primary sectors. In the last 15 years (2006 to 2021), Mozambique has managed to develop 36 new products with a comparative advantage in the global market[119]. Compared to peers, Mozambique ranks 4th highest in the group, and the new products developed accounts for 24% of the total export basket in 2021(Figure 164). However, most of these new products belong to the extractive sector, as 47% of the new products developed correspond to metals, minerals and stones (Figure 165).

[119] New product development is defined as any product with an RCA of less than 0.25 in 2006 and greater than 1 in 2021. The definition of RCA can be found in Appendix 4 of this report.

Figure 164: New products in export basket

	New products	Total value (USD million)	Per capita value (USD)	New products developed/Total exports
CMR	8	1242.4	45.7	23%
CHL	13	901.5	46.2	1%
ZAF	13	1085.2	18.3	1%
GHA	18	4162.1	126.8	28%
ZMB	32	1313.2	67.4	13%
MOZ	36	1606.8	50.1	24%
UGA	43	111.6	2.4	3%
TZA	54	442.1	7.0	6%
RWA	85	555.1	41.2	50%

Figure 165: New products in export basket, by sector



Notes: Corresponds to comparisons between the export basket composition in 2006 and 2021. Source: Atlas of Economic Complexity Database, 2023.

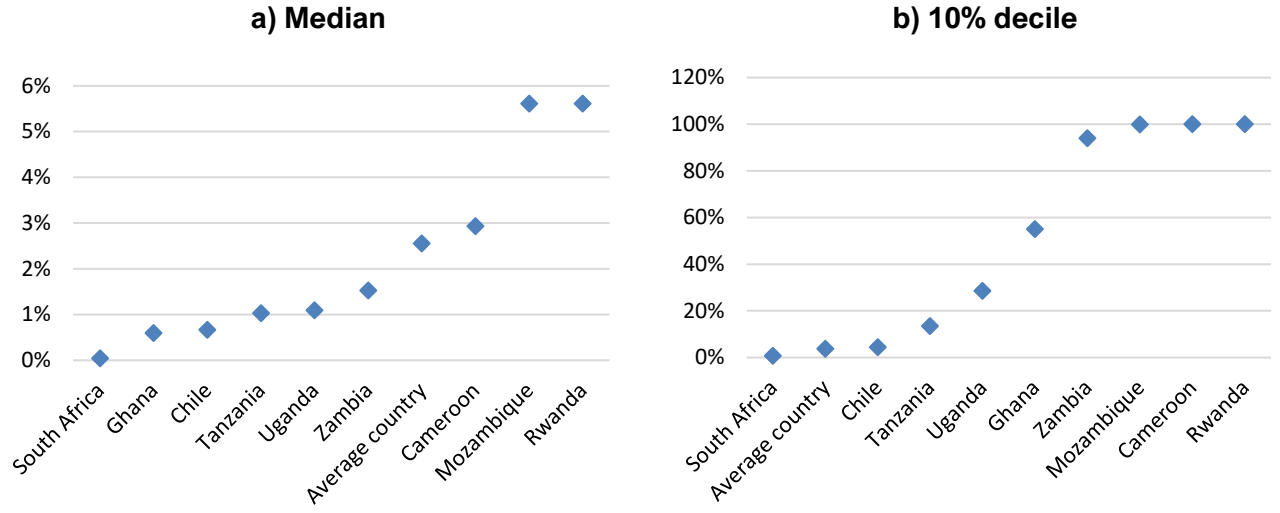
Moreover, Mozambique has demonstrated its ability to diversify into new export activities that require similar capabilities to those already in place, which suggests that existing institutions are able to coordinate export diversification to nearby areas. To evaluate whether Mozambique has been able to diversify into nearby opportunities we estimated the capacity of the proximity measure to predict appearances of products (RCA>1) over the period 2006 to 2021. We then analyzed if the country has been doing better or worse than the average country in terms of leveraging its capabilities to move into adjacent new activities. We estimate the probability of developing a product with RCA greater or equal to one (the country has a comparative advantage in the export of the product) for the period between 2006 and 2021, controlling for density. The estimation is the following:

$$jump_{ij} = \beta_1 density_{ij} + \beta_2 rca_{ij} + \beta_3 country_i + \beta_4 country_i * density_{ij} \quad (1)$$

The jump variable indicates whether a product i in country j went from an RCA lower to 0.25 to equal or greater than 1 in the period analyzed. We are interested in the difference in the probability of jumping of Tanzania – and all the peer countries - compared to an average country in the sample. To obtain this difference, we use the adjusted prediction of the model (1), which shows probability of jumping when specifying specific valued for the variables of interest. In this exercise, we use two different measures for density, considering the median value of density in the sample, and the top decile. By doing so, it allows us to compare whether Mozambique – and the peer countries – jumped more or less than the average country to products that are closer in terms of capabilities.

The results, show that Mozambique jumped more than the average country to average products (median), and to very nearby products (top 10% decile). Figure 166, panel A indicates that the predicted value of jumping is higher in Mozambique (6%) compared to the average country (3%) when considering the value of density at median. In other words, the chance of any new product at average distance being successfully produced (from RCA below 0.25 to RCA over 1) by Mozambique is 6%, while an average country in the sample has a 3% chance. When considering only nearby products (density at top decile) Mozambique also jumped more than the average country (Figure 166, panel B). Compared to peers, Mozambique is the second country with higher proven ability of jumping to nearby products, behind Rwanda.

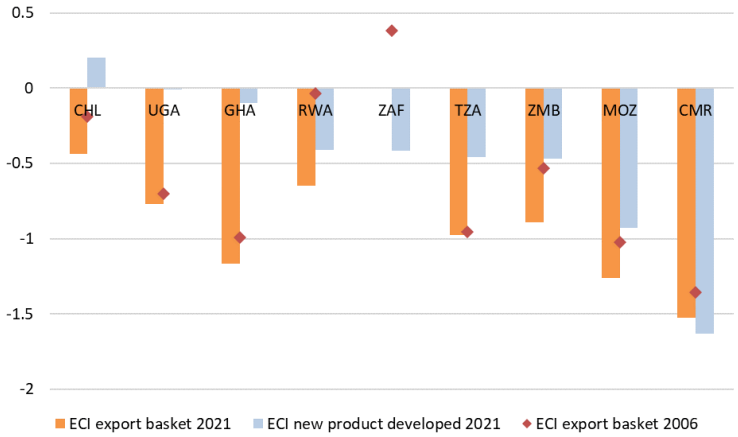
Figure 166: Probability of jumping to new industries, controlling for the relatedness of current capabilities



Source: Own estimations with Atlas of Economic Complexity Database, 2021.

Mozambique has successfully made leaps towards adjacent products, and these products have contributed to enhancing its economic complexity. However, the overall impact has been somewhat limited in terms of boosting overall complexity. Despite the ability of the country to produce nearby products of higher sophistication, Mozambique has worsened in terms of complexity. This is seen in Figure 166, while the newly developed products are more complex (ECI -0.93), the ECI in 2021 (-1.26) is lower than in 2006 (-1.02). This would indicate that Mozambique's export basket is less complex than 15 years ago. In addition, Mozambique has the second lowest ECI for new products in the peer group (Figure 167). This means that the new products developed have a lower complexity compared to those created by the peers. Mozambique has successfully made leaps towards adjacent products, and these products have contributed to enhancing its economic complexity. However, the overall impact has been somewhat limited in terms of boosting overall complexity. Meanwhile, the influx of less sophisticated exports in Mozambique outweighs the introduction of new products, thereby diminishing the overall growth prospects for the country's exports.

Figure 167: Economic complexity of new products

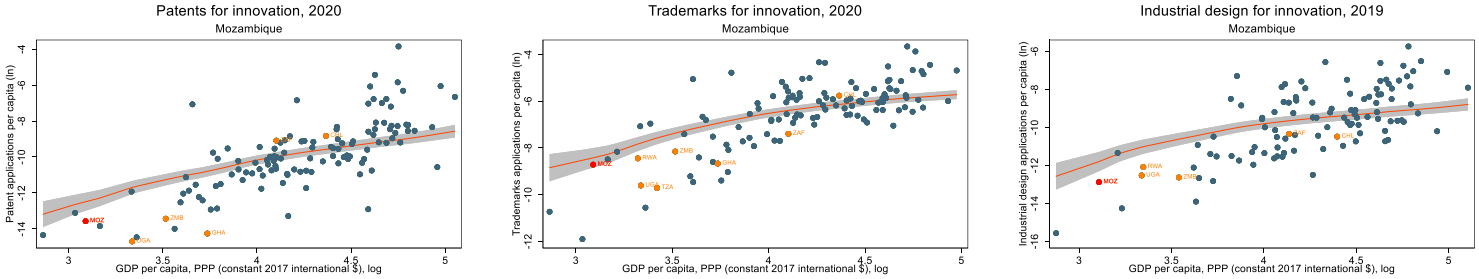


Source: Atlas of Economic Complexity Database, 2023.

3.4.2. Self-discovery

On a broader scale, Mozambique performs relatively well in its capacity to deal with self-discovery challenges and innovate. The Global Innovation Index (GII) is a widely recognized annual ranking of countries' innovation capabilities and performances. It assesses the broader business environment and regulatory framework for innovation, the education system, research, and workforce quality, the physical and technological infrastructure supporting innovation, the business and market conditions that enable innovation as well as the business sector's innovation effort, and tangible outputs. Mozambique ranks 123rd among 132 economies, with the lowest score in the institution's pillar (Dutta et al, 2022). However, when comparing cross-country scores and income levels, Mozambique performs as expected given its relatively lower development level. In fact, Mozambique was one of the 26 outperformers in innovation worldwide, together with other seven SSA countries like Kenya and Rwanda. The conclusion is similar when comparing patents, trademarks, and industrial designs, which are diverse forms of intellectual property protection that grant exclusive rights to their owners over specific types of creations or inventions. Applications to protect inventions and brands, names, and logos are higher than some country peers with higher income levels, while the protection of the visual appearance of products is indeed lower although not substantially than peers (Figure 168).

Figure 168: Intellectual protection and income levels

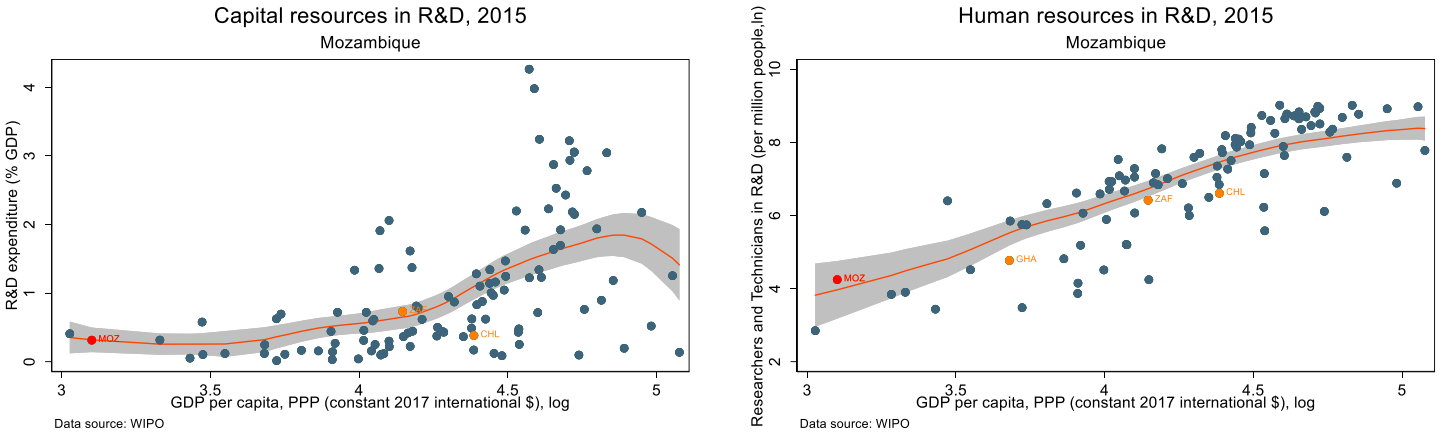


Source: WIPO

Moreover, the economy seems to count on available financial and human capital resources to conduct and fund innovation. Despite the size of Research and Innovation (R&D) expenditure reaches just 0.3% of GDP, it is as expected given the country's income level (Figure 169). Importantly, 78% of the R&D expenditure was funded from abroad, including multinational enterprises and institutions, substantially above other countries with available information such as Uganda (57%), Tanzania (42%), Ghana (31%), Chile (14%), and South Africa (13%)[120]. The case is similar when assessing the number of professionals and technicians engaged in the conception or creation of new knowledge, products, processes, methods, or systems and in their management.

[120] Chile and South Africa's information corresponded to 2014 and 2012. The SSA countries listed corresponded to 2010.

Figure 169: Resources for innovation



Source: WIPO.

Another way to test whether self-discovery failure is a potential constraint is by analyzing the extent to which firms acquire new know-how within their own cluster to find higher-quality varieties of existing products that build on existing comparative advantages. New know-how can include reaching new markets and developing new processes, methods, and designs. This assessment permits controlling for the country's inter-industry coordination, presented in the previous section by focusing on existing industries. To this end, we assess cross-country data of export quality over time and at an aggregate and sectoral level. Henn et al (2013) highlight that traditional measures of quality rely on unit values, which result from dividing export value over quantity for each given product category. This suffers from shortcomings when comparing export quality across countries such as differences in the products' composition, production costs, and pricing strategies, as well as price shocks that altogether determine export values without capturing quality. Following Hallak (2006), Henn et al (2013) address most of these concerns and provide a more refined measure of export quality. The quality of product exports harmonizes COMTRADE bilateral flows data at the 4-digit SITC (Rev. 1) level.[121] This dataset contains indicators of export quality for over 800 exported products in 166 countries, from 1963 to 2014. The index is normalized and takes the value of 1 when the quality level reaches the world frontier, namely the quality score at the 90th percentile observed among all exporters.

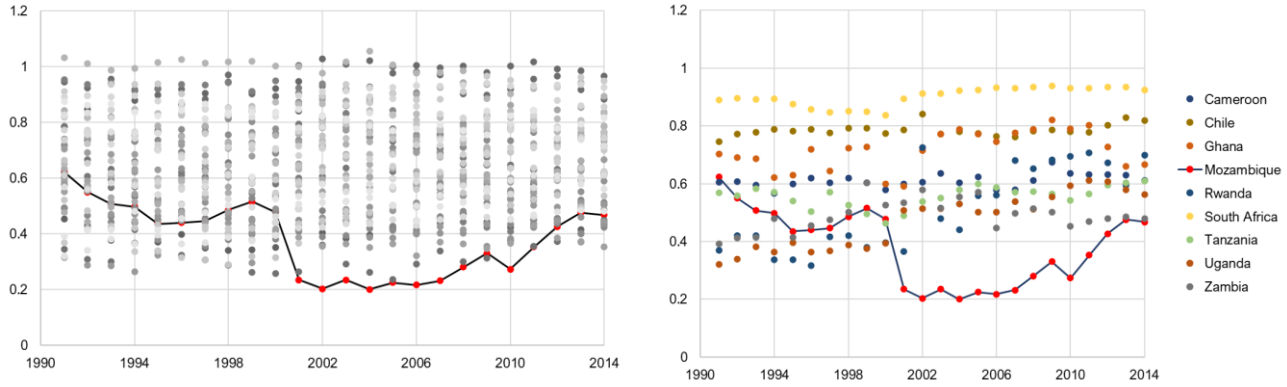
This dataset reveals that, while aggregate export quality in Mozambique is worse than in most other countries, it has improved dramatically in recent decades. Figure 170 panel A depicts the evolution of the export quality index for all SSA countries, while Figure 170 panel B depicts the evolution for a smaller subsample of comparable peers. Both groups can assist in comparing Mozambique's performance because quality upgrading is substantially connected with income per capita (Henn et al, 2013). This implies that countries are expected to increase their export quality rapidly in the early phases of growth to then converge to the frontier gradually. Despite this empirical pattern, Mozambique's export quality declined significantly from 1990 to 2002, followed by stagnation until 2006, causing the country to lag behind the majority of the SSA countries and turn away from comparable peers. Since then, however, Mozambique gradually began to restore the lost export quality and to maximize its quality-upgrading potential. Overall,

[121] Data downloaded from IMF website.

by 2014, Mozambique was performing similarly to Zambia but considerably behind Uganda and Tanzania, two SSA countries with the largest improvements in the region.

Figure 170: Export quality over time

a) Mozambique versus SSA countries **b) Mozambique versus peer countries**

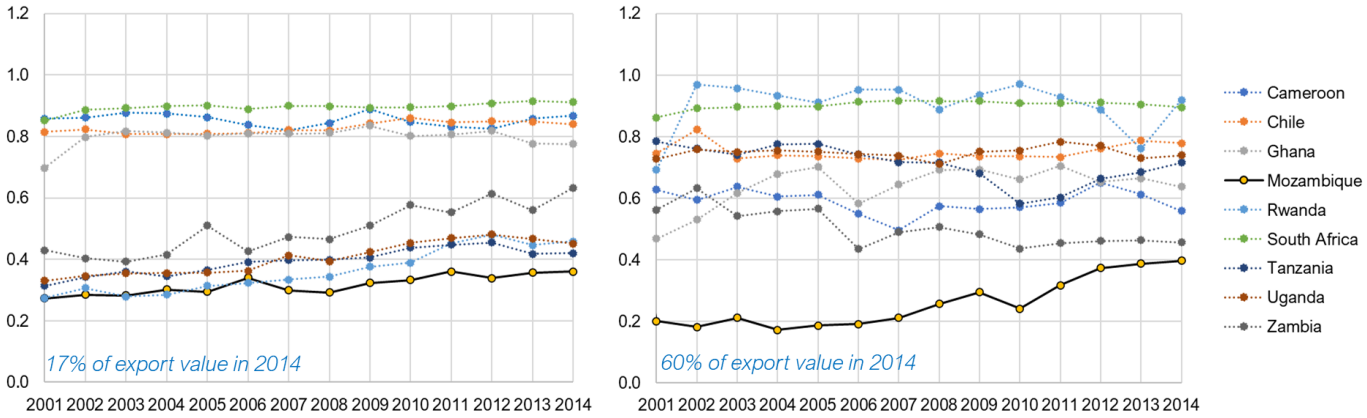


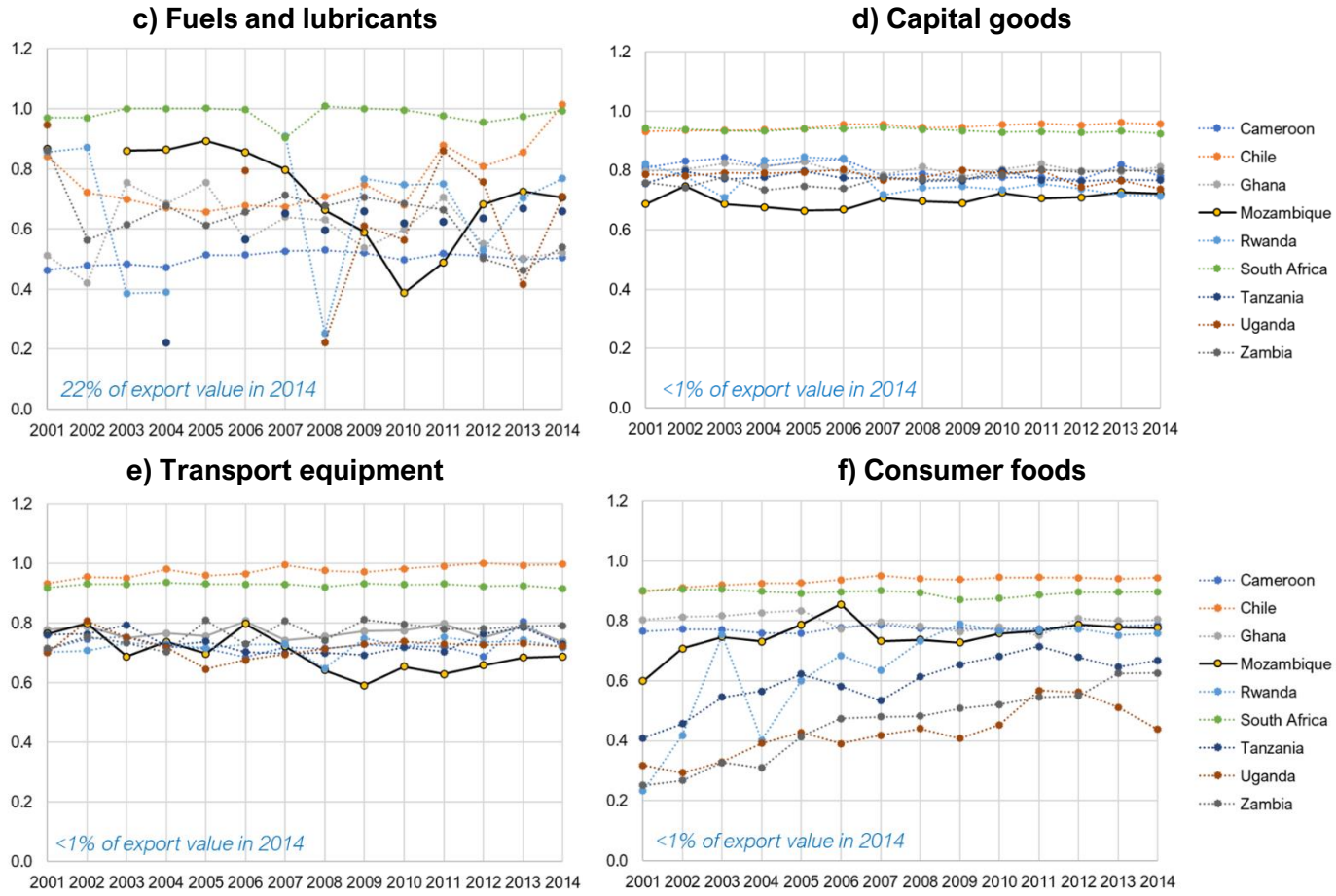
Notes: Aggregate quality weights each product category by their participation in the export basket value. Source: Own elaboration based on Henn et al (2013).

Moreover, quality improvements were driven by industries with the lowest initial levels of quality. The largest quality gains came from exports of industrial supplies related to paper, paperboard, metals, and non-metallic mineral manufactures, which altogether represented 60% of the export values in 2014. This continuous uptrend in the sector was only recorded in Mozambique when compared to peer countries (Figure 171, panel B). With lower, but still sustained progress and representing the third largest share of the export values, exports of food products from meat, fish, fruits and vegetables, and sugar, also saw their quality improved. This, in contrast, to the industrial supplies was a pattern similar to other countries far from the quality frontier such as Uganda, Tanzania, and Rwanda. These sustained improvements were not recorded in the export of higher initial quality levels, namely those from fuels and lubricants. Since 2002, the quality of these exports declined to partially reverse the drop since 2010.

Figure 171: Export quality in Mozambique, by industry

a) Food and beverages **b) Industrial supplies**





Notes: Aggregate sectorial quality weights each product category by their participation in the export basket value. Sectorial classification under Broad Economic Categories (BEC) Rev.4. Source: Own elaboration based on Henn et al (2013).

The Mozambican Manufacturing Enterprise Survey (IIM) can also help understand if self-discovery failure is a potential constraint by analyzing patterns of production of domestic firms regardless of whether it is domestic or foreign-market oriented. The 2022 survey tracked a balanced sample of firms in urban areas of seven major provinces that were interviewed in 2012 and 2017, which allows for a time-series analysis of the performance of incumbent firms over the last decade.[122] Given the lack of statistical differences between surveyed firms and those out of the panel dataset, whether dying or new firms, it is possible to make sectorial inferences of the results given the quasi-representativeness of this panel dataset.[123] Although the results are only characteristic of the manufacturing sector, which represents a small proportion of GDP and employment, they can complement the evidence on export quality presented before. In contrast

[122] The 2022 Survey was implemented within the Inclusive growth in Mozambique (IGM) programme, by the National Directorate of Economic and Development Policies (DNPED-MEF), the Centre for Economic and Management Studies (CEEG - Eduardo Mondlane University), supported by the University of Copenhagen Development Economics Research Group (UCPH-DERG), the United Nations University World Institute for Development Economics Research (UNU-WIDER), and the Governments of Finland and Norway.

[123] Firms in the sector tend to be concentrated in wood and furniture which usually include small-scale carpenters, followed by food-processing firms which usually include mills and bakeries, and metal firms which usually include blacksmiths.

to that dataset, this survey can showcase innovation patterns in production that is oriented for both foreign and export markets.

The IIM signals that firms are indeed diversifying within their clusters by accessing bigger and further markets that may demand new processes, methods, and designs. Over time, firms of all sizes have diversified their customer groups beyond individual clients and increasingly reach domestic-oriented SOEs and FDI firms (Figure 172). Similarly, firms of all sizes have diversified the locations where they sell their produce, gradually reaching other districts in their provinces and in neighboring provinces (Figure 173). Especially larger firms are able to reach further locations in non-neighboring provinces and other countries. Finally, firms of all sizes are increasingly selling more intermediate products to firms in other sectors, especially within manufacturing (Figure 174). This is a signal that, although very slowly, firms are adapting and upgrading their technology, processes, and managerial capabilities to meet new consumer preferences. Overall, this innovation contributes to tapping into global chain connections, foreign knowledge-sharing, and growth opportunities beyond the domestic market.

Figure 172: Customer groups by size and year, manufacture firms

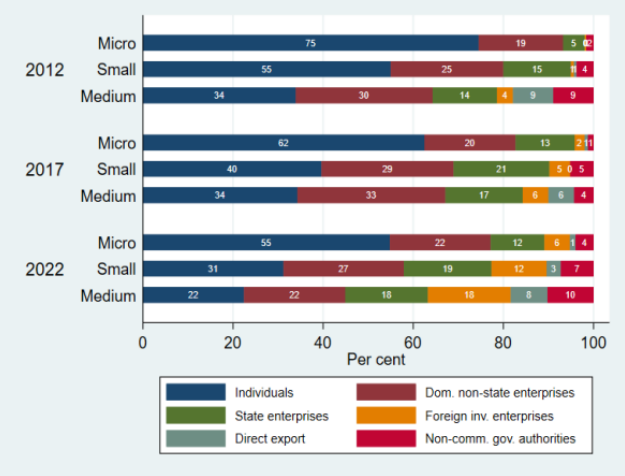


Figure 173: Location of clients by size and year, manufacture firms

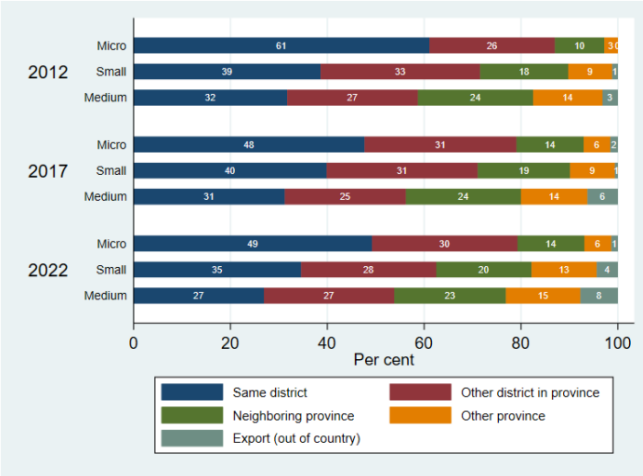
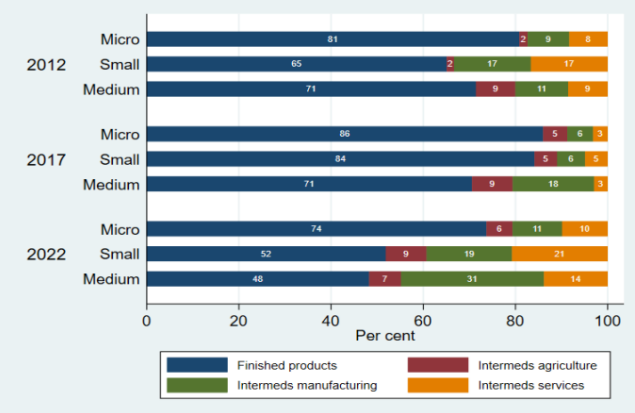


Figure 174: Product type by size and year, manufacture firms



Notes: Micro firms (less than 10 employees) represented 75% of the overall representative sample in 2022, small firms (10-49) represented 20%, and medium firms (50-300 employees) represented 5%. Source and elaboration: Survey of Mozambican Manufacturing Firms 2022, Inclusive growth project.

IIM also reveals that firms have not seen a deterioration in the availability of inputs which would otherwise restrict their innovation. Between 2012 and 2022, more than 80 percent indicated that raw materials are generally available in the desired quantity and quality, without significant changes over the study period. The IIM also asked firms about their levels and ease of communication with main suppliers regarding production changes that may affect the latter as well as the relevance and expectations of long-term partnerships. Firms had to rank from 1 (=strongly disagree) to 7 (=strongly agree). Overall, the firms' perception index of high-quality and regular communication with the main supplier significantly improved between 2017 and 2022 for all firm sizes. Cooperation for a long-term business relationship also improved with statistical significance. This evidence reinforces the firms' capacity to adapt and upgrade by having input suppliers that meet production and relationship standards.

The manufacturing sector's capacity to sort out self-discovery challenges seems to be absent in the broadest sector, namely agriculture. Despite the absence of a firm-level survey similar to IIM for the agriculture sector that could help assess innovation patterns better, it is possible to assess resources available for innovation and compare them with neighbor and peer countries. To this end, this study employs the Agricultural Science and Technology Indicators (ASTI), which provides open-source data on agricultural research systems in the SSA regions, where many countries are still largely agrarian. Mozambique's R&D spending averaged 0.4% of the Agriculture GDP between 2004 and 2016, largely funded by donor contributions and without much variation over time. By 2014, the country underperformed most country peers, including South Africa (2.8%), Ghana and Uganda (0.9%), Rwanda (0.8%), and Zambia (0.5%) (Figure 175).[124] R&D in agriculture not only is underinvested in Mozambique but also the availability of human capital resources for innovation. It averaged 3 full-time equivalent (FTE) researchers per 100 thousand farmers between 2004 and 2016, underperforming almost all peers except for Rwanda (Figure 176). Besides the low number of researchers, its composition in terms of degree shows that Mozambique's skills for research in agriculture are more limited than in most SSA countries. Most of the researchers are mostly young, trained mostly to the bachelor level, without much experience (Figure 177).

Figure 175: R&D spending (as a share of agriculture GDP, %)

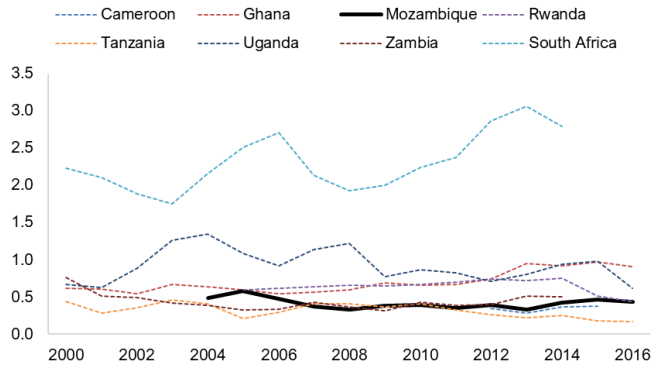
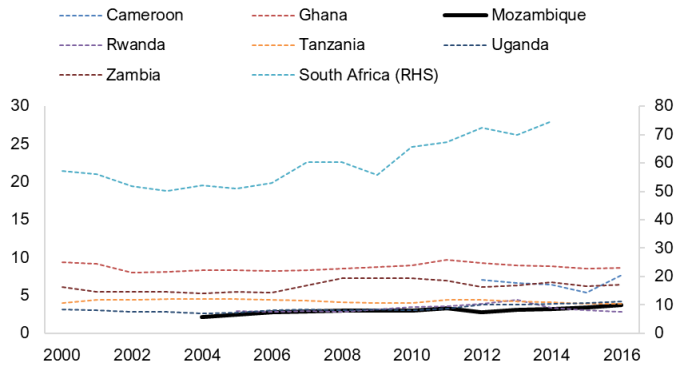


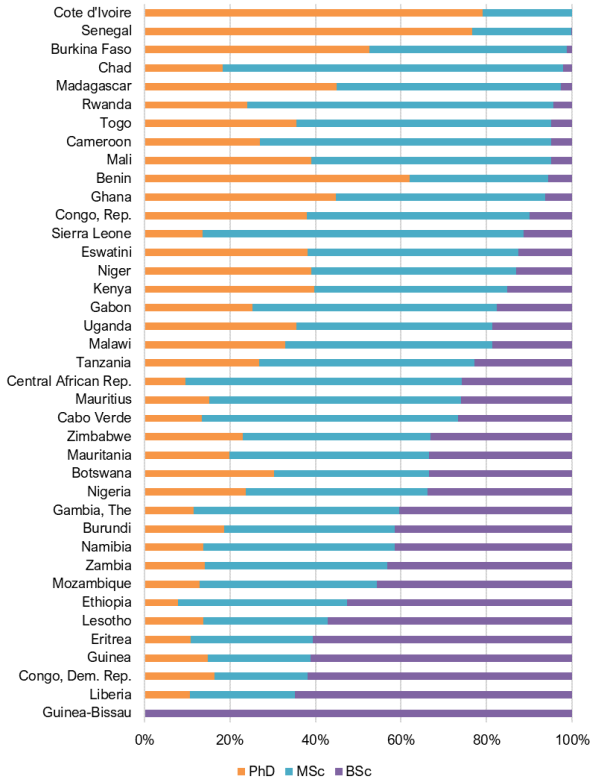
Figure 176: Researchers (FTEs per 100,000 farmers)



Notes: Spending excludes private for-profit sector. RHS = Right-Hand Side. Source: WDI, FAO, Agricultural Science and Technology Indicators (ASTI).

[124] In order to have meet the 1 percent agricultural research investment target set by the United Nations and African Union 2016, Mozambique would need to have invested 1,508 million, or an additional 835 million meticais (both in current prices) (Beintema et al, 2018).

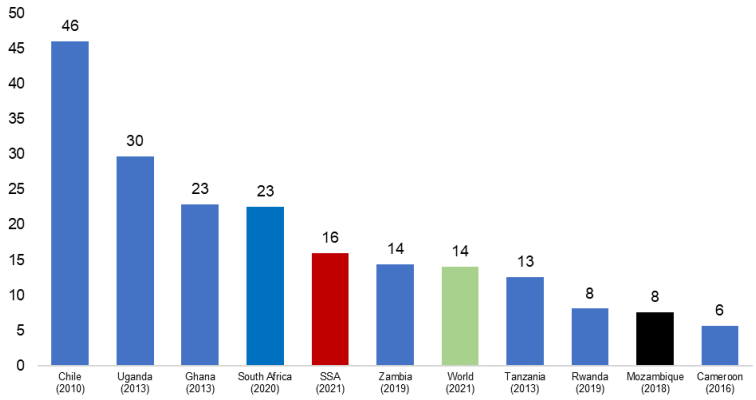
Figure 177: Researchers by degree (FTEs, %)



Source: WDI, FAO, Agricultural Science and Technology Indicators (ASTI).

This innovation dichotomy between the manufacture and agriculture sectors showcases the large concentration of innovation in potentially more productive sectors. At an aggregate level, in Mozambique only 8% of firms spent on R&D, the second lowest percentage in the country peer group, just above Cameroon (Figure 178) and representing only half of the proportion of firms that spend in R&D across SSA. This may explain the large concentration of resources for innovation in a few, potentially more productive, sectors. Anecdotical evidence in light of the interviews held in the first fieldwork highlighted that firms that innovate more are those with connections to global chains and linkages with global know-how that facilitates access to new markets and niche products. This is the case for firms in the agri-business industry, where agreements with sellers in the big Chinese market and funding from Portuguese headquarters made feasible and attractive the adaption of their produce. For other, less productive, firms in agriculture, the problem may still be tied to binding constraints that rather than primarily facing market failures to diversify its production, are affected by direct factors that make the returns on investment substantially low.

Figure 178: Firms that spend on R&D (% of firms)



Source: WIPO

4. Syndrome

Mozambique is one of the poorest countries in the world, a condition that will change only with sustained increases in labor productivity, which is necessary for secular improvements in per capita income and income distribution.

A cursory look at GDP per capita suggests that Mozambique enjoyed persistent growth until the middle of the last decade, and that stagnation set in around the time of the macroeconomic shocks mainly arising from the revelation of hidden government debt and the end of the commodity super cycle. From this observation, one could sensibly conclude that Mozambique's challenge is to restart an economic engine that was driving productivity gains for the four decades between independence and the "hidden debt" crisis in 2015 but which stalled afterwards.

This would be misleading. Despite the headline figures, productivity in Mozambique –as measured by estimates of total factor productivity– has declined persistently since the early 2000s, offsetting part of the gains registered in decades before and reaching levels below those as far back as independence. But this reversal was masked by the economic boosts that came from post-war reconstruction – a transitory phenomenon – and, later, the commodity super-cycle, an exogenous force that was not sustainable. Once these impulses petered out, there was little autochthonous productivity improvement to continue fueling growth. The economy's underlying stagnation revealed itself, and it has been apparent for a decade (notwithstanding the boost from the discovery and development of natural gas reserves in the north).

Mozambique's challenge is not to reactivate GDP per capita; it is to build an engine of growth that can deliver sustained and economy-wide improvements in productivity (which we associate with greater diversity and complexity, especially in a country's export basket), an engine that has not operated steadily in Mozambique since at least as far back as independence.

There is no reason to doubt that this is possible. The evidence we have collected demonstrates that Mozambique's private sector has the intrinsic capacity and potential to find and exploit economic opportunities (what we call 'self-discovery') and to diversify into new sophisticated industries building on existing comparative advantages (what we call 'market coordination'), necessary requirements for higher living standards and better income distribution.

We also find only weak evidence that growth in Mozambique is held back by constraints that are commonly associated with stagnation and underdevelopment.

For example, we find little evidence that human capital is a binding constraint. There is no question that greater human capital (for example, from better education, more effective on-the-job training, or highly skilled migrants) is needed for economic development; access to education and know-how is also a right. But scarce human capital, which may eventually bind growth, does not appear to be holding Mozambique back today. There are unexploited opportunities to use the human capital that is already available but that enterprises in Mozambique (and especially those in the large informal sector) are constrained from taking advantage of this skills. Indeed, an excess supply of human capital could contribute to a higher unemployment for the increasing young labor force which Mozambique can ill-afford. As we have mentioned in the report, the fact that this is not an immediate challenge for sustained growth in the short term does not mean that efforts to increase the coverage and quality of education are unnecessary. According to the framework used in this report, in parallel to education policies that are already being implemented there must

be an effort from the government to complexify the economy in such a way it can absorb the increased availability of human capital in the medium term.

We also find little evidence that the private sector's capacity to invest is constrained by macroeconomic instability. For a country of Mozambique's level of development, inflation is more or less in check, the fiscal balance is not unsustainable, monetary policy is conducted with reasonable discipline, and there is little apparent risk (at least at the moment) of a run on local banks or the central bank.

This does not mean that macroeconomics has no relation to growth. As we argue below, the constraints that bind in Mozambique can be traced to an underlying low capacity of the government to provide tangible and intangible public goods. Providing these public goods requires financial resources, in addition to the capacity to marshal these resources appropriately (e.g., by building and maintaining sound road infrastructure). How these resources are marshaled is constrained by macroeconomics. For example, the principles of good public finance would counsel a government to pay for transportation infrastructure by borrowing money; this spreads the cost of the infrastructure across present and future taxpayers, instead of putting the burden entirely on today's taxpayers (either through direct taxation or by printing money and creating inflation). Mozambique's constrained access to the international capital markets, especially since the 'hidden debt' episode, makes it difficult to follow this good counsel.

Macroeconomic challenges may arise in the next few years, if a natural gas export take off and contribute to an appreciation of the real exchange rate, which makes it more difficult for Mozambique's exports to become more diversified and complex. The government is well advised to prepare itself for those such a scenario. But growth will depend more on the quality and less on the quantum of public spending and investment.

We also do not find evidence of financial constraints on economic activity. Real interest rates are high, which discourage many enterprises from borrowing to invest in growth (by growing and adopting more sophisticated technology). But this high cost seems to result from large inefficiencies in the financial system, associated to what this study has identified as immediate challenges. Other measures of financial scarcity are also absent as credit is relatively high for a country like Mozambique and its evolution does not correlate with growth. High levels of savings in the economy, specially from foreign sources, permit larger companies to access finance, while others with their own financial resources (e.g., multinationals operating in Mozambique) are willing and able to deploy these resources in projects with high returns.

For those capital-constrained firms such as smaller firms and entrepreneurs, meanwhile, there are other ways to help the financial system screen borrowers more effectively and thus channel more resources to potentially profitable projects. Financial services are a non-tradable good. Banks may fund their operations in national or international markets, but they deploy funds based on local circumstances (e.g., the quality of collateral, information about an enterprises performance). Reforms that make it easier for lenders to distinguish good borrowers from bad ones (e.g., better land and enterprise registries) could do more to unlock financial resources than programs to increase efficiency in the banking sector.

If in Mozambique we find ambiguous evidence for commonplace constraints to growth – inadequate education, scarce capital, too much macroeconomic volatility – what is holding growth back?

By our reckoning, the trouble is that many enterprises, especially small ones, are caught in traps that are difficult to escape (what economists would call stable but sub-optimal equilibriums). Yet these enterprises are the most promising source of higher labor productivity, more diversification, and more complexity, which in our view are the central components of sustained growth in per capita income and broad-based development. To deliver on these opportunities, these enterprises need help to escape these traps.

At the root of these traps is the government's limited capacity to provide the tangible and intangible public goods necessary for enterprises to capture profits from their investments, which is a prerequisite for firms to undertake the efforts to become more diverse and sophisticated. We have focused on road infrastructure and business-enabling regulation, but the syndrome probably permeates other parts of the economy. These tangible public goods (like better primary and secondary roads linking agriculture areas to market outlets, like ports) and intangible ones (like regulation that makes it easier for enterprises to operate, rather than simply create more red tape) are necessary for the economy to move into products and exports that are more complex.

This syndrome is consistent with the constraints that we find to be binding, and those that we believe do not bind growth, at least not today.

Agriculture

Agriculture is Mozambique's largest employer. But most farming is done by smallholder farmers, most of whom are engaged in subsistence farming. Given Mozambique's natural endowments in agriculture – abundant arable land and proximity to a large internal market, nearby countries, and international markets – there is a strong case for moving from subsistence into commercial agriculture. This would increase labor productivity and household incomes in rural parts of the country. It could also improve food security and reduce Mozambique's reliance on imported foods (because today agricultural potential is in the north, food demand is greater in the south, but the two regions are poorly connected).

But the transition from subsistence to commercial farming is risky. It requires farmers to jeopardize some of their capacity to subsist while they switch to commercial crops, a switch that requires them to overcome serious insufficiencies: limited access to fertilizers, seeds, and pesticides; insufficient capital invested in the sector; a broken supply chain that brings inputs to farmers and brings their output to market; and inadequate knowledge of more sophisticated farming techniques.

Risk-averse farmers face a difficult choice between the precarity of subsistence farming and the uncertainty of commercial farming.

Although these insufficiencies may appear to be binding constraints, our diagnostics suggest that the constraints that bind are the inadequacy of road infrastructure serving the agricultural sector and difficulties establishing stable land tenure claims. We find that agriculture prospers when it can avail itself of adequate road infrastructure and when farmers have an easier time securing a right to farmland use.

The other insufficiencies – like capital, fertilizer, and know-how – may be in short supply, but they do not appear to us to be binding constraints (immediate challenges). Instead, our analysis suggests that better transportation and land use security would allow farmers and enterprises in and around the agricultural sector to acquire what is missing (e.g., fertilizers, capital, logistical

services, training). The constraint is not the deficit of these goods and services but the infrastructure for delivering them. Relaxing these constraints would make a transition to commercial farming less risky.

Only the government can provide road infrastructure and accessible land use rights. Absent these publicly provided goods and services, farmers will fear taking the risks required to move to commercial farming; and agribusiness enterprises and potential investors will remain skeptical about the likelihood of a large-scale transformation in agriculture.

The contrast with the experience of firms in the extractives sector is telling. Companies in the mining and gas sectors also require access to market, capital, technology, and inputs. If these were in short supply, one might conclude that they represent binding constraints on growth in the extractives sector. The extractives sector also needs infrastructure – to bring goods to global markets; to import technologically sophisticated machinery; to provide access to hard-to-reach areas on land and sea. What distinguishes companies in the extractives sector from small-scale farmers in Mozambique is that they are much larger and have access to financial resources and technical knowhow that is well beyond the reach of farmers; this is so self-evident that it is hardly worth pointing out.

Yet large firms in the extractives sector are different in a less obvious way. The transportation infrastructure they need mainly comprises railways and ports (and the associated specialized rolling stock and cargo ships). These differ from road infrastructure in a critically important way: access to rails and ports can be restricted in ways that access to road cannot be (toll roads are an exception). Private actors in the extractives sector can, effectively, 'privatize' rail and port infrastructure; they can invest their own resources (e.g., in railroads, rolling stock, port terminals) with the confidence that they can capture the returns to these investments.

As a result, these firms need not rely on the government's capacity to provide transportation services in the same way farmers must; they can provide for themselves in the absence of government-provided infrastructure. This may not be most efficient according to the principles of public economics, especially when there are redundancies in the transportation infrastructure because several companies have built private infrastructure that could be shared. But it is a second-best that allows firms to exploit the country's natural endowments in mineral and energy resources, but which is not available to firms exploiting Mozambique's other natural endowments – namely, in agriculture.

Anecdotal evidence from other sectors tells a similar story. The case of a large firm in the pulp and paper industry, has managed to overcome legal and administrative obstacles, especially those associated with land use rights. Meanwhile, firms in other sectors have built their own infrastructure (e.g., towers) and gained a foothold in Mozambique as independent power producers. These are examples of large firms with internal financial resources who have been able to build their own infrastructure in the absence of government-provided infrastructure.

Informality

Similar forces are at play in Mozambique's informal urban sector, where enterprises exist beyond the reach of tax and regulatory authorities. These firms have found ways to overcome barriers that might otherwise impede them if the state were more effective at providing optimal public services and enforcing regulation and other administrative restrictions that exist *de jure* but less so *de facto*.

Indeed, this is how we interpret the coincidence of 'red tape' and endemic petty corruption (which we refer to as 'greasing the wheels') that is so prevalent in Mozambique. In the presence of *de jure* regulations that make it untenable for many private enterprises to thrive, an alternative *de facto* system of payments has developed that gives firms enough space to operate so long as they maintain a low profile. This system also sustains the livelihoods of those who collect these payments.

This, too, is a stable but sub-optimal equilibrium – a trap. Rooting out endemic petty corruption is a popular target of economic reforms. Better regulation and more effective government improve the government's capacity to provide public goods, which in the long run are correlated with economic development. But the immediate impact of reforms designed to bring firms into the formal sector exposes informal enterprises to heavier tax, labor, and administrative burdens, which can make these firms commercially unviable. They also deprive those receiving side payments of income they may rely on for their economic well-being. This is one reason why such reforms are so difficult to implement successfully.

Although enterprises in Mozambique have discovered how to flourish in the shadows of informality, this equilibrium represents a lost opportunity for advances in labor productivity. Informal firms tend to be labor-intensive – fertile territory for investments in innovation that could have an outsize impact on economy-wide productivity.

Increasing value-added per worker requires scale and the capacity for specialization and divisions of labor within and between firms, and to have the capacity to enter into stable contractual agreements with employees and other firms that provide complementary goods and services. Yet informality discourages this. To illustrate this, consider research in Buenos Aires (Argentina) conducted by the Growth Lab, which found that regulatory burdens created strong incentives for enterprises to remain as small as possible, to avoid attracting the attention of the authorities. This handicapped these firms to acquire the complexity required, for example, to export. Across Latin America, exporting companies are, on average twice as large and companies that do not export. In Buenos Aires, exporting firms are, on average, eight time larger than non-exporting firms.

In the face of disincentives to scale and formal contracting, informal enterprises have difficulty capturing the returns to investments in innovation, and especially investments in know-how. Much of the innovation needed to increase complexity requires investments in new processes, technologies, and markets. Collaboration across enterprises to discover these innovations is difficult because it often requires formal contracting, which is difficult in the informal sector (formal contractual relationships are also challenging for enterprises that cannot rely on the state's capacity to enforce contracts.) In contrast, collaboration is easier inside enterprises, because it does not require formal contractual arrangements; in agriculture, for example, one can imagine a larger firm internalizing high-volume purchases of fertilizer and pesticides, interactions with smallholder farmers, and transportation and distribution to markets elsewhere in the country or abroad.

Lifting the regulatory and administrative burdens that contribute to informality would allow firms to increase their scale and redirect resources to more productive use. For example, regulation that is better designed to balance the government's need to collect taxes and enforce codes of conduct, on one hand, and enhance a firm's capacity to register, access licenses and public services, hire and train workers, provide collateral, export, and interact with the government, on the other, could be the most effective to encourage diversification and complexity.

Jumping to sectors building on comparative advantages

Unless Mozambique can escape these traps, by developing the capacity for the government to provide needed tangible and intangible public goods, it will be very difficult for the economy to produce and export goods and services that are more complex, which is a requisite for inclusive growth.

Simply increasing the diversification of exports is not enough. The contrasting examples of Chile and South Africa, aspirational peer countries under this study, are illuminating. Chile and South Africa both have important mineral endowments (copper and other minerals for Chile; diamonds and coal, among other commodities, for South Africa). Both also have agricultural endowments. In this respect, both resemble Mozambique. But Chile's level of income is considerably higher than South Africa's.

The contrast between the export baskets of Chile and South Africa illustrates this point. South Africa's exports are more diversified than those of Chile, at least by some measures. Yet Chile's exports are more complex. Chile has managed to move into products that are less ubiquitous and required more specialized knowledge, which in turn allow Chilean enterprises to capture a premium in the value-added that reflects this complexity.

What separates Chile and South Africa for the purposes of this analysis is the capacity of their governments to provide the public goods that are necessary for private actors to move into more complex products. This capacity is higher in Chile than in South Africa.

For Mozambique's economy to become more complex, the government must develop this capacity. Enterprises in Mozambique are demonstrably adept at moving into new product spaces that are close to existing ones; they have the capacity of self-discovery, they can coordinate amongst themselves when necessary, and they can privatize quasi-public goods when they have the resources to do so if they can capture the returns to these investments. But they need government support and state capacity to make the long jumps necessary to move into more complex products.

5. Policy implications: going forward

The Growth Diagnostics framework is an exercise of prioritization of the immediate challenges (binding constraints) that are hindering diversification and inclusive growth in Mozambique. In this section, we will enumerate the significant number of initiatives that have been adopted by the government, especially in recent years; highlight that there is a small number of them that are aligned with the main findings of this report; and delineate further policy recommendations in line with the initiatives proposed by the government. Because the binding constraints we have identified are related to the provision of public goods by the government (road infrastructure, business-enabling regulatory quality, and government coordination), we also include complementary fiscal considerations that can create the required fiscal space.

These policies should be deployed in line with a strategic view on the potential productive capabilities of the country. Using the Growth Lab's framework, we propose a mechanism for identifying export products and industries that can feasibly deliver greater complexity and diversification. Many of these opportunities for diversification are far from the extractive sector. Coordinated efforts are crucial to promote them.

5.1. Alignment with Current Government Plans

The Government of Mozambique has undertaken several long-term, medium-term, and short-term initiatives aimed at fostering sustainable and inclusive economic development in the country. These comprise an ambitious list of policies in a broad set of sectors aimed at solving several economic and social challenges. This ambition is to be commended. However, it can distract attention away from what this report has found needs to be addressed immediately. The Growth Diagnostics approach allows the government to emphasize initiatives that can alleviate the most immediate challenges, which in turn could address several challenges at once.

Among the initiatives undertaken by the government, a few are aligned with the findings of this report. The **National Development Strategy** addresses human capital, development of infrastructure, research and innovation, institutional coordination, and democracy. Elements of this strategy are aligned with the findings of this report (highlighted in Table 6), including the development of infrastructure and institutional coordination and articulation. Within the infrastructure development initiative, we emphasize the logistics strategy, particularly investments in transportation and storage infrastructure. Our findings stress the importance of investing in secondary roads to streamline agricultural trade logistics. We emphasize the need to incorporate effective mechanisms at the government level and the design of appropriate institutions.

In **Agenda 2025**, we note the strategies proposed for the Economic Development initiative, specifically in the sub-initiatives of macroeconomic policy, rural development and the strategic plans on infrastructure. We also highlight the governance initiative that focuses on the state public services reforms to ensure better and quicker service to citizens.

In the **Five-Year Government Program** *(Plano Quinquenal do Governo 2020-24)*, two initiatives align closely with the main binding constraints identified in this Growth Diagnosis: (1) Boosting economic growth, productivity, and job creation, particularly the strategic plan for improving the business environment to attract domestic and international private investment; and (2) promoting good governance, specifically by enhancing public service delivery, strengthening public administration integrity, and ensuring media services and quality information.

The **Economic Acceleration Package (*PAE*)** comprises twenty measures to address various pressing economic challenges. Two align with our findings: (1) Simplification of administrative processes; and (2) streamlining the architecture of public administration. We stress the importance of long-term macro stability, especially considering the effects of gas production on the fiscal accounts and trade competitiveness. Initiatives such as the sovereign wealth fund would make important contributions to stability.

Table 6: Government strategies that aligned with the findings of the Growth Diagnostics

Government plan	Initiative	Description	Sub-initiative aligned with binding constraint
National Development Strategy	Development of infrastructure	Investments in transport infrastructure should be conceived as development corridors that integrate the national territory economically and socially, bring production areas and consumer markets closer together, enable the export of national surpluses to international markets, and allow the transit of imported and exported goods through neighboring countries in the hinterland.	Logistics: comprising transport and storage infrastructures.
	Institutional coordination and articulation	Rationalize the various strategic planning instruments at sector level, to ensure greater efficiency in the allocation of resources while avoiding duplication.	Mechanisms for articulating the various planning instruments at government level.
		Solid institutions with clear mandates and support at the highest levels in the national innovation system are critical to ensuring a successful productive transformation, improving productivity, innovation and technology transfer.	Appropriate institutions for the process of implementing the National Development Strategy
Agenda 2025	Macroeconomic policies	Macroeconomic policy must integrate a development perspective.	The fiscal policy should be sound: fiscal deficits, internal and external debt levels, and budget management, should be under strict control.
	Rural development	Structural transformation of the economy should be based on agricultural development.	• Faster, more relivable and transparent process for acquiring land titles. • Better spatial linkages with transport and communication infrastructure, ensuring worthiness of access roads to production markets. • Construction and maintenance of access roads.
	Infrastructure	Infrastructure to facilitate access of agricultural surpluses to markets, which increases the economic capacity of producers to sell their production and catalyzes regional integration.	• Equipment maintenance • To complete direct connections between all provincial capitals with tarred roads, maintained throughout the year. A good north-south road is particularly necessary (with northwest and northeast links).

Government plan	Initiative	Description	Sub-initiative aligned with binding constraint
			• Tertiary roads: To define responsibility of the central and local level entities in the exploitation and maintenance of the road network
	Role of the state in the economy	The State public services should be reformed as to ensure better and quicker service.	• Citizens' Assistance Centers, where the issuing of official individual documents is centralized; • One-Stop Shops, where all company licensing and documentation are processed in an expedited manner.
Five-year Government Program	Boosting economic growth, productivity and job creation	The adoption of measures that make the country more competitive, increasing the level of production, professional education and apprenticeships will only be achieved if the economy recovers and the economy and increasing productivity, thus contributing to greater attracting investment and generating more jobs.	• Promoting a Balanced Macroeconomic Environment and Public Finance Management • Improving the business environment to attract domestic and international private investment
	Promoting good governance and decentralization	Good governance aims to guarantee transparency and participation of all, to provide effective and efficient services to the public, promote well-being and create a climate conducive to growth.	• Improving the delivery of public services and strengthening the integrity of public administration. • Promoting digital transformation initiatives in all sectors and the application of e-commerce to improve productivity, competitiveness and innovation.
PAE	Simplification of administrative processes in the relations between the state, companies and people	This measure consists of simplifying administrative processes in the relations between the state, companies and people, to facilitate the creation of private companies and increase their competitiveness; to facilitate the lives of the population and reduce their cost in accessing public services.	• Simplification of notarial acts. • Elimination of selected permits in some business sectors. • Improve the productivity of economic activities inspections.
	Simplification in the architecture of public administration	This measure will result in the simplification of public administration, improving efficiency and increasing the quality of the services provided to citizens.	• Merge of institutions of public administration that have redundancy activities. • Use of digital platforms • Introduction of greater interoperability between system to better serve the general public.
	Creation and implementation of the sovereign	This measure is focused on the creation and implementation of the Sovereign Wealth Fund of Mozambique, which will have a robust regulatory framework to ensure that oil and gas revenues are	• Creation and implementation of the sovereign wealth fund.

Government plan	Initiative	Description	Sub-initiative aligned with binding constraint
	wealth fund of Mozambique	used transparently while protecting the economy against the effects of volatility and external shocks, contributing to the promotion of socio-economic development and generating benefits both for current and future generations	

5.2. Growth Diagnostics Recommendations

The government is taking steps to address the immediate challenges identified in this report. This section underlines complementary policy recommendations that are missing in the Government plans and can tackle the challenges comprehensively.

5.2.1. Road infrastructure

Although it is addressed in the government's plans (Table 6), it is not clear how infrastructure will be provided effectively or what criteria will be used to set priorities. Improving road investment in Mozambique involves, among other factors: coordination across agencies, planning, prioritization, funding, and maintenance. A strategic action plan to achieve the goals related to the improvement and provision of road infrastructure is essential.

Recommendation 1

A strategic action plan for the provision and maintenance of road infrastructure can begin with the designation of a high-level board. This body would establish priorities for a long-term strategic plan for road infrastructure, guarantee the availability of resources for the implementation of the plan, and insulate the plan from undue political influence. It would be composed of independent individuals and institutions with diverse expertise and a deep understanding of the issues; it should not include members based on political affiliations or other criteria that could create susceptibility to short-term political pressures. There should be indemnification for board members, clear mandates, term limits, and a code of conduct that outlines ethical guidelines for members. The board should make decisions based on evidence and data, and seek inputs from other stakeholders whenever possible. Board meetings should be transparent and make minutes, discussions, and decisions publicly available; this would contribute to transparency and encourage public involvement in policymaking. The board should consider the participation of at least the Minister of Economy and Finance, the Ministry of Public Works, Housing and Water, the Ministry of Transport and Communications, and the National Administration of Roads (ANE). International institutions can also contribute to transparency and accountability, demonstrating a commitment to global standards and practices.

Recommendation 2

Implementation of the plan should be the responsibility of a delivery unit, overseen by the high-level board, responsible for investing in road infrastructure. Delivery units (DUs) can help execute high-priority projects to ensure they are completed on time, within budget, and according to specified quality standards for the construction and necessary maintenance. They can bridge policy formulation and implementation. There are several ways in which a DU for road infrastructure in Mozambique can provide support. The DU can lead the project planning and design by (i) working closely with project stakeholders (government agencies, local communities,

contractors, and other relevant parties) to develop comprehensive road infrastructure plans that clearly outline objectives, scope, timelines, budgetary constraints, and social and environmental considerations; (ii) identifying potential risks and challenges throughout the project's life to develop risk mitigation strategies, and (iii) collaborating with experts in project design and engineering to ensure that infrastructure projects are well-conceived and technically feasible. The DU can monitor and evaluate projects by (i) tracking progress against a budget, milestones, objectives, and quality standards, and (ii) assessing the performance of contractors and subcontractors. The DU can help overcome government rigidities for easier intra-government coordination and implementation of projects by (i) setting up a multidisciplinary team with project management skills and public sector experience, and (ii) working under an organizational arrangement that provides flexibility in responding to unexpected challenges or changes in project requirements while minimizing disruptions to the project timeline. Finally, the DU can centralize learning by doing and foster post-implementation learning by conducting thorough reviews after project completion to assess the overall success, learn from challenges, and apply lessons to subsequent projects.

Although the DU can contribute significantly to addressing Mozambique's challenges of poor density and quality of roads, it faces challenges that demand well-considered governance design and implementation. In Mozambique, as in many other countries, changes in political leadership can lead to shifts in priorities, policies, and funding, interrupting project continuity and causing delays, scope reductions, cancellations, changes in project requirements, and costs overruns. Projects can also be handicapped by weak technical planning, design, and risk assessment and mitigation, especially for projects that are vulnerable to the impacts of climate change and natural disasters. Poorly designed procurement processes weaken accountability, and result in underqualified and unreliable contractors and ineffective communication and collaboration among project stakeholders. These failures can reduce the trust of project stakeholders and direct beneficiaries, and hamper the potential of road infrastructure to promote the complexity and diversification that the Mozambican economy urges.

An example worth learning from is Operation Vulindlela (OV) in South Africa. This DU is a joint initiative of the Presidency and the National Treasury to accelerate the implementation of structural reforms and support economic recovery in the country[125]. The role of the Vulindlela Unit is to monitor progress against reform implementation plans provided by the reform implementers. The unit also coordinates different entities and departments where the implementation of the reforms is complex and requires a range of actions by different departments and entities, and where crosscutting implementation plans are not yet in place. The OV is focused on a limited number of prioritized structural reforms that have been identified in several government policy documents, and where the responsible parties for monitoring progress are the President, Ministers and Director General, Economic Cluster and a Cabinet Committee. The project has been going on for almost 3 years, and over 70% of the reforms have been completed or on track to be finalized. While this project contemplates several areas for structural transformation (electricity, digital communication sector, water, transport, and visa regime), a similar unit can be replicated for the case of road infrastructure in Mozambique.

Recommendation 3

Better delivery of road infrastructure requires strong institutional capacity. We have identified poor government coordination as one of the immediate challenges to address in

[125] See the following link.

Mozambique. The lack of reliable data on roads also hinders the capacity of the government to prioritize infrastructure projects and deploy funds effectively (World Bank, 2016b). Achieving the objectives of an infrastructure national plan requires the improvement of inter-ministerial and inter-agency coordination and evidence-based decision-making. The case of Chile is pertinent. The country built major economic infrastructure (e.g., the highway network, the postal system) in the last two decades by adopting and improving the concessions model for delivering infrastructure in combination with a strong public administration capacity (OECD, 2018b). The Chilean Ministry of Public Works has played a crucial role in the successful development and implementation of high-quality infrastructure projects. Meanwhile, the Ministry of Finance plays a vital gatekeeper role, reviewing and approving projects to ensure affordability and safeguard financial stability (OECD, 2018b). Additionally, Chile's public investment system also benefits from a well-established social evaluation process, which ensures that investments maintain a high standard and provide value for money.

Road infrastructure investment can be supported with a more active role of the private sector (for example, through public-private partnerships), especially when fiscal resources are constrained. PPPs allow for private sector financing, which can supplement public funds for roads projects, helping to address budget constraints and facilitating the development of larger, more ambitious projects. Also, PPPs often involve a lifecycle approach to infrastructure management. Private partners may be responsible for construction, operation, and/or maintenance of the road infrastructure, encouraging a long-term perspective on the quality and durability of the road. Mozambique passed a law on PPPs (Law 15 of 2011), which defined PPPs as a modality of public procurement and set a broad regulatory framework for PPP contracts. This law establishes that each sector of the government is responsible for their own sector's PPPs and should consider the interest of the users, the sustainability of the project, and the financial and economic equilibrium among the contracting parties. However, an evaluation of this law indicated that there is still considerable discretion for government in the selection of bidders. Notably, the numerous objectives of the PPP program grant officials substantial flexibility in shaping the scoring function for PPP bids. This, at the very least, diminishes predictability and confidence in the resulting outcomes (Fischer & Nhabinde, 2012). Other weaknesses of the law include the limitations on transparency (contracts are rarely public), and the lack of a dedicated national agency responsible for promoting, providing technical support, overseeing, or undertaking other activities specifically related to PPPs (EIU, 2021).

A more robust PPP legal framework can help achieve the potentialities of this mechanism in the road sector. The road and highway sector is particularly suitable for PPPs, as it is easier for the public sector to monitor the quality of infrastructure and for the citizens (who pay the tolls) to exert pressure to achieve so (Fischer & Nhabinde, 2012). By addressing the legal framework challenges, the country can take advantage of this mechanism to reduce the road infrastructure gap in the country. Main reforms include: Ensuring a clear, transparent legal framework for PPPs that aligns with international best practices; a clear definition of the allocation of risks between the public and private sector; transparent procurement process ensuring fair competition and preventing corruption; investing in building capacity of relevant government agencies to effectively manage and oversee PPP projects; and implement a robust monitoring and evaluation system to track the performance of the PPP projects. Good examples of the application of PPPs

to the road sector can be found in the South African and Chilean cases.[126] The concession for the Maputo corridor (import-export highway from Johannesburg to the Port of Maputo) awarded in 1996 under the South African PPPs legislation is a successful case that could provide insights to improve the PPPs legislation in Mozambique.[127]

Recommendation 4

Prioritization criteria should focus on improving accessibility to major markets in lagging regions. Access to major markets provides several advantages. It would ease rural-urban migration and promote the growth of cities. This would create new employment opportunities for rural farmers, stimulate local economic activities and income, and enhance the value of agricultural land (World Bank, 2023d). In Mozambique, the infrastructure deficit is explained by limited public resources in general, but also by the uneven allocation of scarce resources. Capital investment in roads has been channeled towards urban areas, at the expense of connectivity in the north and central regions (World Bank, 2019c). Only 10% of the budget has gone to nonprimary roads, even though non-primary roads account for 80% of the total network coverage and provide directly support to agricultural production and trade. Investment in roads should focus on connecting isolated regions with local markets and with the corridors that allow them to reach international markets.

Prioritization criteria should also consider the maintenance and improvement of non-primary road conditions. Primary roads have been maintained well by the central government, but secondary and tertiary roads maintenance - which depends on subnational governments - is inadequate (World Bank, 2021). The allocation of resources to the construction of new roads may be detrimental to the proportion of resources allocated to maintenance of roads. The insufficient funds for regular maintenance can lead to the deterioration of the road services over time. By establishing a regular maintenance program to address issues such as potholes, cracks, and other wear and tear promptly, the lifespan of roads can be expanded.

Prioritization should also take into account the goal of economic diversification strategy. The prioritization of road infrastructure projects can be related to agricultural industry promotion strategies. One example is the "fruit route" in Chile, a road that was created to link agricultural producers (mainly fruit producers) with one of the country's main ports (San Antonio). This road is mainly used by trucks transporting agricultural products from the central part of the country to the port. This is an example of how an industrial diversification policy can be complemented with measures that seek to alleviate the immediate challenges facing the country. This requires government coordination with the private sector to identify the areas of greatest potential, and to identify the other challenges faced by these companies in order to export their products. Sectors such as agriculture and agro-processing, small-scale manufacturing, tourism, infrastructure, and logistics can become engines of sustainable growth, economic diversification and job creation in

[126] The case of Chile stands out as a successful case that uses the Present Value of Revenue (PVR) mechanism, which is especially appropriate for tolled roads and bridges. South Africa possesses significant experience in PPP projects, with approximately 300 such initiatives undertaken at the national and provincial levels since 1994. The South African National Treasury, responsible for PPP projects, has crafted a PPP Manual to provide guidance for projects of this nature. According to the manual, a PPP is defined as a contract between a public sector institution and a private party. In this arrangement, the private party assumes substantial financial, technical, and operational risks in the design, financing, construction, and operation of a project. The manual outlines various procurement possibilities, ranging from public procurement to full privatization. To address budgetary constraints, the South African National Roads Agency initiated tolling on segments of major national roads in the mid-1990s and developed concessionary structures.

[127] See the following link.

the country (United Nations, 2012).[128] In section 5.4 we propose a set of more specific industries where Mozambique can more easily jump to diversify given its current productive capabilities.

Recommendation 5

The institutional framework for the road sector should be revised, to contend with the challenges of several actors sharing responsibility for road investment and maintenance, and the budgetary process. Several institutions are responsible for the road network, and it is not clear who is responsible for local and tertiary roads (World Bank, 2016a). The institutions involved in the provision of road sector are the National Road Administration (ANE), an autonomous Mozambican public administration responsible for managing the country's classified road network; the Road Fund, which is responsible for funding road maintenance activities; and provincial authorities, responsible for the decentralized management of tertiary, urban and unclassified roads. In addition, there is active donor participation in road construction and maintenance. The lack of coordination among these agencies leads to duplication of tasks, and creates space for corruption and frequent changes in the decision making. Moreover, the allocation of funds for infrastructure development is predominantly centralized, with provinces and municipalities receiving relatively minimal amounts (Ross et al., 2014). This reinforces regional inequalities, affecting maintenance, and therefore contributing to the low-quality roads in isolated areas (World Bank, 2021). Therefore, the allocation of funds and the budgetary process should be revised in order to mitigate these disparities.

5.2.2. Red tape and government coordination

Improvements in the government's capacity to provide intangible public goods regarding regulations and public coordination are necessary to enhance the business environment in Mozambique. This means providing efficient channels to consult and fulfil existing regulations for doing business, and simplifying, making more transparent and organizing the work of the different government actors. These efforts can address the prevalence of red tape and government coordination failures that affect the ease of doing business in the country. Moreover, they can enhance private sector trust in institutions and their efficient administration, which is needed for the formal private sector to gain competitiveness and contribute to the country's overall economic performance.

Recent measures represent progress. The Mozambican government has pushed measures to simplify and enhance the interaction between businesses and the government. These include measures to make it easier for firms to register, obtain operation licenses, and get access to public services for production. Relevant examples of specific initiatives are the recent enactment of a new Commercial Code (2022) aligned with international best practices and the gradual improvements of the single service desks (Balcão Único - BAU, or One-Stop-Shop), a program implemented since 2007. BAU's purpose is to streamline business registration and make it easier to comply with tax and labor requirements. Recent evidence shows that the benefits of these services have become better known by SMEs (Barletta et al., 2023).

Moreover, as part of the PAE, the government is leveraging relevant reforms to promote private formal activity in the near term. This includes the zero-cost notarial acts made by the

[128] Programs such as SUSTENTA, which seeks to integrate rural households into sustainable agriculture value chains (World Bank, 2019a), are examples of initiatives which, accompanied by clear public policies, could help the country to develop less extractive industries.

police, the simplification of more complex authorizations made by certified lawyers, the elimination of selected permits for opening and operating business, and the leniency and predictability of business inspections. The BAU requires the collaboration of many central government entities. There is a need for one coordinator to lead and possess sufficient authority to influence other agencies, ensuring their alignment with the established objectives. This may entail granting the coordinator direct reporting access to the central government. The centralization of business registers and licensing procedures will help reduce the overlapping functions of the state and make the regulatory process more efficient. This aligns with what the IMF (2019a) and World Bank (2016a) have suggested. To institutionalize these efforts, the government has transformed BAU into a public institute. The government is also seeking to simplify the architecture of public administration by merging public administration institutions, using digital platforms, and introducing greater interoperability between systems.

Recommendation 1

Government services should be centralized and become digital and interoperable, especially regarding licensing and public registers. Mozambique must continue reducing business compliance costs associated with business registration and related regulations. BAU still needs to induce the participation of all corresponding government agencies to approve and provide public services while reducing, simplifying, and digitalizing fee payments[129]. It should undertake measures to amplify information about BAU's benefits to firms and training staff (DFID, 2017). At the same time, the absence of public registers of laws, public servants' and ministers' responsibilities, and a national identification system also undercuts the state's capacity to deliver public services transparently and effectively. For example, the Mozambique identification system is fragmented by sector, making it difficult to track individuals and businesses nationwide. This has led to the duplication of efforts regarding data collection, licensing and public registrations. It has also created opportunities for fraudulent enrolment to multiple state benefits (World Bank, 2021).

Recommendation 2

Inspections need to be more business friendly without jeopardizing labor and safety regulations. Despite the Government's efforts to make inspections more efficient and better coordinated, they remain frequent and uncertain, especially for larger firms. This can deter firms' growth and formalization (Barletta et al., 2023).[130] Government efforts should be directed at enabling business. Based on best international practices (DBIS, 2014), inspection regulators should be seen as bodies that play a pivotal role in facilitating compliance and fostering growth within the industries or sectors they oversee. To accomplish this, inspections should adopt a cooperative approach that assists the firms under their jurisdiction. This means user-friendly and uncomplicated channels for interaction with firms and a willingness to incorporate business concerns into policy refinements. Inspections should be underpinned by a systematic assessment of risks, ensuring that resources and efforts are targeted efficiently among firms and sectors while avoiding unnecessary redundancy. Overall, inspections should provide unambiguous information,

[129] Evidence from the manufacture sector shows that the average number of inspections went from 2.6 to 1.7 per year between 2012 and 2022, with larger reductions for micro firms.

[130] Efforts to legislate a unified revenue collection service linked to e-SISTAFE (the Electronic State Financial Administration System) have been limited since the government's announcement in 2019 (World Bank, 2021).

guidance, and advice, aiding the entities they oversee in fulfilling their compliance obligations. Transparency should be the cornerstone of these efforts.

Recommendation 3

As the principal agency leading efforts to fight red tape, the Ministry of Industry and Trade (MIT) needs an effective, well-oriented action plan in the short term. MIT must identify realistic actions to be able to monitor compliance with regulation occurs. This should include continuous efforts to create and update diagnostics on the primary deficiencies of business regulation and its performance (BERF, 2017). MIT also needs to strengthen its technical capabilities to enable analytical work to ensure that measures are implemented adequately by the government.

Recommendation 4

The Land Law can continue to be improved. The government recently presented a new land policy and envisioned a new land law aimed at reducing the complexity of land-use regulations and the uncertainty of land-use rights. It has established a Land Commission to update the legal framework related to land and to prepare three land laws (Basic, Rural, and Urban) for National Assembly passage. Efforts should continue to simplify, shorten, and clarify regulations to access, transfer, and use DUATs. This can be done by differentiating processes according to land size or sector. For example, the Government can redesign special regimes to use vast land in rural areas (in forestry and biofuel projects, for example) to make the process more flexible and efficient for investors, who are required to present investment and environmental permits and reduce the costs related to usage fees and potential additional compensation expenses for cases when the land was not free of claim by local individuals/communities. Meanwhile, the Government can implement special regulations for smaller plots to enable private ownership. These need to protect legitimate customary and smallholder land rights and avoid land acquisitions that override smallholders' rights, as they have in the North of the country (Walker, 2021). Moreover, the Government should find ways for DUATs to enable holders to use their rights as collateral for accessing formal credit, especially for smaller farmers. Overall, efforts should create incentives for significant long-term investments to make the land productive and facilitate access to capital.

Recommendation 5

Simultaneous cross-cutting reforms on digitalization can contribute to transparency and accountability. Ambiguity regulation is so severe in Mozambique that it creates micro and macro uncertainties. Without a clear sense of policy and enforcement (e.g., inspections), firms operate in an environment of distrust and inefficiency. A simpler architecture of public administration and more business-friendly institutions are necessary to improve the ease of doing business; this is already part of the PAE, and we strongly recommend carrying it out. However, there are more specific and concrete actions concerning digital connectivity that are necessary to boost firm productivity and the provision of public services. Mozambique has not been able to digitize core public processes, such as the declaration of taxes, or improve the connectivity among government entities through the Government Network (GorNet). A digital transformation could help Mozambique's firms to increase productivity (World Bank, 2021).

Efforts to broaden digital infrastructure should be more tangible. Although the government has stated its commitment to a more digitalized economy, Mozambique's Digital infrastructure is still far from reaching universal access. In recent years, critical regulatory advances have been

made in the country regarding Information and Communication Technologies (ICT), in addition to the start of essential projects on digitalization and governance issues. These include the National Strategy for Broadband, launched in 2017, which sought to increase the country's access to energy and broadband services. In 2018, the Government updated the Information Society Policy, reiterating the importance of ICTs in boosting Mozambique's economy (World Bank & Digital Economy for Africa, 2019). The project to construct an Electronic Government Network (GovNet), which started in 2004, aims to increase connectivity among government entities. Nevertheless, internet access reaches only 16.5% of the population, one of the lowest among its peers, and only above Uganda.[131] Access to the Internet is possible for wealthy individuals and businesses, but there are high urban-rural divisions (World Bank & Digital Economy for Africa, 2019), in part explained by the low and concentrated access to electricity. To achieve a digital economy, Mozambique first needs to promote the development of networks (tangible public infrastructure) in underserved areas.

5.3. Fiscal space for immediate challenges

The discovery of vast gas reserves is anticipated to offer Mozambique a significant chance for long-term and inclusive growth. The LNG projects hold the potential for growth and substantial fiscal revenues. With effective management, these resources can generate fiscal space for public investment in the long term.

Mozambique's has made efforts toward fiscal consolidation and sound debt management in the last years. A succession of shocks, coupled with the decrease in donor budget support in recent years, has led to substantial spending pressures. As described in the macro risks section, the budget is still dominated by rising non-discretionary expenditures, high public sector wages, debt-service pressures, and pensions (World Bank, 2023e). Measures in response include improvements in public finance management (PFM), revenue administration, natural resource management, governance, and fiscal transparency (IMF, 2023a). Specifically, the Government approved in 2021 a law to restructure the employee compensation and the civil servant career frameworks, aims to control employee compensation in the medium term given the heavy wage bill (see section 3.3.1.1). This policy should generate fiscal space through the compensation of public employees without damaging the current provision of public services. The Government also has been working on the implementation of a Sovereign Wealth Fund (SWF) to ensure transparency in the management of fiscal revenues from gas production and enable its use during economic downturns. Complementarily, the Government has approved measures to strengthen the Tribunal Administrativo (TA) to improve the oversight of government spending (IMF, 2023a).

All these efforts are commendable, and the Government should continue working to refine them. On one side, the SWF must be accompanied by bespoke fiscal rules on expenditures or debt to ensure that the fund is managed appropriately**.** Mozambique should incorporate such rules to guarantee the sustainability and effectiveness of the SWF. Designs for such rules can be informed by international recommendations, considerations for emerging markets, and the recent 2023 Chile IMF Assessment (IMF, 2023b). To start with, Mozambique's government must decide the objective of the SWF, which could have economic stabilization and/or for intergenerational savings (pensions) purpose. The Government also needs to create a reliable medium-term fiscal

[131] Using WDI data, among Mozambique's peers, the country with the most extensive access to the Internet is Chile (88.3%), then South Africa (70%), Ghana (58%), Cameroon (37.8%), Tanzania (22%) and Zambia (19.8%). The one with the lowest use of the Internet as a share of its population is Uganda (6.1%).

framework to ensure optimal investment allocation in priority geographical and economic areas. Further policies can involve eliminating unnecessary expenses, limiting discretionary spending, and enhancing their transparency and accountability to seek their effectiveness.

5.4. Intending policies towards diversification

The identification of immediate challenges and policies to alleviate them should contribute to the diversification of the country's productive and export matrix. To complement these efforts, the country can also promote specific economic sectors to accelerate along the path towards greater diversification and complexity. There are several ways in which Mozambique can choose which sectors to promote to achieve inclusive growth. In the development plans analyzed in section 5.1, one can find not only the choice of certain sectors to promote, but also specific mechanisms to increase competition in these sectors.[132] The National Program to Industrialize Mozambique (PRONAI) is an example of policies to increase industrial production in favor of the use of raw materials, stimulating production, generating employment, and contributing to rural transformation. Nevertheless, while diversification strategies are crucial to reduce the dependence on the extractive sector, the choice of products and sectors to promote should be based on the country's capabilities, and on increasing the probability of success of companies seeking to reach the global market in a competitive manner.

This section will present one of the several paths to promote products that increase export complexity. The Economic Complexity framework[133] allows us to analyze the current capabilities of the country based on the products that are already exported by Mozambique. This framework indicates that countries develop the products and services that their know-how can support, and the probability that a country develops a new product or industry is contingent on the set of products that it already produces (Haussman and Klinger, 2006). By quantifying the existing know-how in Mozambique and the latent productive capability, we can develop a list of potential diversification opportunities for the country. This exercise is only one of the ways in which the country can choose the sectors to promote. This should be interactive, engaging a diverse group of stakeholders in the process of prioritizing actions related to productive diversification and investment promotion. This is an alternative approach to, for example, beneficiation policies that have prevailed in national development strategies in Africa, where countries seek to produce and export products that are part of the value chain of the raw materials they own.

Our broad conclusion is that Mozambique must diversify into new, more complex export industries to absorb the a growing labor force (unskilled and skilled), increase labor productivity, and promote economic growth. Mozambique´s exports are dominated by the extractive industry (coal and aluminium), which makes the export basket vulnerable to external shocks. To move beyond this export concentration, diversification should come from a combination of activities that already exists in the country and can be expanded (what we call the "intensive margin") and new industries with significant potential to emerge (the "extensive margin").

The coordination between the government and the private sector is crucial to achieve the expected results of targeted diversification policies. For Mozambique's economy to become

[132] For example, PAE indicates VAT exemptions for imports on the productive sector of agriculture, and lower corporate income for some indicated sectors (agriculture, aquaculture, urban transport).
[133] See Appendix 4: Economic Complexity Framework.

more complex, the government must develop the capacity to provide public goods, but also to coordinate with the other relevant actors in the economy. Enterprises in Mozambique are demonstrably adept at moving into new product spaces that are close to existing ones; they have the capacity of self-discovery, they can coordinate amongst themselves when necessary, and they can privatize quasi-public goods when they have the resources to do so if they can capture the returns to these investments. But they need government support and state capacity to make the long jumps necessary to move into more complex products.

5.4.1. Identification of products

The process for sectoral identification starts by filtering the products exported by Mozambique, and then identifying the sectors in the intensive and extensive margin. We restrict ourselves to products from the export basket, excluding services[134]. From the list that remains, we choose existing products that can be expanded (intensive margin) and the new emerging products that can be successfully developed (extensive margin) (Figure 179).

Industries identified on the intensive margin are taken from the pool of products where the Relative Comparative Advantage[135] (RCA) is greater than one (products with a relatively larger presence in Mozambique than in the rest of the world). Industries identified in the extensive margin are taken from the set of products with an RCA less than one (relatively lower presence in Mozambique than in the rest of the world). Economic Complexity metrics (see Appendix 4), such as the Product Complexity Index (PCI), the Complexity Outlook Gain (COG), and Distance are used to identify diversification opportunities. Distance indicates measures the similarity of the productive capacities required by two products and helps to identify "nearby products" that demand similar knowhow and could be developed by redeploying existing knowhow in the sector (RCA >1). PCI indicates the complexity of a product, serving as proxy of the diversity of skills required to develop a certain product. COG measures the strategic value of developing a product, by estimating how attractive the products that are nearby to a certain product are, and how feasible developing them is in the context.

For the intensive margin, we only relied on the PCI to prioritize products – as distance becomes zero and the COG has already been captured for those products where Mozambique already has a revealed comparative advantage (RCA>1). For the extensive margin we follow two different approaches:

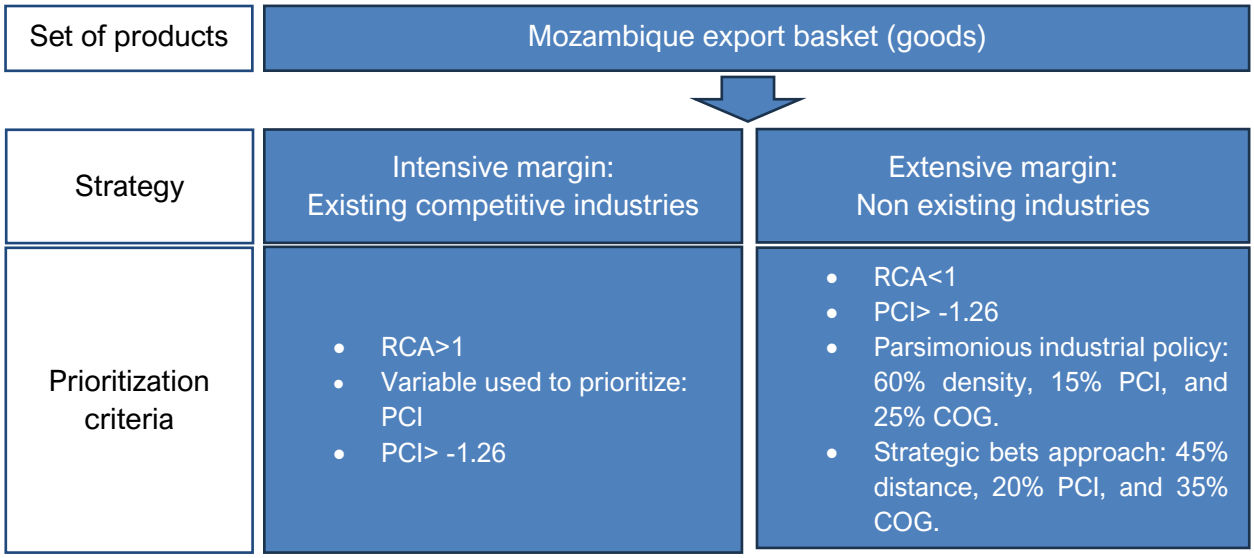
- Parsimonious industrial policy: This prioritizes the likelihood of success by putting more weight on the distance variable. We used a 60% of weight for the density variable, 15% on PCI and 25% on COG. These weights are preliminary and are informed from previous Growth Lab experience.
- Strategic bets strategy: Prioritize strategic value, by putting more weight on complexity measures and the strategic value of developing the product (PCI and COG). With this strategy, the opportunities are further from the existing knowhow in the country, implying higher risk, but higher reward. We used a weight of 45% on distance, 20% on PCI and 35%

[134] This is because the services information in the Atlas Complexity Database is subject to some limitations, including time and country coverage, and the unilateral trade flows. For more information see the following link.
[135] A measure of whether a country-specific is an exporter of a product based on the relative advantage or disadvantage a country has in exporting a specific good. See Appendix 4 for more information. Under this definition, a country is an effective exporter of a product if it exports more than a "fair share", or a share that is at least equal to the share of total world trade that the product represent (RCA >1).

on COG. These weights are preliminary and are informed from previous Growth Lab experience.

The final list of products would consider the products that ranked with the highest potential in both strategies. To maintain the level of complexity of the export composition, for both extensive and intensive margin approach we just considered products with a PCI over the -1.26 (ECI of Mozambique in 2021).

Figure 179: Process for sector identification



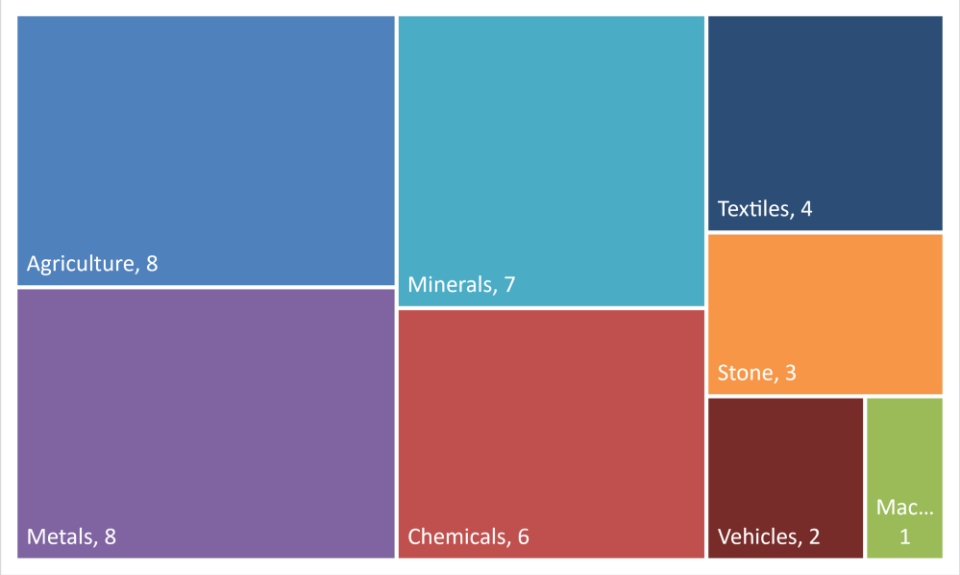
Source: Own elaboration.

5.4.2. Results of the process

The results of the process for the intensive margin indicates that 39 goods that Mozambique already produces can be scaled up. The selection of products can be categorized into eight sector categories (Figure 180). The results of this exercise indicate high achievers in Mozambique, because we are selecting existing products with comparative advantage in the global market that have the potential to grow further and increase the sophistication of the export basket (their PCI is over the overall ECI of Mozambique). The metal and agriculture sectors indicate 8 products that the country already exports and that are more complex than the average complexity of the export basket of the country. Those sectors are followed by the mineral and chemical sectors with 7 and 6 products to scale up, respectively[136]. The more complex products that the country could scale up are: gold clad metals (stone sector), bricks, tiles and similar refractory ceramic constructional goods (stone sector), flourides (chemicals sector), wooden railways ties (agriculture sector), other rail locomotives (vehicles sector), corrugated paper and paperboard (agriculture), flat-rolled iron (metals), wooden frames (agriculture), and aluminum bars (metals). These products are an example of industries that exist in the country and that can be prioritized to increase the complexity of the export basket.

[136] See the final list, ordered by complexity (PCI) in the Appendix 5 - Figure A.12: List of products from the intensive margin approach.

Figure 180: Intensive margin approach: Number of products by sector

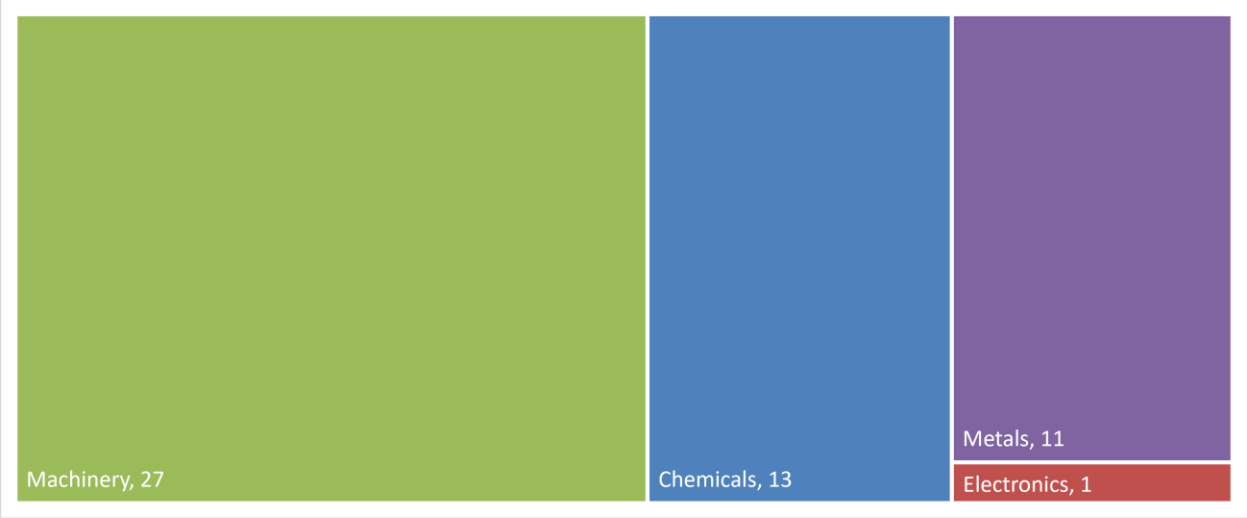


Source: Own elaboration using the Atlas Complexity database, 2023.

On the extensive margin we have identified several products with high potential and classified them into 4 sectors. Based on Mozambique's current capabilities, we identified 52 products that the country can specialize in based on the strategic bets strategy and the parsimonious industrial policy. We selected the products that appear as a result of both approaches, which means that the final list of products prioritizes both complexity and the likelihood of developing the product based on the current capabilities of the country. The list[137] is divided into 4 sectors (Figure 181), and the machinery sector concentrates a total of 27 products in which Mozambique could diversify into, including products like machines, machine tools, instruments for physical or chemical analysis, among others. The chemical sector includes products like silicones and lubricants, and products in the metal sector include the production of knives, articles for utensils, handsaws, cerments, among others.

[137] See the final list, ordered by complexity (PCI) in the Appendix 5 - Figure A.13: List of products from the extensive margin approach.

Figure 181: Intensive margin approach: Number of products by sector



Source: Own elaboration using the Atlas Complexity database, 2023.

References

Addison, T. (2003). From Conflict to Recovery in Africa. Oxford: Oxford University Press.

African Development Bank (2018). Mozambique Country Strategy Paper 2018 -2022.

African Development Bank (2021). Country Priority Plan and Diagnostic of the Electricity sector. Mozambique. AFDB's Power, Energy, Climate & Green Growth Complex.

Afrobarometer (2021) Mozambique, Round 8 summary of results. https://www.afrobarometer.org/publication/summary-results-afrobarometer-round-8-survey-mozambique-2021/

Aga, G., Campos, F., Conconi, A., Davies, E., & Geginat, C. (2019). Informal firms in Mozambique: status and potential. Retrieved from https://documents1.worldbank.org/curated/en/275211562775522380/pdf/Informal-Firms-in-Mozambique-Status-and-Potential.pdf

Aisen, A., & Simione, F. (2019). Towards a New Monetary Policy Regime in Mozambique. The Journal of Applied Business and Economics, 21(6), 12-24.

Aikaeli, J., & Mkenda, B. K. (2014). Determinants of Informal Employment: A Case of Tanzania Construction Industry. Retrieved from https://academicjournals.org/journal/BOJE/how-to-cite-article/9A7B38668283

Aikaeli, Jehovaness, and Thomas Markussen (2022). "Titling and the Value of Land in Tanzania." Journal of International Development 34, no. 3, pp. 512–31. https://doi.org/10.1002/jid.3615.

ALER, & AMER (2020). Briefing Renewables in Mozambique.

Alfieri, A., Arndt, C., & Cirera, X. (2007). Distortions to agricultural incentives in Mozambique (No. 1856-2016-152673).

Ang, Y. Y. (2020). Unbundling Corruption: Why it matters and how to do it. OECD Development Matters. https://oecd-development-matters.org/2020/06/25/unbundling-corruption-why-it-matters-and-how-to-do-it/

Baez Ramirez, J. E., Caruso, G. D., Niu, C., & Myers, C. A. (2018). Mozambique poverty assessment: Strong but not broadly shared growth: Overview. World Bank Group. http://documents. worldbank. org/curated/en/377881540320229995/Overview.

Balas, M., Carrilho, J., & Lemmen, C. (2021). The Fit for Purpose Land Administration Approach-Connecting People, Processes and Technology in Mozambique. Retrieved from https://www.mdpi.com/2073-445X/10/8/818

Balassa, B. (1964). The Purchasing-Power Parity Doctrine: A Reappraisal. Journal of Political Economy, 72(6), 584–596. http://www.jstor.org/stable/1829464

Bank of Mozambique, 2017, "Desafios da Modernização do Regime da Política Monetária: O Caso de Moçambique."

Bank of Mozambique, 2022, "Financial Stability Bulletin". December 2022.

Bak, M. (2021) Overview of corruption and anti-corruption in Mozambique. Chr. Michelsen Institute and Transparency International. https://knowledgehub.transparency.org/helpdesk/overview-of-corruption-and-anti-corruption-in-mozambique-1

Barletta, G., Barkel, H., Bryson, S., Fisker, P., Gioia, F., Lopez, A., Mazive, E., Mikkelsen, F., Rand, J., Tarp, F., Trifkovic, N., & Vieira, I. (2023). Survey of Mozambican Manufacturing Firms 2022. *Inclusive Growth in Mozambique*.

Beintema, N., Manjate, G., & Flaherty, K. (2018). Mozambique: Agricultural R&D indicators factsheet. International Food Policy Research Institute (IFPRI).

BERF (2017). Business Environment Reform Facility: BER Scoping Assessment for DFID Mozambique Economic Governance Programme. 22 August 2017.

Brautigam, D. (2022). China and Zambia: creating a sovereign debt crisis. International Affairs, 98(4), 1347-1365.

Board, F. S. (2022). US dollar funding and emerging market economy vulnerabilities. Basel: Financial Stability Board.

Bonilla Cedrez, C., Chamberlin, J., Guo, Z., & Hijmans, R. J. (2020). Spatial variation in fertilizer prices in Sub-Saharan Africa. *PloS one*, *15*(1), e0227764.

Bonucchi, M., Ferrari, M., Tomasini, S., & Tsenova, T. (2015). Tax policy, investment decisions and economic growth 1. Revue de l'OFCE, (5), 225-262.

Castro, P., Junquera-Varela, R., Schenone, O., & Teixeira, A. (2009). Evaluation of Reforms in Tax Policy and Administration in Mozambique and Related TA–1994-2007. IMF/IFAD. September.

Campos, N. F., Estrin, S. & Proto, E. (2010). Corruption as a Barrier to Entry: Theory and Evidence. IZA Discussion Paper, No. 5243.

Centro de Integridade Pública & Chr. Michelsen Institute (2016). The Costs of Corruption to the Mozambican Economy: Why it is important to fight corruption in a climate of fiscal fragility. CMI Report No. 6. https://www.cmi.no/publications/6027-the-costs-of-corruption-to-the-mozambican-economy

CEPA (2015). Mobilising Financce for Infrastructure: A study for the UK Department for International Development (DFID). Mozambique country case study. August 2015.

Commission for Africa. (2005). Our Common Interest: Report of the Commission for Africa. Commission for Africa, London.

Cortez, E., Orre, A., Fael, B., Nhamirre, B., Banze, C., Mapisse, I., ... & Reite, T. (2021). Costs and consequences of the hidden debt scandal of Mozambique.

Cruz, A. S., Ferreira, I. A., Flentø, J. & Tarp, F. (2023). Mozambique at a Fork in the Road: An Institutional Diagnostic. Cambridge University Press. https://www.cambridge.org/core/books/mozambique-at-a-fork-in-the-road/754C8056FB4F544A8029DB84859DFA2B

Cull, R., T. Ehrbeck, and N. Holle (2014). "Financial Inclusion and Development: Recent Impact Evidence." CGAP Focus Note 92. World Bank, Washington, DC.

Cunguara, B., Thompson, T., & Davis, K. (2018). Mozambique: Desk Study of Extension and Advisory Services Developing Local Extension Capacity (DLEC) Project. *Feed the Future: Washington, DC, USA*.

DAI (2018) Mozambique: Even a Progressive Land Law Needs Revision After a Generation of Experience. Annual World Bank Conference on Land and Poverty. Washignton DC. Available in: https://www.land-links.org/wp-content/uploads/2018/04/Session-07-10-Rose-665_paper.pdf

Damodaran, A. (2022). Country Risk: Determinants, Measures and Implications–The 2022 Edition. Measures and Implications–The.-

Damodaran, A. (2022b). Equity risk premiums (ERP): Determinants, estimation and implications–The 2022 edition. Measures and Implications–The.

Danish Trade Union Development Agency. (2017). Labour Market Profile - Mozambique. Retrieved from https://www.ulandssekretariatet.dk/wp-content/uploads/2020/03/Mozambique_lmp_2017.pdf

DBDS (2014). Regulators' Code. April 2014.

De Quadros, M. C. (2003). Current land policy issues in Mozambique. In Land Settlement and Cooperatives, ed: P. Groppo. Rome: Food and Agriculture Organization.

Dinh, Hinh T., and Célestin Monga (2013). Light Manufacturing in Tanzania: A Reform Agenda for Job Creation and Prosperity. World Bank Publications.

Domínguez, C., & Briceno-Garmendia, C. (2011). Mozambique's Infrastructure: A Continental Perspective. *World Bank Policy Research Working Paper*, (5885).

Dutta, S., Lanvin, B., Wunsch-Vincent, S., & León, L. R. (Eds.). (2022). Global Innovation Index 2022:: What is the Future of Innovation-driven Growth? (Vol. 2000). WIPO.

EDM (2018). EDM Integrated Master Plan.

EDM (2020). Annual Report.

EIB (2022) Is crowding out of private sector credit inhibiting Africa's growth? European Investment Bank Economics Department, https://www.eib.org/attachments/lucalli/20220180_is_crowding_out_of_private_sector_credit_inhibiting_africas_growth_en.pdf

Economist Intelligence Unit (2021). Infrascope: The Enabling Environment for Public-Private Partnerships. Country: Mozambique. https://infrascope.eiu.com/wp-content/uploads/2022/03/EIU_MCC_MOZAMBIQUE_PROOF_07.pdf

FAO (2023) Mozambique at a glance, http://www.fao.org/mozambique/fao-inmozambique/mozambique-at-a-glance/en

Fisman, R. & Golden, M. A. (2017). Corruption: what everyone needs to know. Oxford University Press.

Fischer, R., & Nhabinde, V. (2012). Assessment of Public-Private Partnerships in Mozambique. International Growth Center (IGC) article.

Franco, A. S., & Katiyo, L. (2017). Business Environment Reform Facility: BER Scoping Assessment for DFID Mozambique Economic Governance Programme. Department of International Development, UK Government. Retrieved from Available at: www.gov.uk/dfid-research-outputs/business-environment-reform-scoping-assessments-for-dfid- mozambique-economic-governance-programme

Fox, M. Louise. Education Reform in Mozambique: Lessons and Challenges. Washington, D.C: World Bank, 2012. Print.

Gebregziabher. F. H. and Sala, A. P. (2022, April 19). *Mozambique's "hidden debts": Turning a crisis into an opportunity for reform.* World Bank blogs. https://blogs.worldbank.org/africacan/mozambiques-hidden-debts-turning-crisis-opportunity-reform

Gwilliam, K. (2011). *Africa's transport infrastructure: Mainstreaming maintenance and management*. World Bank Publications.

Glover, S. M., Salvucci, V., & Jones, S. (2016). *Where is commercial farming expanding in Mozambique? Evidence from agricultural surveys* (No. 2016/159). WIDER Working Paper.

Harvard University (2023). Atlas Economic Complexity. https://atlas.cid.harvard.edu/

Hallak, J. C. (2006) "Product quality and the direction of trade," Journal of International Economics, Vol. 68, pp. 238–65.

Hausmann, Ricardo and Rodrik, Dani. (2002). Economic Development as Self-Discovery. May 2002. NBER Working Paper No. w8952, Available at SSRN: https://ssrn.com/abstract=313653

Hausmann, R., Rodrik, D. & Velasco, A., 2005. Growth Diagnostics. Copy at http://www.tinyurl.com/29mwtl4l

Hausmann, R., & B. Klinger (2006) "Structural transformation and patterns of comparative advantage in the product space." RWP06-041 Faculty Research Working Papers Series, JFK School of Government, Harvard University.

Hausmann, R., Klinger, B., & Wagner, R. (2008). Doing growth diagnostics in practice: a'Mindbook'. CID Working Paper Series.

Hausmann, R., and Klinger, B. (2008). Growth diagnostics in Peru. *CID Working Paper Series*.

Henn, C., Papageorgiou, M. C., & Spatafora, M. N. (2013). Export quality in developing countries. International Monetary Fund.

Hausmann, R., Hidalgo, C. A., Bustos, S., Coscia, M., & Simoes, A. (2014). The atlas of economic complexity: Mapping paths to prosperity. Mit Press.

Hou, Q., Tang, X., & Teng, M. (2021). Labor costs and financialization of real sectors in emerging markets. *Pacific-Basin Finance Journal*. Obtenido de https://www.sciencedirect.com/science/article/abs/pii/S0927538X21000548

Ibrahim Index of African Governance (2022) Mozambique. https://iiag.online/locations/mz.html

ICF (2012) The Future of Natural Gas in Mozambique: Towards a Gas Master Plan Executive Summary. December 20, 2012 Submitted to: The World Bank and Government of Mozambique Steering Committee

IFC (2021) Creating Markets in Mozambique. Country Private Sector Diagnostic. World Bank Group.

IFPRI (2018) Agricultural Total Factor Productivity (TFP), 1991-2014: 2018 Global Food Policy Report Annex Table 5. Available in: https://doi.org/10.7910/DVN/IDOCML, Harvard Dataverse, V1

IGC (2015) A strategy and policy framework to support the development of the construction and building materials industries in Mozambique

Iimi, A. (2021). *Estimating the Impact of Improved Roads on Access to Health Care: Evidence from Mozambique*. The World Bank.

Iimi, A. (2022). Agriculture Production and Transport Connectivity: Evidence from Mozambique. *The Journal of Development Studies*, *58*(12), 2483-2502.

ILO. (2014). *Labour Laws, the Business Environment and Growth of Micro and Small Enterprises.* Obtenido de https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---sro-new_delhi/documents/publication/wcms_344398.pdf

Instituto Nacional de Estatística. (2020). Anuário Estatístico. Statistical Yearbook 2020.

Instituto Nacional de Estatística. (2023). Inquérito Sobre Orçamento Familiar, 2022

International Development Association (IDA), & International Monetary Fund. (2020). Republic of Mozambique: Joint Bank-Fund Debt Sustainability Analysis, 2020 Update.

INE (2021). Inquérito ao Sector Informal - 2021 Moçambique.

IMF (2015). Republic of Mozambique: Third Review Under the Policy Support Instrument. January 9, 2015

IMF (2019a). Mozambique's Natural Gas Resources: Tradeoffs and Opportunities, IMF Staff Country Reports, 2019(167), A001.

IMF (2019b). Republic of Mozambique: Diagnostic Report on Transparency, Governance and Corruption. *Country Report No. 2019/276*. https://www.imf.org/en/Publications/CR/Issues/2019/08/23/Republic-of-Mozambique-Diagnostic-Report-on-Transparency-Governance-and-Corruption-48613

IMF. (2021). *The Global Informal Workforce: Priorities for Inclusive Growth.* Obtenido de https://www.elibrary.imf.org/fileasset/IEATWEAEX.pdf?cid=va-com-compd-ieatw

IMF (2022). First Review Under the Three-year Arrangement Under the Extended Credit Facility. Mozambique.

IMF (2023a). República de Moçambique relatório de assistência técnica decorrente da missão sobre estadísticas das finanças públicas (27 de agosto a 7 de setembro de 2018). Relatório do FMI n.º 23/52.

IMF (2023b). Chile: Technical Assistance Report-Fiscal Considerations in Managing Stabilization Funds. July 7, 2023

JICA. (2017). Laws and Regulations Related to FDI in Mozambique. Retrieved from https://www.jica.go.jp/Resource/project/mozambique/010/materials/ku57pq00003e9z3q-att/laws_regulations_mozambique_e.pdf

JICA & JLA Advogados. (2019). HIRING OF FOREIGNERS IN MOZAMBIQUE - REGULATORY REGIMES AND PRACTICES - REFERENCE FOR INVESTORS. Retrieved from https://www.jica.go.jp/Resource/mozambique/english/office/others/c8h0vm0000f4kbij-att/hiring_en.pdf.

Jones, S., & Tarp, F. (2016). Understanding Mozambique's growth experience through an employment lens. Retrieved from https://www.brookings.edu/wp-content/uploads/2016/07/WP2015109-Jones-and-Tarp.pdf

Jones, S., Sohnesen, T. P., & Trifkovic, N. (2018). The evolution of private returns to education during post-conflict transformation: Evidence from Mozambique (No. 2018/143). WIDER Working Paper.

Karlan, D., R. Osei, I. Osei-Akoto, and C. Udry (2014). "Agricultural Decisions after Relaxing Credit and Risk Constraints." Quarterly Journal of Economics 129 (2): 597–652.

Kaufmann, D. & Wei, S.-J. (2000). Does "Grease Money" Speed Up the Wheels of Commerce? IMF Working Paper 64. https://doi.org/10.5089/9781451848557.001

Khandker, R. (2021). Credit for agricultural development. In Agricultural development: New perspectives in a changing world, eds. Keijiro Otsuka and Shenggen Fan. Part Three: Context for Agricultural Development, Chapter 16, Pp. 529-562. Washington, DC: International Food Policy Research Institute (IFPRI). https://doi.org/10.2499/9780896293830_16

Kose, M. A., Nagle, P., Ohnsorge, F., & Sugawara, N. (2021). Global waves of debt: Causes and consequences. World Bank Publications.

Krause, M., Ackermann, M., Gayoso, L., Hirtbach, C., Koppa, M. & Brêtas, L. S. (2010). Formalisation and Business Development in Mozambique: How important are regulations? German Development Institute. https://www.idos-research.de/uploads/media/Studies_53.pdf

Lachler, U., & Walker, I. (2018). Mozambique Jobs Diagnostic.

Lledó, V. (2007). Strengthening Mozambique's Business Environment: Diagnostics, Strategies, and Outcomes'. In J. A. P. Clément and S. J. Peiris (eds.), Post-Stabilization Economics in Sub-Saharan Africa: Lessons from Mozambique. Washington, DC: International Monetary Fund.

Locke, A. (2014). Mozambique Land Policy Development Case Study.

Melgar, N., Rossi, M. & Smith, T. (2010) 'The Perception of Corruption', International Journal of Public Opinion Research, 22(1), pp. 120–31.

Manysheva, K. (2022). "Land Property Rights, Financial Frictions, and Resource Allocation in Developing Countries". Job Market Paper. https://nbviewer.org/github/manysheva/MyWebsite/blob/master/Land_finance_allocation.pdf?flush_cache=true

Mauro, P., Medas, P. & Fournier, J. M. (2019). The Cost of Corruption: Graft results in lost tax revenue, but it also takes a social toll. IMF, Finance & Development. https://www.imf.org/en/Publications/fandd/issues/2019/09/the-true-cost-of-global-corruption-mauro

Mincer, J. A. (1974). The human capital earnings function. In *Schooling, experience, and earnings* (pp. 83-96). NBER.

Ministry of Industry and Commerce (MIC) (2016). Positioning of Mozambique in the International Trade: Trade Flows in Mozambique: Trends and Policy Measures. Republic of Mozambique.

Moszoro, M., & Soto, M. (2022). Road quality and mean speed score.

OECD (2003). Investment in weak Governance Zones. Summary of consultations.

OECD. (2018). Tax policies for inclusive growth in a changing world. Retrieved from https://www.oecd.org/g20/Tax-policies-for-inclusive-growth-in-a-changing-world-OECD.pdf

OECD. (2018b). Gaps and Governance Standards of Public Infrastructure in Chile. OECD. Retrieved from https://www.oecd.org/governance/budgeting/gaps-and-governance-standards-of-public-infrastructure-in-chile.pdf

OECD. (2019). *OECD Employment Outlook 2019 : The Future of Work.* Obtenido de https://www.oecd-ilibrary.org/sites/b40da5b7-

Psacharopoulos, G., & Patrinos, H. A. (2018). Returns to investment in education: a decennial review of the global literature. Education Economics, 26(5), 445-458.

PWC. (2023). Worldwide Tax Summaries. Retrieved from Mozambique: https://taxsummaries.pwc.com/mozambique/corporate/significant-developments

Ribeiro, J., Muzima, J., Martin, S., Almedia Santos, A., Schiere, R., Aleobua, B., & Cassamo, S. (2011). Republic of Mozambique: Country strategy paper 2011-2015.

Rose, I., & Carrilho, J. (2012). Building Mozambique's Cadastre: A Delicate Balancing Act. Washington, D.C: World Bank.

Ross, M. D. C., Lledo, V. D., Segura-Ubiergo, M. A., Xiao, M. Y., Masha, M. I., Thomas, M. A. H., & Inui, M. K. (2014). Mozambique rising: building a new tomorrow. International Monetary Fund.

Salazar-Esponiza, C., Jones, S., & Tarp, F. (2015). Weather shocks and cropland decisions in rural Mozambique. Food Policy, 53, 9-21. https://doi.org/10.1016/j.foodpol.2015.03.003

Salite, D., Kirshner, J., Cotton, M., Howe, L., Cuamba, B., Feijó, J., & Macome, A. Z. (2021). Electricity access in Mozambique: A critical policy analysis of investment, service reliability and social sustainability. *Energy Research & Social Science*, *78*, 102123.

Schwab, Klaus (2019). "The Global Competitiveness Report". World Economic Forum. https://apo.org.au/node/262576.

SPEED+. 2018. "Rapid Water and Sanitation Market Assessment".

Sørensen, B. B., Estmann, C., Sarmento, E. F., & Rand, J. (2020). Economic complexity and structural transformation: the case of Mozambique (No. 2020/141). WIDER Working Paper.

Soto, Y. E., Carvalho, N., El Said, M. & Zavarce, H. (2018). The Governance Challenge in Mozambique, In Republic Of Mozambique Selected Issues (pp. 18–30). IMF Country Report No. 18/66.

Stoilova, D. (2017). Tax structure and economic growth: Evidence from the European Union. Contaduría y administración, 62(3), 1041-1057.

Swistak, A., Liu, L., & Varsano, R. (2017). Mozambique. Towards More Efficient Non-Resource Taxation: A Strategy for Reform. Retrieved from IMF: file:///Users/mariaangelicatrujillo/Library/Mobile%20Documents/com~apple~CloudDocs/MPP/Growth_Diagnostics_Mozambique/06_Document_word/00_Insumos/06_Tax_regulations/null-002.2023.issue-022-en.pdf

Suit, K. C., & Choudhary, V. (2015). Mozambique: Agricultural Sector Risk Assessment. *Agriculture Global Practice Technical Assistance Paper. World Bank Group Report Number 96289-MZ*.

The Republic of Mozambique Ministry of Mineral Resources and Energy (2017). Integrated Master Plan Mozambique Power System Development.

Toulmin, C. (2006). Securing land and property rights in sub-Saharan Africa: The role of local institutions. ELSEVIER.

Tonelli, M., & Dalglish, C. (2012). The role of transport infrastructure in facilitating the survival and growth of micro-enterprises in developing economies. In *2012 Australian Centre for Entrepreneurship Research and DIANA Conference (ACERE DIANA)* (pp. 111-111)

Transparency International (2019) Global Corruption Barometer – Africa. https://www.transparency.org/en/gcb/africa/africa-2019

Transparency International (2022) Corruption Perceptions Index. https://www.transparency.org/en/cpi/2022?gclid=Cj0KCQjwldKmBhCCARIsAP-0rfwpCvzyKGr9X2hlwDOfQeDy1pLoB3yGiJthEjdnzbp6qFhcx3sHKG0aAiV6EALw_wcB

UNCTAD. (2012). Estudo sobre a Política de Investimento MOÇAMBIQUE. Retrieved from https://unctad.org/system/files/official-document/diaepcb2012d1_pt.pdf

UNCTAD (2022). Economic Development in Africa Report 2022: Rethinking the Foundations of Export Diversification in Africa: The Catalytic Role of Business and Financial Services. (United Nations publication. Sales No. E.22.II.D.31. Geneva).

UNCTAD (2023). Mozambique's Integration into Regional Value Chains and the Role of Women Small-Scale Cross- Border Traders. (United Nations publication. Geneva).

UNDP (2021) Human Development Report "Uncertain Times, Unsettled Lives: Shaping our Future in a Transforming World"

United Nations (2012). Chapter III. Business enabling environment. In Policy Guidebook for SME Development in Asia and the Pacific (pp. 37–64). https://doi.org/10.18356/e1cb47c6-en

UNICEF (2017). For every child, education. Mozambique. UNICEF Mozambique. Retrieved September 14, 2023, from https://www.unicef.org/mozambique/en/education

UNICEF (2019). Budget Brief: Education. Mozambique 2019. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.unicef.org/mozambique/media/2751/file/Budget_Brief_2019_-_Education.pdf

USAID (2018). LANDLINKS. Retrieved from Mozambique, June 2018: https://www.land-links.org/country-profile/mozambique/#1528831706646-93c5b63a-49c9.

Walker, M. (2021). Protecting Smallholder Land Rights in Mozambique, 1997–2017: Unfinished Business? African Studies Review, 64(2), 315-338. doi:10.1017/asr.2020.55

World Trade Organization (2001). Trade Policy Review. Report by the Secretariat. Mozambique.

World Trade Organization (2017). Trade Policy Review. Report by the Secretariat. Mozambique.

World Bank (2014). Mozambique - Public expenditure review: addressing the challenges of today, seizing the opportunities of tomorrow.

World Bank (2016a). *Measuring rural access: Using new technologies*. World Bank.

World Bank (2016b). Mozambique – Systematic Country Diagnostic. Washington, DC: World Bank Group.

World Bank (2017). Avaliação da governança da terra em Moçambique : 2015-16 - relatório final (Portuguese). Retrieved from Washington, D.C.: World Bank Group: http://documents.worldbank.org/curated/en/852671504855060874/Avaliação-da-governança-daterra-em-Moçambique-2015-16-relatório-final

World Bank (2019a). DESIGUALDADES ESPACIAIS NO ACESSO A INFRAESTRUTURAS BÁSICAS EM MOÇAMBIQUE. Orientações para o Programa de Investimento Público de Moçambique.

World Bank (2019b). Mozambique energy for all (ProEnergia) Project. Energy and Extractive Global Practice Africa Region.

World Bank. (2019c). Mind the Rural Investment Gap: Disparities in Access to Basic Infrastructure and Directions for Mozambique's Public Investment Program. World Bank.

World Bank & Digital Economy for Africa (2019). Mozambique Digital Economy Diagnostic. Executive Summary Report. The World Bank Group.

World Bank. (2020a). Doing Business 2020. Economy Profile. Mozambique. Retrieved from https://archive.doingbusiness.org/content/dam/doingBusiness/country/m/mozambique/MOZ.pdf

World Bank. (2020b). Mozambique Country Economic Memorandum. https://www.worldbank.org/en/region/afr/publication/mozambique-country-economic-memorandum-mozambique-needs-a-new-growth-model-for-sustained-inclusive-development

World Bank Group. (2020c). Benchmarking Infrastructure Development 2020: Assessing Regulatory Quality to Prepare, Procure, and Manage PPPs and Traditional Public Investment in Infrastructure Projects. World Bank.

World Bank (2021). Mozambique 2021 Systematic Country Diagnostic: Coming Together for a Better Future. World Bank, 2021.

World Bank (2022a). Mozambique Economic Update: Getting Agricultural Support Right.

World Bank. (2022b). *Cultivating Opportunities for Faster Rural Income Growth and Poverty Reduction: Mozambique Rural Income Diagnostic*. World Bank.

World Bank (2023a). Mozambique Economic Update: Shaping the Future - Why Services Matter for Growth and Jobs.

World Bank (2023b). The World Bank Group in Mozambique, Fiscal Years 2008-21-Country Program Evaluation.

World Bank (2023c). Business ready. Methodology Handbook

World Bank (2023d). Poverty Reduction Setback in Times of compounding Schock. Mozambique poverty assessment.

World Bank (2023e). Mozambique - Public expenditure review: Rebalancing Public Spending.

Appendix

Appendix 1: Peer selection

For the choice of Mozambique's peer countries, we carried out two statistical analyses to select countries similar to Mozambique on the chosen variables. The first procedure maximizes the index of similarity between Mozambique and the potential peers on the baris of variables chosen and the weights assigned to them. The variables and the weights chosen were: (i) Agriculture, forestry, and fishing, value added (annual % growth): 0.086; (ii) Agriculture, forestry, and fishing, value added (% of GDP): 0.086; (iii) Services, value added (annual % growth): 0.086; (iv) Services, value added (% GDP): 0.086; (v) GDP per capita (constant US 2015): 0.137; (vi) Total natural resources rents (% GDP): 0.17; (vii) Employment in agriculture (% of total employment): 0.086; (viii) Employment in services: 0.086; (ix) Population ages 15-64: 0.086; (x) Export Cosine similarity (SITC4): 0.086. This methodology indicates the countries with the maximum sum of normalized (from 0 to 10) components that are all measured against their respective valued for Mozambique.

On the other hand, we conducted a Cluster Analysis which classify a sample of countries on the basis of a set of variables into different groups. We conducted this analysis using the average of the last 5 years for the following variables: (i) agriculture (annual growth,%), (ii) agriculture (% GDP), services (annual growth, %), (iii) services (% GDP), (iv) GDP per capita, (v) total natural resources rents (% GDP), (vi) employment in agriculture (%), (vii) employment in services (%), (viii) population aged 15-64, (ix) Economic Complexity index, (x) rural population (%). This analysis was conducted just for the Sub-Saharan region, and for all the countries in the sample.

As a result of both methodologies, we obtained a long list of countries (Table A.1).

Table A.1. List of countries by methodology

Similarity analysis	Cluster Analysis	
All countries	**Sub-Saharan Africa**	**All**
Myanmar	Angola	Angola
Algeria	Madagascar	Australia
Liberia	Ivory Coast	Yemen
Guinea	**Cameroon**	Ghana
Burundi	**Ghana**	Nepal
Uzbekistan	Zambia	**Chile**
Central African Republic		Romania
Democratic Republic of the Congo		Ivory Coast
Uganda		Cameroon
Nigeria		Lao
Sudan		Madagascar
Chad		
Mauritania		
Burkina Faso		
Rwanda		
Tanzania		
Russian Federation		
Madagascar		
Afghanistan		
Lao		

The process of selecting the ultimate set of countries was primarily driven by a comprehensive evaluation of each nation's export diversification. The final list also includes South Africa as an aspirational country within the region. The decision to incorporate South Africa stems from its status as a remarkably diversified economy within the Sub-Saharan region[138]. Furthermore, our selection extends to Chile as an aspirational global representative. This choice is underpinned by several factors, notably its striking per capita income, which surpasses that of Mozambique by a staggering factor of 24 (as shown in Table A.2). Beyond its economic prowess, Chile's heavy reliance on natural resources and agriculture[139] further accentuates its importance as a reference country for Mozambique.

The final list of peers is as follows:

Table A.2: Final list of peer countries

Country	Abbreviation	GDP per capita (constant 2015 US) 2022	Reason for choice
Mozambique	MOZ	580.7	
South Africa	ZAF	6018.5	Aspirational country for all countries in the region
Cameroon	CMR	1445.6	Similar peer
Ghana	GHA	2040	Similar peer
Tanzania	TZA	1056.9	Similar peer
Rwanda	RWA	940.4	Similar peer
Zambia	ZMB	1281.8	Similar peer
Uganda	UGA	934.9	Similar peer
Chile	CHL	14358.3	Aspirational out of the region

Appendix 2: List of meetings with stakeholders

	Type of stakeholder	Stakeholder name	Date of the meeting
1	Public sector	Ministry of Economics and Finance - MEF	Monday 10 July, 1:30 pm
2	Public sector	Agência para a Promoção do Investimento e das Exportações (APIEX)	Monday 10 July, 3:15 pm
3	Private sector	Vodacom	Monday 10 July, 5 pm
4	Public sector	Ministry of Education and Human Development	Tuesday 11 July, 8:30 am
5	Private sector	Banking association	Tuesday 11 July, 10 am
6	Public sector	Ministry of Labor, Employment and Social Security	Tuesday 11 July, 11:30 am
7	Think thank	Managers of Inclusive Growth project	Tuesday 11 July, 11:30 am

[138] See the following link: https://atlas.cid.harvard.edu/countries/246/export-basket
[139] See the following link: https://atlas.cid.harvard.edu/countries/42/export-basket

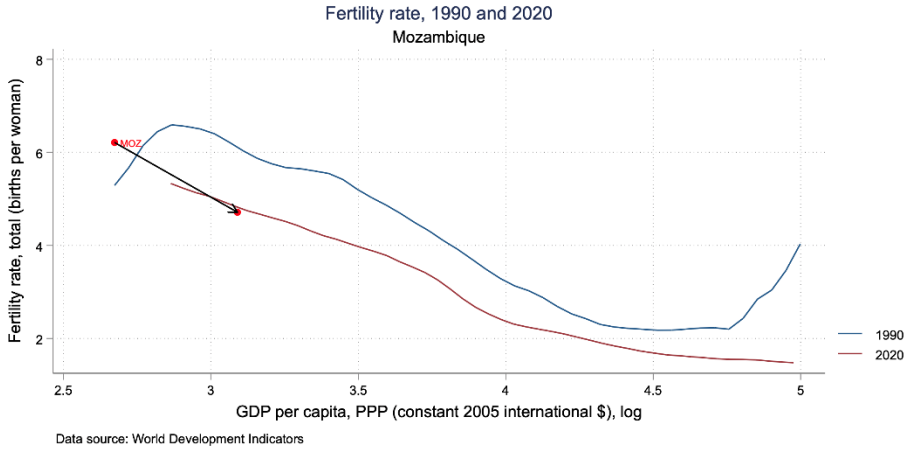
8	Public sector	Ministry of Agriculture and Rural Development	Tuesday 11 July, 1:45 pm am
9	Public sector	Ministry of Industry and Trade	Tuesday 11 July, 1:45 pm am
10	Public sector	Ministry of Transportation and Communications	Tuesday 11 July, 1:45 pm am
11	Public sector	Ministry of Land and Environment	Wednesday 12 July, 08:30 am
12	Public sector	Ministry of Public Works and Housing and Water Resources	Wednesday 12 July, 08:30 am
13	Public sector	Ministry of Mineral Resources and Energy	Wednesday 12 July, 08:30 am
14	Public Sector	Mozambique Central Bank	Wednesday 12 July, 11 am
15	Civil Society	Center of Public Integrity (CIP)	Wednesday 12 July, 2:45 pm
16	Private sector	Association of Commerce, Industry and Services (ACIS)	Wednesday 12 July, 4 pm
17	Private sector	DP World	Thrusday 13 July, 7:30 am
18	Private sector	Vulcan/Jindal (former Vale)	Thrusday 13 July, 9 am
19	Private sector	ENI	Thrusday 13 July, 11:30 am
20	Private sector	Total Energies	Thrusday 13 July, 2 pm
21	Private sector	Exxon	Thrusday 13 July, 3 pm
22	Private sector	Globeleq	Thrusday 13 July, 4 pm
23	Private sector	Maputo Port Development Company (MPDC)	Thrusday 13 July, 5 pm
24	Private sector	Special Economic Zones: MozParks + Mozal + Capital Star Steel + Beleza Mozambique	Friday 14 July, 7:45 am
25	Public sector	Electricity of Mozambique (EDM)	Friday 14 July, 9:45 am
26	Public sector	Ports and Railways of Mozambique (CFM)	Friday 14 July, 9:45 am
27	Public sector	Mozambique Telecommunications	Friday 14 July, 9:45 am
28	International community/Public sector	USAID/MEF	Friday 14 July, 12:30 pm
29	Civil society	Confederation of Economic Association – CTA	Friday 14 July, 2:30 pm
30	Think Tank	International Growth Centre	Friday 14 July, 3:45 pm
31	Private sector	Standard Bank	Friday 14 July, 5 pm
32	International community	USAID/SPEED	Tuesday 11 July, 5 pm
33	International community	MCC Staff	Tuesday 18 July, 2 pm

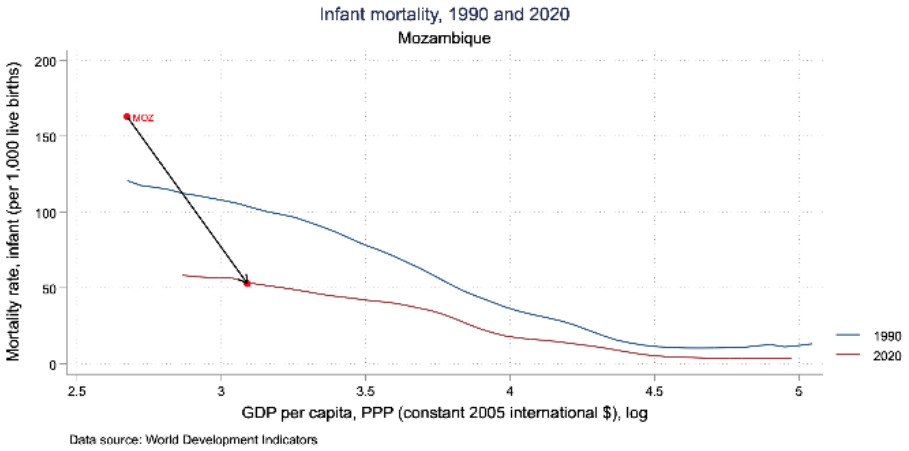
34	Think thank	IMF Tax and Industrial Policy Research	Tuesday 25 July, 2 pm
35	Private sector	Portucel	Tuesday 1 August, 1:30 pm
36	Think thank	UNDP and Institute for Security Studies (ISS)	Wednesday 2 August, 1:30 pm
37	International community	World Bank	Wednesday 13 September, 1pm
38	Think thank	Instituto de Estudos Sociais e Económicos (IESE)	Tuesday 12 September, 1pm
39	University	Centro de Estudos de Economia e Gestão (CEEG)	Monday 11 September, 2 pm
40	Private sector	Aqi/Casa do Agricultor	Scheduled for Friday 15 September, 2 pm
41	Private sector	International Development Enterprises (iDE) Mozambique	Friday 08 September, 6 pm
42	Private sector	Citrinos de Umbeluzi (CITRUM)	Wednesday 27 September, 2 pm
43	International community	USAID	Wednesday, 1 November, 10 am
44	Private sector	Nutrivale Company	Wednesday, 1 November, 4:30 pm
45	International community	World Bank team Mozambique	Wednesday, 1 November, 6 pm
46	International community	Institute for Security Studies (ISS)	Thursday, 2 November, 5 pm
47	Public sector	Fundo de Estradas	Thursday, 2 November, 12:50 pm
48	International community	Tony Blair Institute	Friday, 3 November, 10 am
49	Public sector	MEF	Policy roundtable, 2 November 9:30 am
	International community	USAID	
	International community	US Embassy	
	International community	United Nations Development Programme (UNDP)	
	International community	IMF	
	International community	Embassy of Ireland	
	International community	Institute for Security Studies (ISS)	
	International community	SPEED	
	Civil Society	Mozambican Bank Association	
	International community	World Bank	
	International community	African Development Bank	
	Private sector	Câmara de Comércio de Moçambique	
	International community	International Growth Center LSE	
	International community	UNU WIDER	

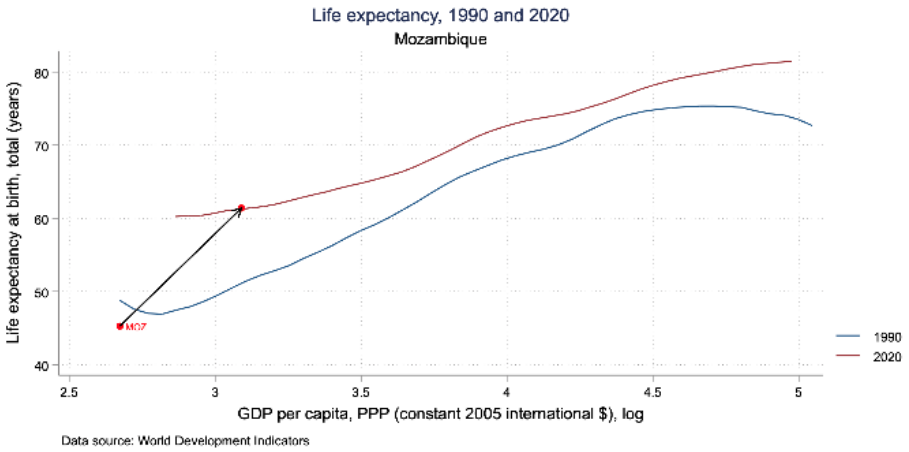
	Civil society	Confederação das Associações Económicas de Moçambique (CTA)	
	Public sector	Ministry of Mineral Resources and Energy (MIREME)	
	Private sector	MOZGRAIN	
	Private sector	ETG	
	Private sector	Mozambique agri exports limitada	
	Public Sector	Ministry of Transport and Communications	
	Public Sector	National Roads Administration (ANE)	
	Public Sector	Ministry of Public Works, Housing and Water Resources (MOPHRH)	
	Civil society	Center of Public Integrity (CIP)	
	Civil society	University Eduardo Mondlane (UEM)	
	Public sector	Ministry of Agriculture and Rural Development (MADER/DPP)	
	Private sector	TATA	
	Private sector	TMCEL	
	International community	United Nations (UN)	
	International community	Food and Agriculture Organization (FAO)	

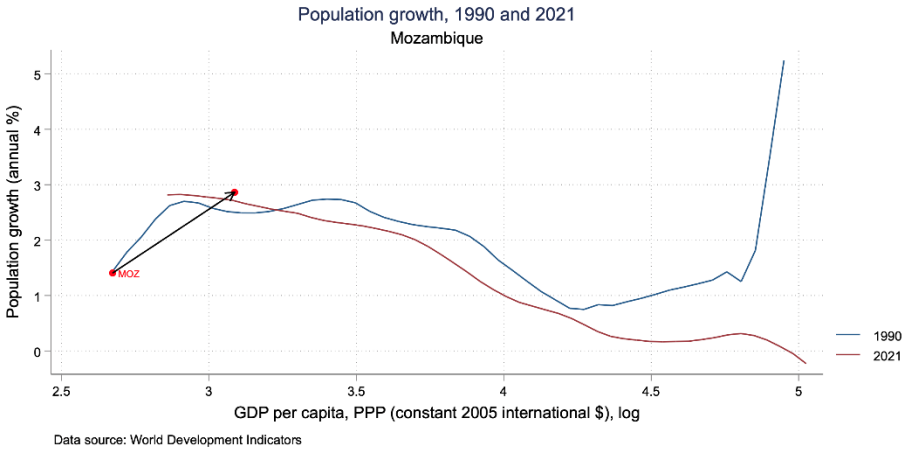
Appendix 3: Growth trajectory and demographic transition in Mozambique

Figure A.1. Fertility, mortality, and population growth rates



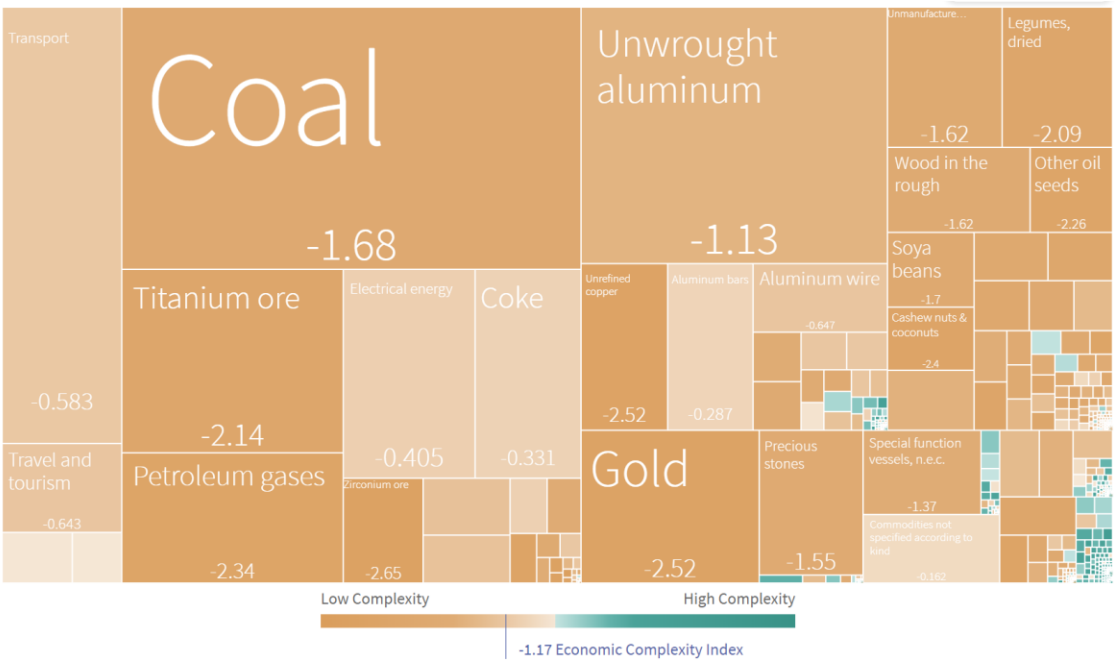






Notes: Graphs represent trends for two points of time using cross-country level data..

Figure A.2. Export products by PCI, Mozambique 2021



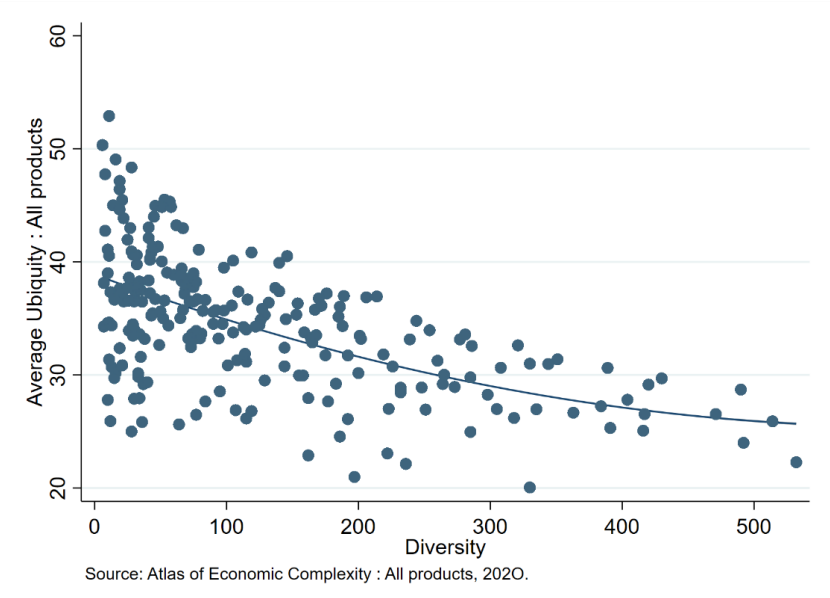
Source: Economic Complexity database, 2023.

Appendix 4: Economic Complexity Framework

Structural transformation – understood as the transition from agriculture to industry and services, or from labor-intensive to capital-intensive and human capital-intensive sectors – is an integral part of the development process. The evolution of the analytical frameworks to process large quantities of data at a disaggregated level has allowed for a much more nuanced understanding of this process, with significant implications for industrial policy. In this section, we summarize the economic complexity framework as it relates to evaluating the process of structural transformation in Tanzania, and the potential role of coordination failures in hindering the growth of the country's manufacturing sector.

In general, developed countries tend to manufacture and export a large number of products (high diversity) that only a small number of countries are able to successfully produce (low ubiquity). Meanwhile, poor countries produce a low number of products (low diversity) that are themselves made by many other countries (high ubiquity) (see Figure A.2.). The process of structural transformation entails transitioning from producing a small number of highly ubiquitous products to a wider variety of more sophisticated products of lower ubiquity. That process in some ways lines up with the generalized story of transitioning from agriculture to industry to services sectors, but in many ways, it does not. For example, there are some manufacturing activities that are relatively unsophisticated and ubiquitous, some agricultural activities that are quite sophisticated and specialized, some manufacturing activities with a large service component, and so on.

Figure A.2. Diversity vs. average ubiquity, by country 2020

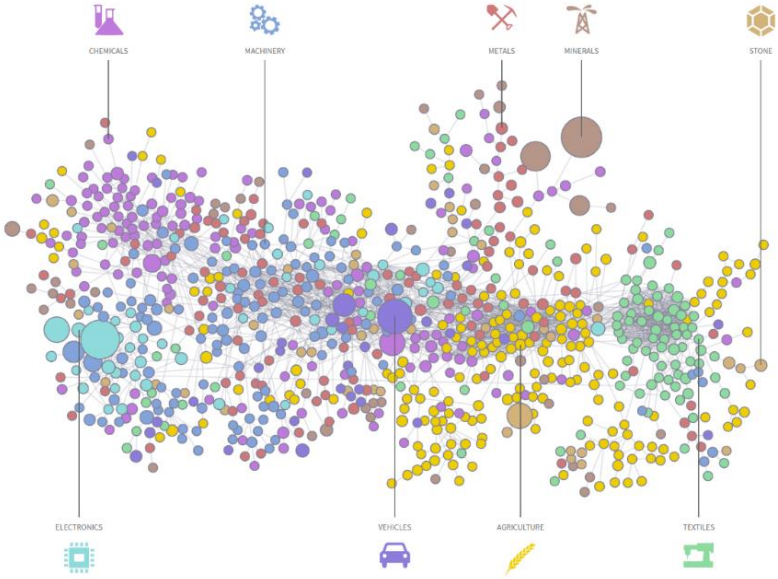


These results place an emphasis on the accumulation of productive capacities and know-how as the path for transitioning towards more sophisticated activities that pay higher wages and fuel economic development. Those sophisticated productive activities that fewer countries can perform require increasingly larger agglomeration of know-how, and that know-how can be redeployed to produce a wider variety of activities which fuels diversification. As regions expand their knowhow or productive capacities, developing economies tend to diversify their production into activities that are less common and more valuable, capable to sustain higher levels of wages.

We can observe how that process unfolds over time in international trade data. This can be visualized as occurring in a 'product space', which shows all the potential export products and the links between them. Those links, or 'distances' between products, capture how similar or different is the know-how required to produce them. In Figure A.3. each node is a product, with size based on global export value, and the distance between the nodes indicates their technological similarity (how likely is to develop product A given that the country already produces B).[140] We can observe where countries are located within this product space, and how they move through it over time. The data show that countries tend to diversify into nearby activities that require similar know-how to those already in place. There is therefore a great deal of path dependency in the process of structural transformation, and a country's opportunities for know-how accumulation and export diversification are governed by what is nearby their current position in the product space.

[140] The measure is actually based on the lowest of the two conditional probabilities, i.e. how likely is to develop product A given that the country already produces B on the one hand, and how likely is to develop product B given that the country already produces A on the other.

Figure A.3. Diversity vs. average ubiquity, by country 2020



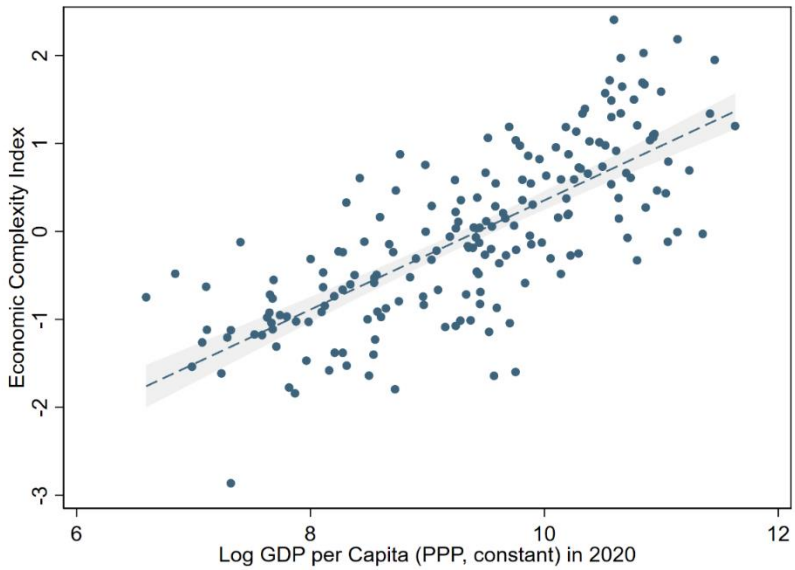
Source: Atlas of Economic Complexity

There are other relevant concepts in the economic complexity methodology that allow to compare countries[141] in terms of their level of complexity, economic opportunities, prevalence of products, among others. The complete list of concepts related to the Economic Complexity framework that are used in the next section are the following[142]:

- **Economic Complexity Index (ECI)** is a summary measure that captures the sophistication of know-how embedded in a country or region based on what it produces. Countries that harbor a great diversity of productive knowledge, particularly complex know-how, can produce a variety of sophisticated products[143]. Hausmann, et al. (2014) show that the complexity of a country's export highly predicts current income levels, and the error term between actual economic complexity and the level one would expect given its income is informative of future growth prospects. Countries where actual complexity exceeds the complexity one would expect given a country's income level tended to grow faster in the future and vice versa. Therefore, ECI values are a good predictor of subsequent structural transformation and economic growth. **Error! Reference source not found.** shows the relation of those variables, a ccounting for the positive relationship between economic complexity and GDP per capita.

[141] Almost all the variables defined (excepting RCA and diversity) are normalized indices that have an ordinal meaning.
[142] For more information see the Atlas webpage.
[143] For more information see the Glossary at the Atlas webpage.

Figure A.4: Economic Complexity Index and GDP per capita, 2020

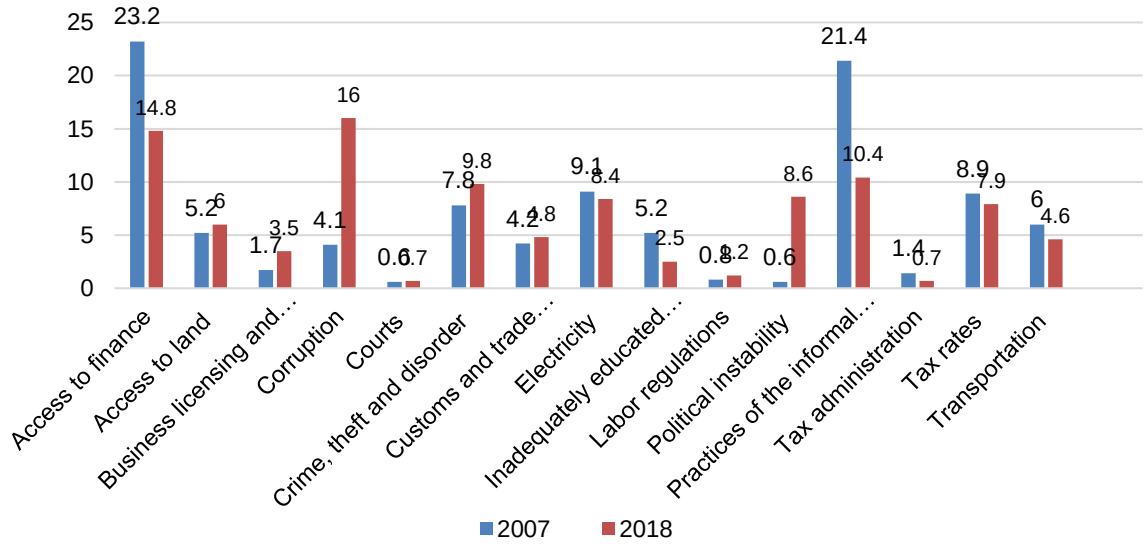


Source: Own calculations based on World Bank WDI and the Atlas of Economic Complexity database.

- **Relative Comparative Advantage (RCA):** A measure of whether a country-specific is an exporter of a product based on the relative advantage or disadvantage a country has in exporting a specific good. Following Balassa (1964), it is calculated as the ratio between the proportion of the product in the export basket of a place and the proportion of the product in world trade. Under this definition, a country is an effective exporter of a product if it exports more than a "fair share", or a share that is at least equal to the share of total world trade that the product represent (RCA >1).
- **Product Complexity Index (PCI):** This product-specific measure ranks the diversity and ubiquity of the productive knowledge required for its production. It is calculated by an interaction of the average variety of countries that produce the product and the average ubiquity of the other products that these countries develop.
- **Distance:** A measure of a country's ability to develop a specific product. A product's distance (from 0 to 1) captures the extent of a country's existing know-how to make the product as measured by how closely related a product is to its current exports. A 'nearby' product of a shorter distance requires related capabilities to those used in the other product, with greater likelihood of success.
- **Complexity Outlook Index (COI):** A measure of the number of complex products near a country's current set of productive capabilities. A high COI implies that the place has an easier path towards greater levels of complexity, while a low COI means that achieving them will be more difficult as it implies moving into products that are further away.

Appendix 5: Complementary figures

Figure A.5: Main problems for firms, Mozambique 2007 and 2018



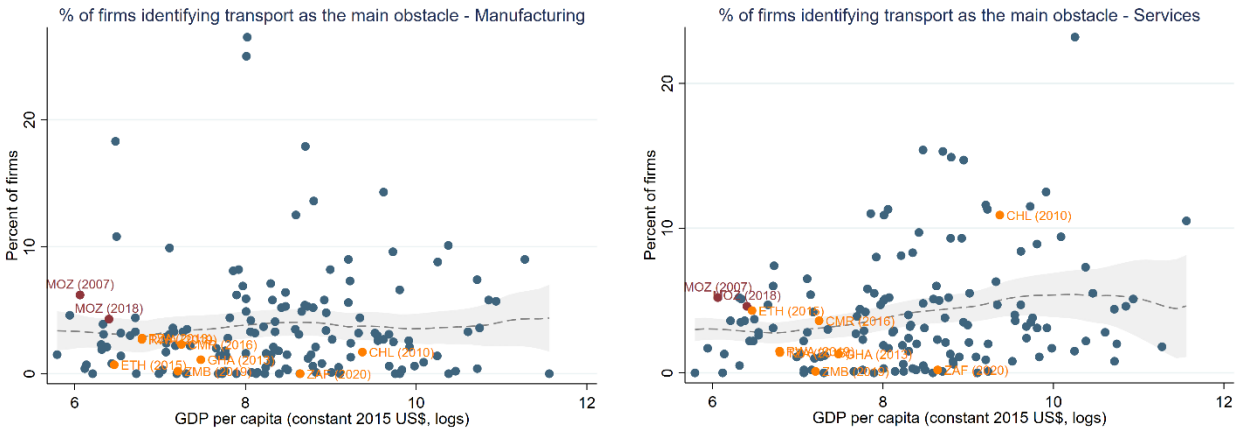
Source: WBES.

Figure A.6: Average growth by sector, 2012-2021

Sector	2012-2021
Accomodation, restaurants and similar	-1%
Electricity and gas generation and distribution	2%
Construction	2%
Real State activities, rentals and services provided to companies	2%
Manufacturing	3%
Agriculture, animal production, hunting, forestry and fishing	3%
Education	3%
Other community, social, and personal service activities	3%
Transport and storage	4%
Trade, repair of motor vehicles	5%
Information and communication	5%
Health and social action	6%
Public administration, defense and social security	6%
Water collection, treatment and distribution	8%
Financial activities	8%
Extractive industries	12%
Real GDP (constant prices 2014)	4%

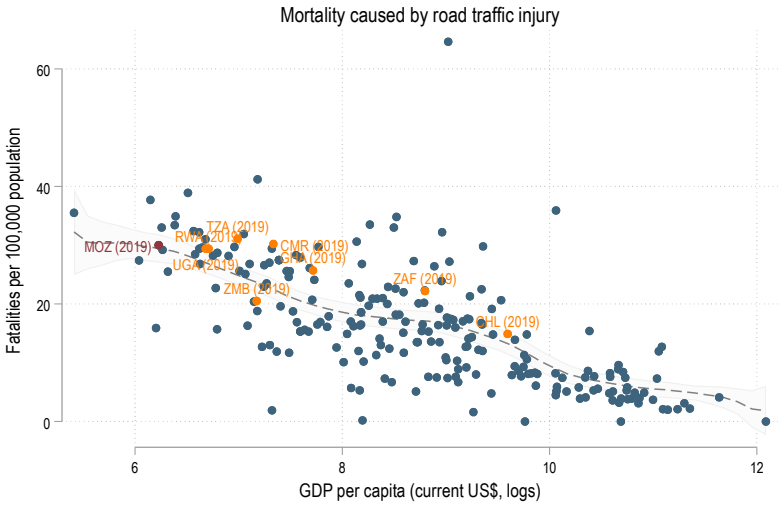
Source: Bank of Mozambique.

Figure A.7: % of firms indicating transport as the main obstacle, by sectors.



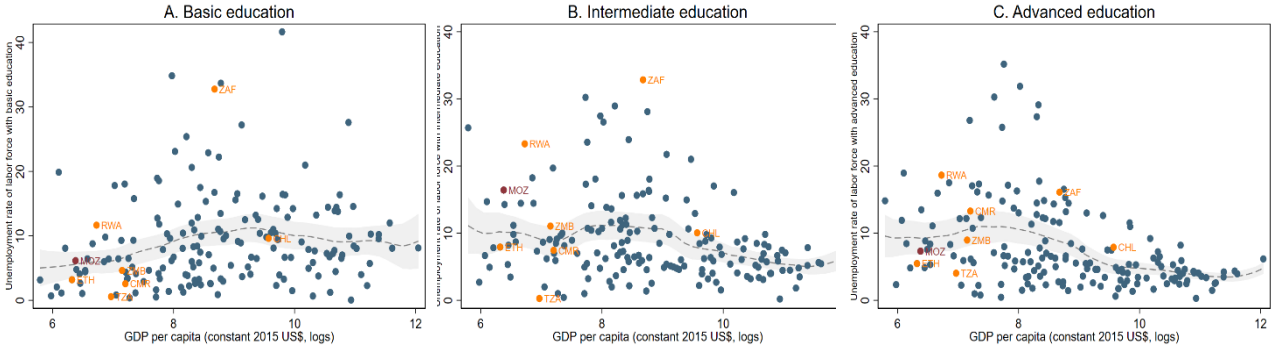
Source: World Bank Enterprise Survey.

Figure A.8: Mortality caused road traffic injury



Source: World Health Organization

Figure A.9. Unemployment rates by levels of education, ILO



Intermediate education comprises upper secondary or post-secondary non tertiary education. Advanced education comprises short-cycle tertiary education, a bachelor's degree or equivalent education level, a master's degree or equivalent education level, or doctoral degree or equivalent education level.

Figure A.10. GDP growth and workers with tertiary education, by subsector

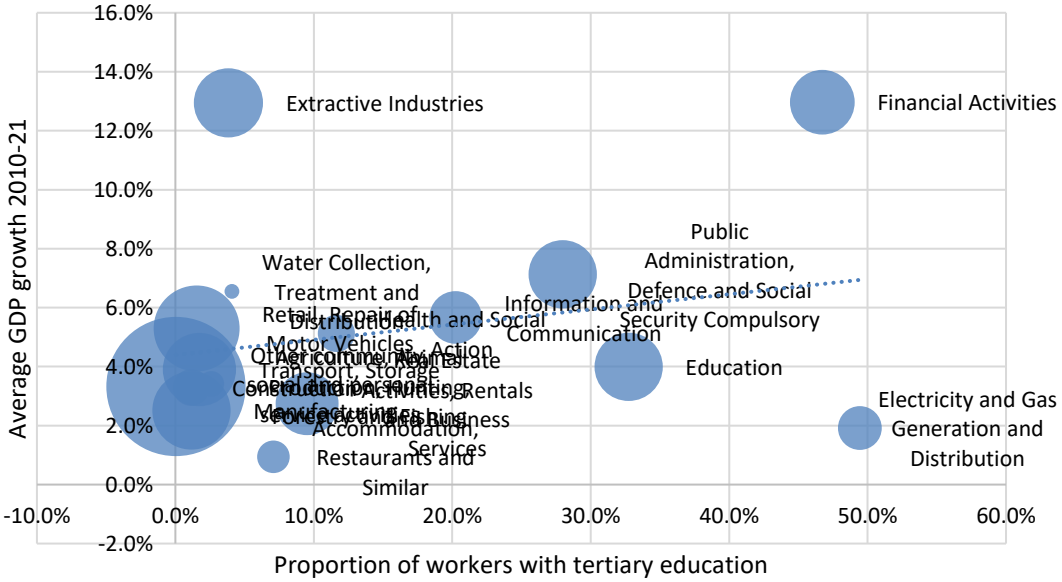
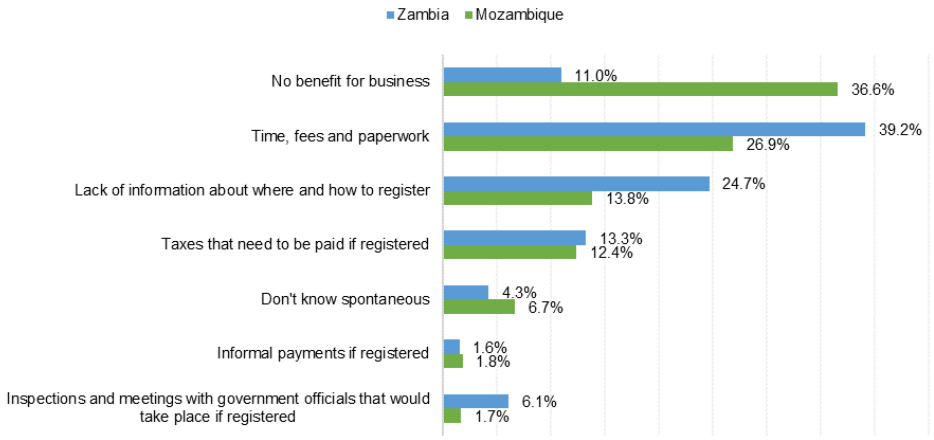


Figure A.11: Percentage of informal firms selecting a main reason for not registering



Source: World Bank Informal Sector Enterprise Survey for Zambia (2019) and Mozambique (2018).

Figure A.12: List of products from the intensive margin approach

Ítem	PCI	Product code (HS classification)	Product name	Sector
1	0.94	7109	Gold clad metals	Stone
2	0.60	6902	Bricks, tiles and similar refractory ceramic constructional goods	Stone
3	0.52	2826	Flourides	Chemicals
4	0.34	4406	Wooden railway ties	Agriculture
5	0.23	8602	Other rail locomotives	Vehicles
6	0.14	4808	Corrugated paper and paperboard	Agriculture
7	0.02	7209	Flat-rolled iron, width > 600mm, cold-rolled, not clad	Metals
8	-0.19	4414	Wooden frames	Agriculture
9	-0.29	7604	Aluminum bars	Metals
10	-0.33	2704	Coke	Minerals
11	-0.38	2504	Natural graphite	Minerals
12	-0.41	2716	Electrical energy	Minerals
13	-0.58	1204	Linseed	Agriculture
14	-0.58	7306	Other tubes, pipes and hollow profiles of iron or steel	Metals
15	-0.60	5607	Twine and ropes of baste fibers	Textiles
16	-0.61	7001	Cullet and other scraps of glass	Stone
17	-0.62	7204	Ferrous waste and scrap	Metals
18	-0.64	7614	Aluminum wire, not insulated	Metals
19	-0.65	7605	Aluminum wire	Metals
20	-0.65	2508	Clays	Minerals
21	-0.73	2505	Natural sands	Minerals
22	-0.74	7802	Lead waste or scrap	Metals

23	-0.83	4907	Unused stamps	Agriculture
24	-0.83	3602	Prepared explosives, except gunpowder	Chemicals
25	-0.86	3104	Potassic fertilizers	Chemicals
26	-0.94	3105	Mixed fertilizers	Chemicals
27	-0.94	2837	Cyanides	Chemicals
28	-0.97	1512	Sunflower seed oil	Agriculture
29	-1.05	5308	Yarn of other vegetable textile fibers	Textiles
30	-1.06	1902	Pasta	Agriculture
31	-1.06	2501	Salt	Minerals
32	-1.07	9601	Worked animal carving material	Machinery
33	-1.08	8902	Fishing vessels	Vehicles
34	-1.13	7601	Unwrought aluminum	Metals
35	-1.21	1507	Soybean oil	Agriculture
36	-1.21	2513	Natural abrasives	Minerals
37	-1.22	3102	Nitrogenous fertilizers	Chemicals
38	-1.23	5203	Cotton, carded or combed	Textiles
39	-1.26	6310	Used or new rags textile scraps	Textiles

Figure A.13: List of products from the extensive margin approach

Ítem	PCI	Product code (HS classification)	Product name	Sector
1	2.04	8479	Machines n.e.c.	Machinery
2	1.93	3910	Silicones in primary forms	Chemicals
3	2.09	9012	Microscopes, other than optical	Machinery
4	1.71	8208	Knives and blades for machines	Metals
5	1.79	3403	Lubricants	Chemicals
6	1.83	8209	Articles for utensils, of cermet	Metals
7	2.01	8457	Machining centers for working metal	Machinery
8	1.96	8461	Other machine tools for planing and cutting metals	Machinery
9	1.72	8481	Appliances for thermostatically controlled valves	Machinery
10	1.77	9027	Instruments for physical or chemical analysis	Machinery
11	1.87	3914	Ion-exchangers based on polymers	Chemicals
12	1.62	7318	Screws and similar articles of iron or steel	Metals
13	1.88	8420	Calendering or other rolling machines, other than for metals or glass	Machinery
14	2.24	2843	Compounds of precious metals	Chemicals
15	1.76	8456	Machines for working materials by laser and similar means	Machinery
16	2.31	3705	Photographic film, developed	Chemicals
17	1.58	8207	Interchangeable tools for hand tools	Metals
18	1.69	7220	Flat-rolled products of stainless steel of a width < 600 mm	Metals
19	1.71	8477	Machinery for working rubber or plastics	Machinery

20	1.51	8515	Electric soldering machines	Electronics
21	1.82	2910	Epoxides	Chemicals
22	1.77	3908	Polyamides	Chemicals
23	1.53	9017	Drafting tables and machines	Machinery
24	2.06	3818	Chemical elements for electronics	Chemicals
25	1.73	8458	Lathes for removing metal	Machinery
26	2.27	9010	Apparatus and equipment for photographic laboratories, n.e.c.	Machinery
27	1.58	8202	Handsaws	Metals
28	1.51	8466	Parts and accessories for metal working machines	Machinery
29	1.63	9031	Measuring instruments	Machinery
30	1.50	9022	X-ray machines	Machinery
31	1.59	8460	Machines with grinding stones for finishing metal	Machinery
32	1.29	8427	Fork-lift trucks	Machinery
33	1.73	7221	Bars of stainless steel, hot-rolled	Metals
34	1.48	3911	Petroleum resins	Chemicals
35	1.99	8113	Cermets	Metals
36	1.62	8439	Machinery for making paper	Machinery
37	1.59	3810	Pickling preparations for metal surfaces	Chemicals
38	1.51	3506	Glues and adhesives	Chemicals
39	1.41	9209	Parts of musical instruments	Machinery
40	1.45	8480	Molding boxes for metal foundry	Machinery
41	1.47	7225	Flat-rolled products of other alloy steel, width > 600 mm	Metals
42	1.47	7315	Chain of iron or steel	Metals
43	1.44	8462	Machine tools for molding and forging metals	Machinery
44	1.31	8413	Pumps for liquids	Machinery
45	1.26	2921	Amine-function compounds	Chemicals
46	1.44	8408	Compression-ignition internal combustion piston engines	Machinery
47	1.37	8464	Machine tools for working stone	Machinery
48	1.67	9024	Machines for testing the mechanical properties of materials	Machinery
49	1.41	8482	Ball or roller bearings	Machinery
50	1.55	7222	Other bars and rods of stainless steel	Metals
51	1.55	2914	Ketones and quinones	Chemicals
52	1.39	8414	Pumps, compressors, fans, etc.	Machinery