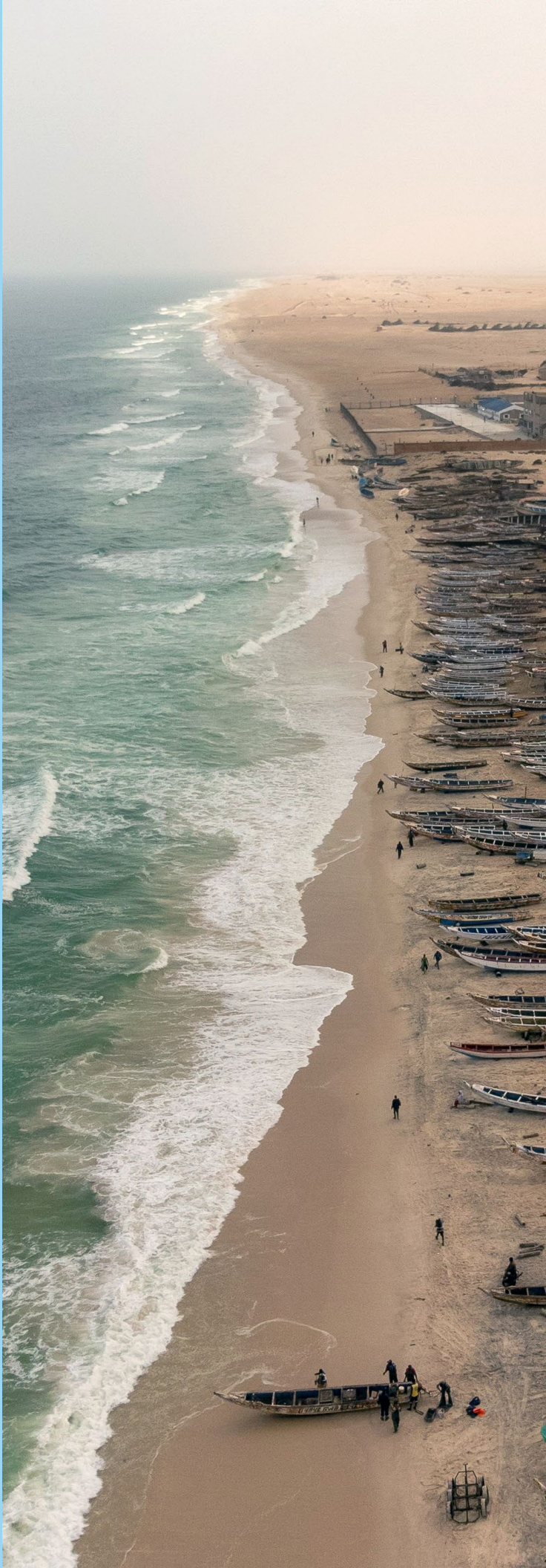


Mauritania



Mauritania 2023 Constraints Analysis Report



MILLENNIUM
CHALLENGE CORPORATION
UNITED STATES OF AMERICA

An Analysis prepared by the Millennium Challenge Corporation of the United States of America for the
Development of a Millennium Challenge Corporation Threshold Program

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Authors and Acknowledgements

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Brian Epley and Jennifer Meyer were the economists for the MCC country team who led the Constraints Analysis. The country team also included Katherine Farley, Nilan Fernando, Camille Heaton, Sarah Martiny, Andrew Tarter, and Katherine Vaughn. Development of MCC's Threshold Program with Mauritania was led by Patrick Malarkey.

Abstract

Mauritania, a Saharan country on the west coast of Africa, is a lower-middle income country whose per capita income peaked around 1970; Mauritania's economy has struggled to grow at a consistent rate since, likely because of political uncertainties. In recent years, growth has become dominated by extraction of natural resources, especially mining, which has provided much needed income but also economic volatility. Perhaps partly driven by rapid desertification in the western Sahara, Mauritania's capital, Nouakchott, is among the fastest growing cities in the world.

In 2019, Mauritania held its first peaceful and democratic transfer of power. In late 2022, MCC's board of directors selected Mauritania to develop a Threshold Program. As a first stage in the development of the Mauritania Threshold Program, MCC conducted this Constraints Analysis in the first quarter of 2023 through an expedited process that identified a short list of five constraints:

Vulnerability to climate-related hazards: Climate risks threaten livelihoods and intensify urbanization pressures. Threatened environmental resources and limited adaptation action to-date jeopardizes short-term and long-term growth prospects.

Reliance on commodity exports limit competitiveness: Reliance on commodity exports exposes Mauritania to external price shocks. It has led to persistent current account deficits, and volatility in foreign direct investment (FDI) and in relative prices. Relative price volatility and the uncertainty associated with it may impact firms' investment decisions, including investments in new product lines.

Expensive and unreliable electricity: There is a high cost of electricity in Mauritania, especially monthly fixed charges. Moreover, the quality of electricity service is low, with somewhat frequent, long duration outages that also raise costs for businesses.

High cost and barriers to accessing formal credit: The financial system is fragmented, interest rates are high, credit to the private sector is low, and lending is mostly short tenor. Few businesses can access credit through the formal banking system, and firms report difficult-to-meet verification requirements.

Burdensome tax and business policy: Burdensome taxes, customs, and regulations make it costly to conduct business and have created high levels of informal business practices.



Country Context

The Islamic Republic of Mauritania obtained independence from France in 1960. Straddling the Sahel and the Sahara in northwest Africa, Mauritania is the 11th largest country on the continent by land area, though 75% of the country is uninhabited desert.

Geography and Demographics

The people of Mauritania are descended from three groups: Berber peoples claiming Arabic origins (White Moors or “Beydane”); the original inhabitants of the area at the time of the Berber conquest (Black Moors or “Haratine,” the former slave caste); and non-Arabic West African peoples inhabiting the south near the Senegal River. French and Arabic are the most spoken languages today, although a range of West African languages are also spoken. Mauritania’s socio-cultural context is complicated by varying forms of descent-based and

contemporary forms of slavery, within and among all the country’s major ethnic groups as well as between certain groups.

The population (approximately 4.8 million at the time of writing) is primarily concentrated in cities along the Atlantic Coast and in the agricultural production zone in the south along the border of Senegal and Mali. The capital, Nouakchott, originally a mid-sized village during French colonial rule that was only planned to accommodate around 15,000 inhabitants, has ballooned since independence to around 1.2 million people today, or around 25% of the country’s total population.

Political History

Following independence from France, Mauritania was established as a one-party state. According to World

What is a Constraints Analysis?

MCC's evidence-based approach begins with a constraints-to-economic growth analysis (CA). In a CA, MCC works with a partner country to examine and prioritize the issues that constrain its economy. The CA approach builds on the "growth diagnostic" framework put forward by economists Ricardo Hausmann, Dani Rodrik, and Andrés Velasco (HRV). As HRV point out, all developing countries face significant economic and development challenges, but these challenges do not all equally restrict growth. The diagnostic framework provided by HRV helps to structure the investigation of potential binding constraints. It has been refined through application, both within MCC and the broader economic development community.

Why Does MCC Use Constraints Analysis?

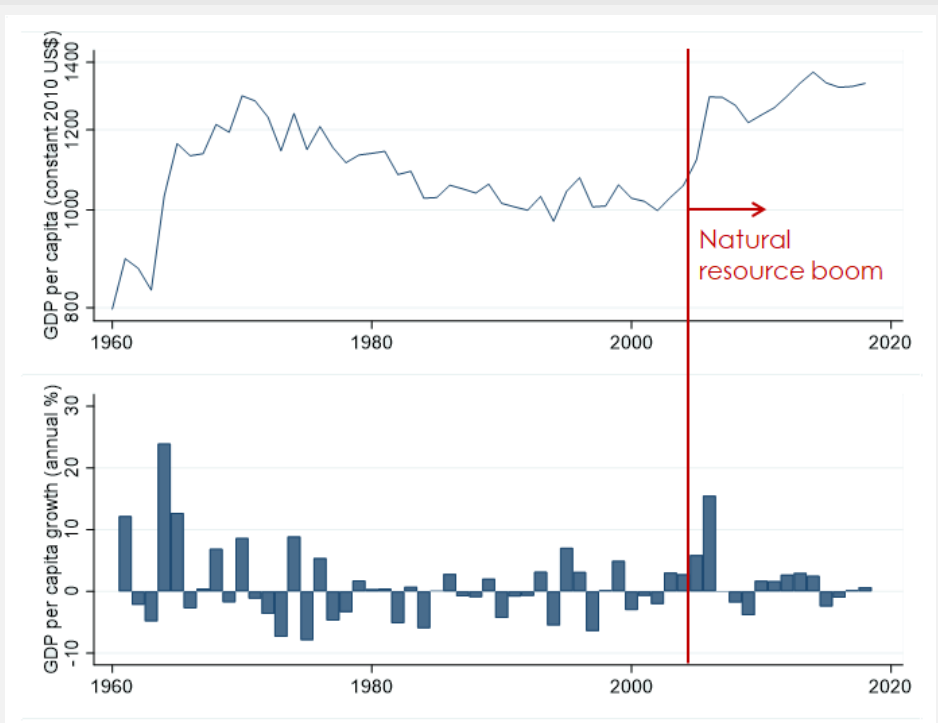
Identifying the most binding constraints to growth helps MCC target its investment on the areas that, if addressed, are most likely to promote sustainable, poverty-reducing growth in a given country. Prioritization helps maximize the limited financial resources and implementation capacity needed to effect change. As HRV also argue, focusing on the most binding constraints helps to minimize the risk that development interventions create negative unintended economic consequences.

Bank data, Mauritania achieved its highest level of GDP per capita, \$1,802 (constant 2015 US\$) in 1970, after which income per capita growth first stalled and then reversed (Figure 1). Following its first post-colonial military coup in 1978, income per capita fell steadily finally reaching a nadir of \$1,215 in 2002. This period was dominated by a repeating cycle of military juntas, one-party rule, and political uncertainty with some aspects of this cyclical turmoil continuing into the 2010s. In 2019, Mauritania's current leader, president Ghazouani, was elected in Mauritania's first peaceful transfer of power since independence in 1960.

Economic History and Productive Sectors

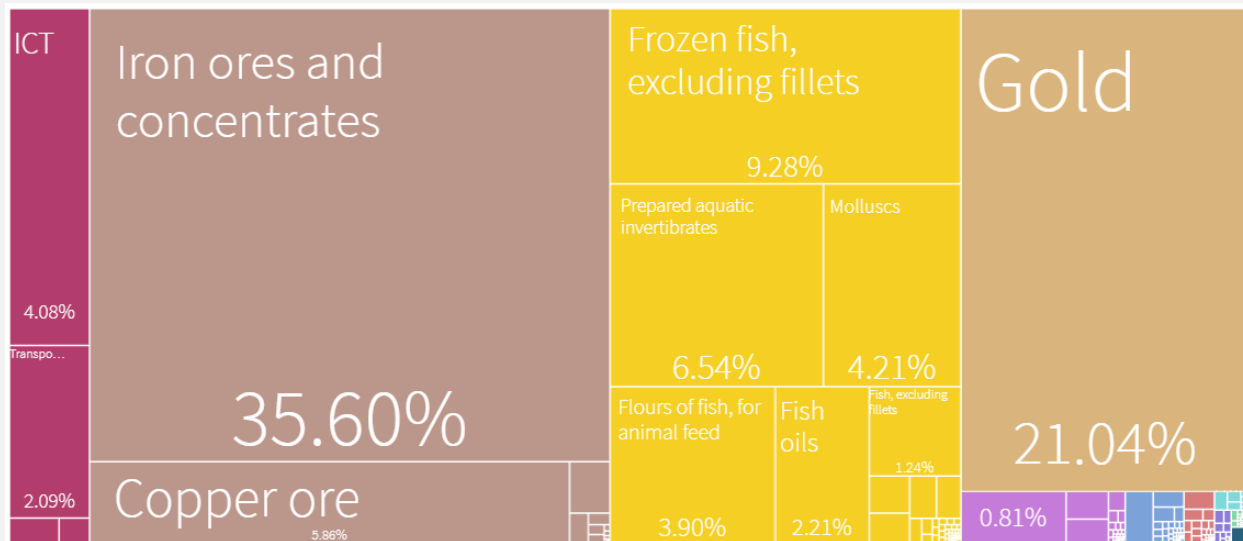
Mauritania is a resource extraction economy with a non-renewable resource focus (Figure 2), especially raw iron ore (~35% of exports) and gold (~21%). Currently, GDP per capita for Mauritania stands at \$1,610 (2021, constant 2015 US\$), but the trend reflects movements in the international price of iron ore (Figure 3). Mauritania's other major exports, such as fish and animal products, also depend on semi-renewable resources that are currently under stress. Mauritania's concentration on natural resource extraction is expected to increase over the next several years as Mauritania begins to exploit a large offshore reservoir of natural gas, which is expected to begin production in 2024.

FIGURE 1: Mauritania's historical growth trajectory



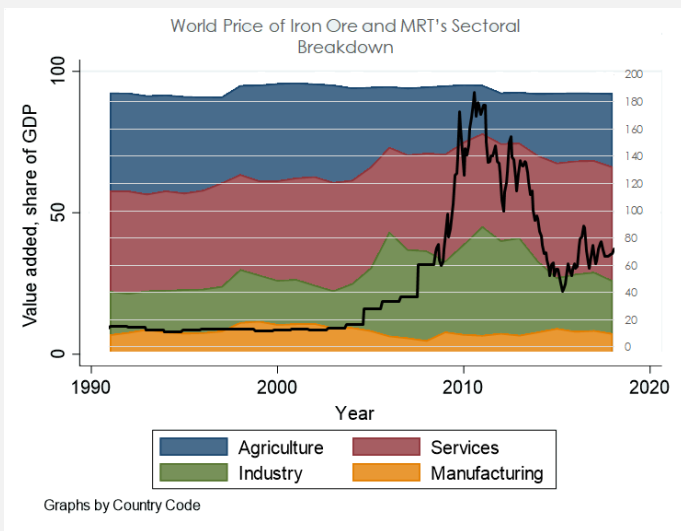
Source: WDI 2022

FIGURE 2: Mauritania's export basket in 2020



Source: Atlas of Economic Complexity 2023

FIGURE 3: Mauritania's sectoral breakdown (left axis) against world iron ore prices (right axis). The industrial sector (green) follows movements in iron ore price.



Source: authors' calculations from WDI 2022

Employment in Mauritania is concentrated in the non-tradeable services sector, which employed 52% of the workforce in 2019 with an increasing trend. This compares to the agricultural and industrial (which includes mining) sectors, which employed 31% and 18% of the workforce, respectively. The employment to population ratio is also quite low (36% in 2021 according to the International Labour Organization) partly due to high

unemployment (11% in 2021) and low labor force participation, especially for women (29%) and youth (25%). Despite economic growth, labor force participation and employment rates have not substantially improved for young, female, and low-income workers, with chronic poverty affecting 7 out of 10 people in rural areas who are primarily engaged in horticulture and livestock-rearing. The informal sector plays a key role in the Mauritanian economy, accounting for over 84% of overall employment, mostly in agriculture.

The Mauritanian economy discourages local entrepreneurs, particularly micro, small, and medium enterprises (MSMEs). Key sectors are dominated by nine large industrial and commercial groups, including food importing, construction, and banking services, and these conglomerates have informal relationships between themselves and the government, further limiting competition. Most of these groups are active in the banking sector, ensuring access to credit for their own enterprises, strengthening their market power, and possibly crowding out smaller firms.

Review of Past Constraints Analyses

There are significant data challenges in Mauritania, which likely explains the relatively limited number of growth diagnostics conducted for Mauritania. The last World

Bank Enterprise Survey was conducted for Mauritania in 2014, household surveys are limited, and numerous World Development Indicators were last updated in 2018. The World Bank (2017) conducted a Systematic Country Diagnostic (SCD) for Mauritania and identified the following set of binding constraints to growth: (i) weak management of extractives, (ii) failure to harness potential in livestock, (iii) failure to harness potential in fisheries, and (iv) rapid and outpaced urbanization. Beyond this one SCD, we were not able to find any additional prior diagnostics or constraints analyses for Mauritania.

Growth Question

Mauritania is a country that has struggled through long periods of economic stagnation and even decline, likely owing to its history of political uncertainty. However, there is reason to be hopeful that Mauritania is entering

a period of more steady growth given its recent trend toward democratic governance and abundant natural resource wealth and favorable geography. To this end, MCC engaged Mauritanian stakeholders on their vision¹ for future growth in the country. Stakeholders' visions for future growth were considered when MCC interpreted evidence for the binding constraints to growth.

Constraints can impact different sectors of the economy in different ways. To appropriately verify the binding constraints to economic growth, it is essential to understand how each constraint impacts high potential growth industries (HPGIs). An analysis done by MCC found that the HPGIs were fisheries, agricultural products such as horticulture and rice, livestock and processed animal products, and clean energy including solar power development and green hydrogen.

Discussion of Constraints

Mauritania faces many challenges in growing its economy. The Constraints Analysis aims to diagnose which elements in the economy are most binding on its growth, based on a suite of empirical tests and consultation with country counterparts. The current analysis finds several obstacles that impede Mauritania's growth path. The five identified potential binding constraints to growth are:

Vulnerability to climate-related hazards: Climate risks threaten livelihoods and intensify urbanization pressures. Threatened environmental resources and limited adaptation action to-date jeopardizes Mauritania's short-term and long-term growth prospects.

Reliance on commodity exports limit competitiveness: Reliance on commodity exports exposes Mauritania to external price shocks. It has led to persistent current account deficits, and volatility in FDI and in relative prices. Relative price volatility and the uncertainty associated with it may impact firms' investment decisions, including investments in new product lines.

Expensive and unreliable electricity: There is a high cost of electricity in Mauritania, especially monthly fixed charges. Moreover, the quality of electricity service is low, with somewhat frequent, long duration outages that also raise costs for businesses.

¹ MCC presented one such vision to the government, with generally positive feedback from stakeholders: imagine Mauritania emerging as a hub for trade and transshipment in the region. Leveraging its deep-water ports along the Atlantic Coast and nearly equidistant position between Europe, West Africa, and the Americas, Mauritania could become a waypoint for these regions with access to the landlocked countries of the Sahel, such as Mali.

Other stakeholders imagined Mauritania diversifying its use of the country's abundant natural resources ("We have land, we have sun, we have water"). In this view, solar power could harness energy from the sun while water from the Senegal River could irrigate enough land for Mauritania to become food self-sufficient.

High cost and barriers to accessing formal credit: The financial system is fragmented, interest rates are high, credit to the private sector is low, and lending is mostly short tenor. Few businesses can access credit through the formal banking system, and firms report difficult-to-meet verification requirements.

Burdensome tax and business policy: Burdensome taxes, customs, and regulations make it costly to conduct business and have created high levels of informal business practices.

Each of the identified binding constraints to growth impact not only broad economic growth, but also the success of HGPIs in Mauritania. MCC conducted a Private Sector Opportunity Assessment (PSOA), including a Financial Sector Analysis (FSA) (Dalberg 2023a) and a Productive Sector Analysis (PSA) (Dalberg 2023b), to determine the impact of potential constraints on HGPIs. For example, limited competitiveness, lack of access to formal credit, and burdensome taxes and business policies constrain the development and growth of each HPGI. Vulnerability to climate-related hazards threatens agriculture, livestock, and fisheries. Expensive and unreliable electricity is problematic for the supply chains in each of the HGPIs.

Furthermore, each of the binding constraints impacts socially excluded groups. The following heatmap (Figure 4) was derived from complementary research produced by the Gender and Social Inclusion team through a Constraints to Inclusive Growth Analysis (CIGA), which identified traditionally structurally excluded groups in Mauritania, and then examined how relaxing each constraint might positively or negatively affect members of these groups.

Comparator Countries

Selection criteria for comparator countries included a set of geographic as well as a set of demographic and economic variables. Geographic and resource variables included desertification, distance to coast, natural resource rents, and world risk index. For each variable, the analysis applied the Mahalanobis distance method to generate a multidimensional distance between each country and Mauritania. This led to a list of four comparators that matched these criteria: Niger, Mali, Chad, and Kenya. An analysis was then conducted to include countries that had aspirational GDP per capita levels, which yielded aspirational comparators of Morocco and Tunisia.

The following sub-sections address each one of these potential binding constraints to growth in more detail.

FIGURE 4: Summary results of potential poverty reduction, inclusion, and gender equality outcomes due to easing Mauritania’s constraints to growth

Dimension of impact on excluded groups	Improved International Competitiveness <small>(Constraint: reliance on volatile exports that limits MRT’s competitiveness)</small>	Increased Access to Credit <small>(Constraint: high cost and barriers to accessing formal credit)</small>	Reduced cost & improved reliability of electricity <small>(Constraint: expensive and unreliable electricity)</small>	Improved Microeconomic Conditions <small>(Constraint: burdensome tax and business policies)</small>	Improved Nat. Resource Governance <small>(Constraint: vulnerability to climate-related hazards)</small>
Impact on poverty, inclusion & gender	Medium positive impact	Medium positive impact	Low positive impact	Low positive impact	High positive impact
Non-monetary outcomes	Medium positive impact	Medium positive impact	Low positive impact	Low positive impact	High positive impact
Employment	High positive impact	High positive impact	Medium positive impact	Medium positive impact	High positive impact
Income	High positive impact	High positive impact	High positive impact	High positive impact	High positive impact
Consumer Prices	Medium positive impact	Medium positive impact	Medium positive impact	Unknown impact	High positive impact
Assets	Low positive impact	Unknown impact	Low positive impact	Unknown impact	Medium positive impact
Development Impacts & spillovers	Unknown impact	Unknown impact	Low positive impact	Low positive impact	Medium positive impact

High positive impact

Medium positive impact

Low positive impact

Unknown impact

Source: MCC’s Constraints to Inclusive Growth Analysis (CIGA).

Later sections touch on the additional constraints that the analysis considered.

Vulnerability to Climate-Related Hazards

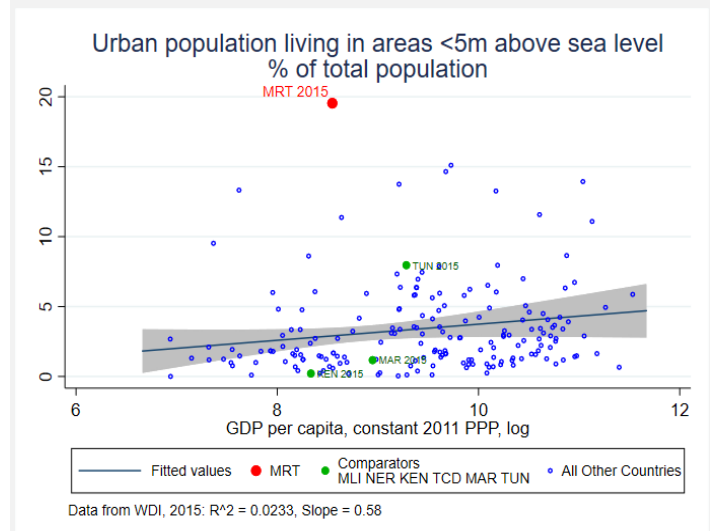
Vulnerability to climate-related hazards threatens current and future economic growth in Mauritania. According to the Intergovernmental Panel on Climate Change (2022), Mauritania had the highest negative impact on GDP per capita growth in Africa due to observed climate change between 1991 and 2010.

When compared to similar countries, Mauritania ranks very high in water sector vulnerability. Mauritania has experienced low water availability and groundwater depletion due, in part, to more frequent and more intense droughts. Drought is particularly problematic in the agricultural belt in the south of the country, threatening agricultural and livestock productivity. The International Monetary Fund (IMF) predicts (Ndoye, Nashin, and Pondi 2023) that if drought intensifies by 10%, medium-term GDP growth will decline by 1% relative to the current trend.

In addition to water scarcity and drought, Mauritania has also experienced rapid increases in temperature relative to comparators. Over the past 60 years, average surface temperatures have increased by 20C and are projected to increase in the future (African Development Bank 2018). Water stress and extreme heat also accelerate desertification. The Sahara Desert is expected to advance an estimated 6 kilometers per year, reducing the land available for Mauritania's traditional livestock herding.

The combination of extreme temperatures, frequent droughts in agricultural regions, and encroaching desertification culminates in intensified urbanization pressures within Mauritania. The growth rate of large urban agglomerations is higher for Mauritania than all other comparators, and currently 30% of the total population resides in the capital, Nouakchott. In principle, rapid urbanization has an ambiguous impact on Mauritania's

FIGURE 5: Mauritania has a high fraction of its urban population living less than 5 meters above sea level, who are thus vulnerable to several climate-related hazards.

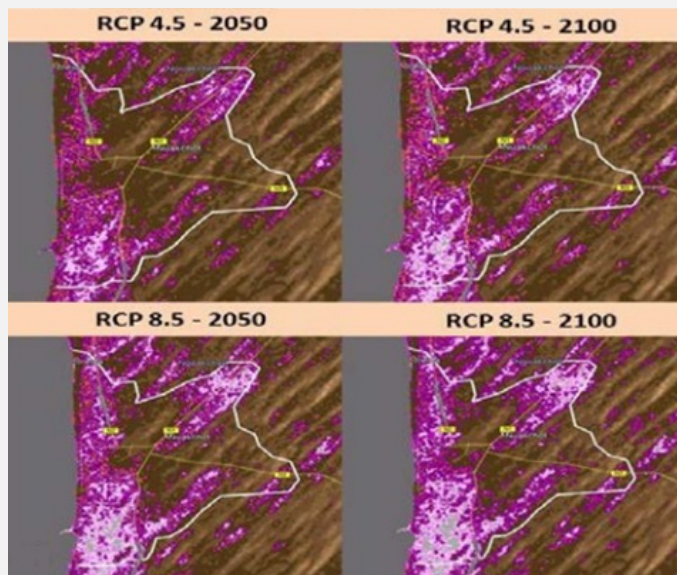


Source: authors' calculations from WDI 2022

growth trajectory as urbanization is associated with increased productivity relative to traditional economic activities. Building out urban infrastructure to accommodate this rapid growth is a clear development challenge that should not be ignored. However, Nouakchott (along with other coastal cities in Mauritania), built on a coastal plain near sea level, is vulnerable to erosion and sea-level rise as the climate warms. As shown in Figure 5, Mauritania is an extreme outlier for urban populations living less than 5 meters above sea level.

Increased high precipitation events and poor drainage within Nouakchott increase the likelihood and intensity of flooding events, including major flooding events in 2020 and 2022. As shown in Figure 6, without adaptation, Nouakchott is predicted to be 30% inundated by 2050, which poses a significant threat to economic activity given the size of the population residing there as well as the port location. Such flooding risks exist in other coastal cities as well, including the port city, Nouadhibou (International Bank for Reconstruction and Development 2020). The IMF (Ndoye, Nashin, and Pondi 2023) pre-

FIGURE 6: Projected inundation of Mauritania’s capital, Nouakchott



Source: International Bank for Reconstruction and Development 2020

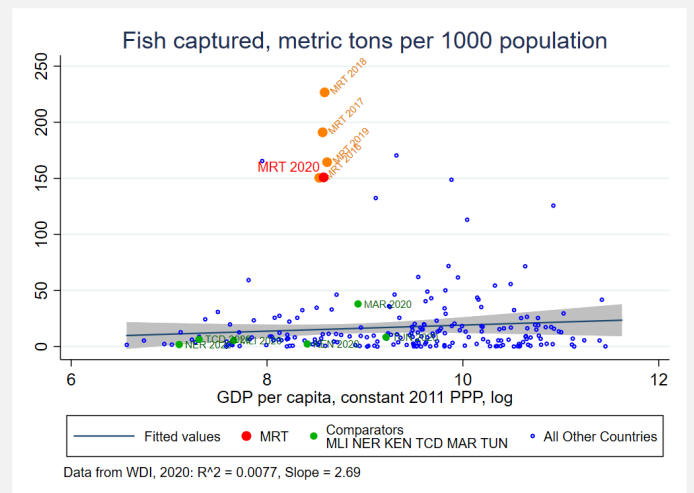
dicts that if flooding² intensifies in Mauritania by 10%, medium-term GDP per capita growth will decline by 0.2–0.25%, which is three times higher than projections in similar emerging and developing economies.

Finally, climate change also threatens the productivity of fisheries in Mauritania (African Development Bank 2018), although over-fishing is likely the major threat to this resource (Figure 7). Fishing contributes significantly to the Mauritanian economy, making up 4–10% of GDP and about 30% of exports (author’s calculation, from WDI 2022). Fish stocks in the Mauritanian Exclusive Economic Zone (EEZ) are overfished (Tregarot et al. 2020), and without intervention, this resource could be heavily depleted, threatening the economy, culture, and food security in Mauritania.

² The authors also note that similar impacts can be anticipated from droughts, which they report has an even more extreme impact on medium-term GDP per capita growth of 0.8–1.0 percentage points. Moreover, Pondi, Choi, and Mitra (2022) note that the impact of a 1°C increase in temperature would result in a 2-percentage point drop in per capita economic growth, impacting agriculture, and industry and construction most severely (Duenwald, et al., 2022).

It should be noted that these estimates are based on destruction of human capital, rather than physical capital (Ndoye, Nashin, and Pondi 2023). Hence, the vulnerability of Nouakchott to flooding and sea-level rise may suggest that these estimates may plausibly be underestimates.

FIGURE 7: The dependence on and depletion of fishing stocks in Mauritania

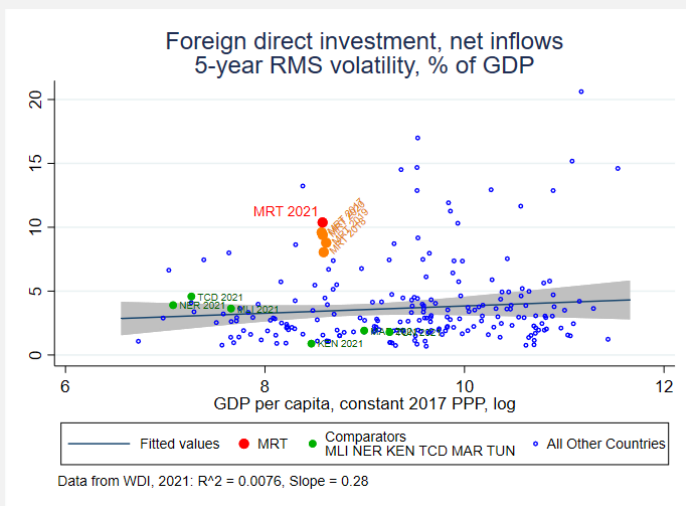


Source: authors’ calculation from WDI 2020

Reliance on Commodity Exports Limits Competitiveness

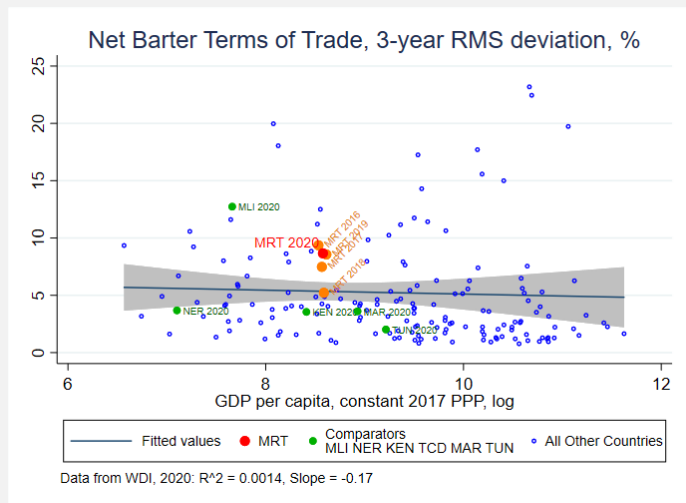
Mauritania is relatively open to trade in the sense that both imports and exports are quite high as a percentage of GDP. Non-renewable natural resource commodity exports (mainly iron ore and gold), with a large contribution from exports in semi-renewable resources (mainly fish and animal products), provide Mauritania with significant foreign exchange from which Mauritania can fund imports of most other goods. Unfortunately, the reliance on commodity exports exposes Mauritania to volatile external price shocks even as critical imports, such as food and animal feed, are also exposed to volatile international market movements. As a result, Mauritania is forced to carefully manage its stocks of foreign exchange to ensure sufficient reserves are available. This leads to several consequences: persistent current account deficits, volatility in FDI (Figure 8a), and volatility in relative prices (Figure 8b). Relative price volatility and the uncertainty associated with it may further impact investment decisions of Mauritanian firms, including

FIGURE 8A: The volatility of Foreign Direct Investment (FDI) inflows into Mauritania. This pattern may be partly due to the lumpiness of investments into Mauritania’s extractives industries



Source: authors’ calculation from WDI 2022

FIGURE 8B: The volatility of Mauritania’s Terms of Trade. Mauritania has a limited basket of exports and imports that results in significant volatility in the terms of trade

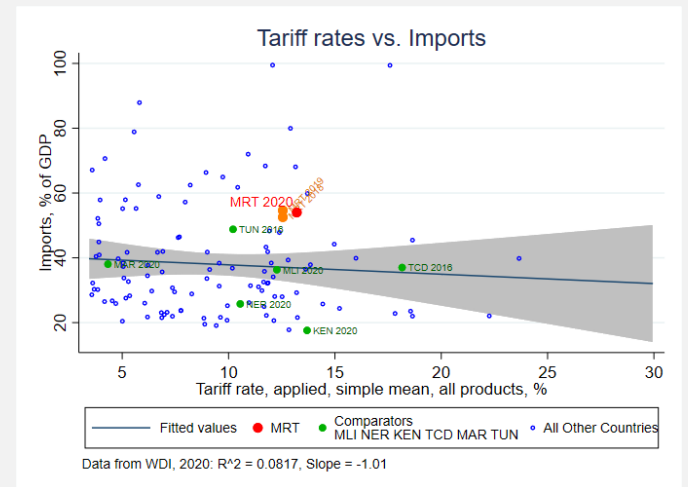


Source: authors’ calculation from WDI 2022

investments in new product opportunities, reducing the possibilities for economic diversification.

To manage these challenges, the IMF (Khatat 2023) recommends that Mauritania move toward a more flexible exchange rate regime. However, the IMF goes on to note that the movement toward a flexible exchange rate will require further development of Mauritania’s

FIGURE 9: Tariff rates and imports. Mauritania has both high imports and high tariffs, with only two countries further toward the upper right corner of the figure



Source: authors’ calculations from WDI 2022

financial sector. According to the IMF, this would include deepening of the interbank, foreign exchange, and government securities markets, each of which, during MCC’s consultations with the private sector and Government of Mauritania (Dalberg 2023a), were claimed to be functionally absent.

According to the World Bank (2023), commodity exports have helped Mauritania’s macroeconomic situation to remain resilient despite a significant increase in food and energy prices that have driven recent inflation in Mauritania. Despite this resilience and a 25% increase in the export share of GDP, foreign exchange reserves fell by nearly half in 2022 (to 4 months of imports) due to higher import prices. These drivers have forced Mauritania to maintain a tight monetary policy to keep control of inflation.

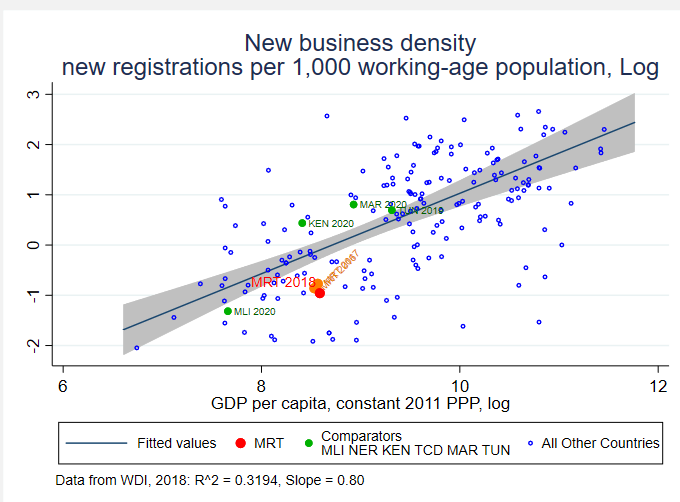
Fortunately, Mauritania’s debt situation appears to be sustainable, according to an analysis conducted by the IMF (International Monetary Fund 2022). Nevertheless, the outlook remains highly uncertain, with a moderate risk of debt distress and external debt obligations rising over the next several years.

The combination of the volatile external sector along with a restrictive monetary environment to deal with this volatility, results in a real exchange rate that is likely sig-

nificantly overvalued. In fact, Mauritania has the unusual distinction of both having high tariffs and nevertheless being very open to trade (as measured by imports as a percent of GDP, Figure 9). In fact, Mauritania imports significantly more than any of its comparators, despite having one of the highest tariff rates in this group of countries. In other words, Mauritania’s domestic production is not able to compete with foreign products even though tariffs ensure that these goods cost 14% more, on average, compared to domestically produced goods. In consultations, stakeholders complained of a lack of sufficient protection from cheap imports, suggesting that this pattern reflects an attempt by domestic firms to circumvent constraints imposed by the flood of cheap imports.

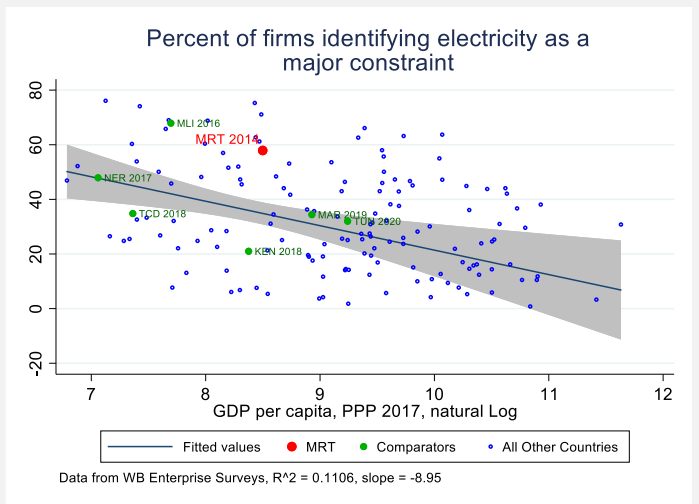
This results in less investment in Mauritania in two ways: First, as shown in Figure 10, few new businesses are viable—and even fewer capable of surviving—under such intense competitive pressures. Second, Mauritania struggles to diversify its production and export basket, ranking 119 out of 131 countries in 2021 according to the Economic Complexity Index, a measure of diversification.

FIGURE 10: New business density is very low in Mauritania. At least one driver being the challenges new businesses face competing with relatively cheap imports



Source: authors' calculations from WDI 2022

FIGURE 11: The percent of firms identifying electricity as a major constraint in Mauritania in the most recent Enterprise Survey in 2014



Source: World Bank Enterprise Survey 2014

Expensive and Unreliable Electricity

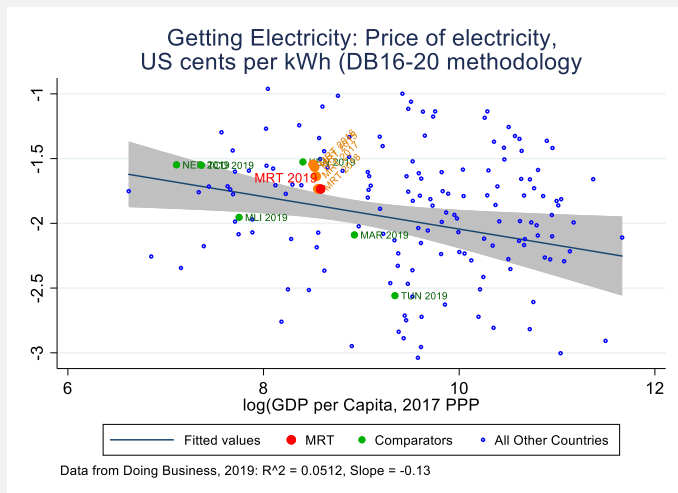
A majority of firms identified electricity as a major constraint in Mauritania during MCC’s consultations in Mauritania, as well as the most recent World Bank Enterprise Survey in the country in 2014 (Figure 11). In MCC’s consultations, the most commonly cited challenges that businesses faced were both the high costs and low levels of reliability of electricity. Data suggests that the cost of electricity is in fact unusually high in Mauritania (Figures 12a and 12b), especially with respect to the monthly fixed cost of an electrical connection. The opportunity cost of high fixed monthly charges can be difficult for businesses, especially those that use electricity most intensively. Effectively, these businesses are forced to pay for electricity even when they are not actively earning revenue from production and sales.

During consultations, stakeholders pointed to several root causes for high electricity costs, including the relatively expensive energy mix³ feeding into the grid, insufficient transmission infrastructure⁴ (especially in the context of a geographically dispersed country, like Mauritania), insufficient economies of scale (due to the

3 The energy mix in Mauritania is a combination of imported heavy fuel oil (HFO) and renewables—mostly solar—which combine relatively high marginal cost (HFO) and high capex (solar).

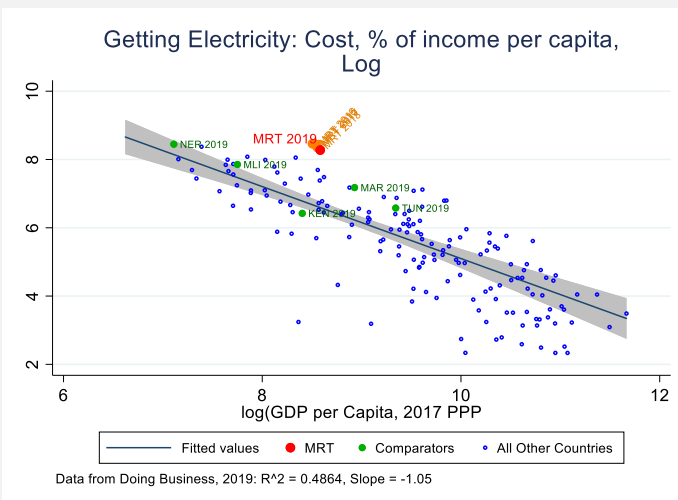
4 The grid, which does not extend significantly beyond the major cities, is underdeveloped, poorly managed, and relies on intermittent solar, which requires more investment in transmission to balance supply and demand.

FIGURE 12A: The price of a kWh of electricity from the Mauritanian grid. This price is slightly elevated relative to its level of development



Source: World Bank 2019 and confirmed by data provided to MCC in 2023

FIGURE 12B: The cost of electricity in Mauritania, including connection fees. These costs are among the highest in the sample

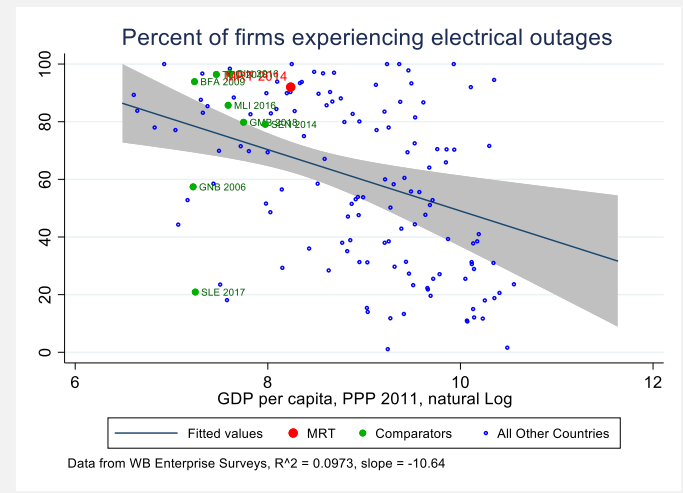


Source: World Bank 2019; significant monthly fees were confirmed by data provided to MCC in 2023

relatively small size of the Mauritanian grid), and challenges in operating the grid due to the low capacity of the state-owned electric utility.

According to Mauritanian businesses, the quality of electricity supply in Mauritania is also low, with somewhat frequent, long duration outages (Figure 13) that increase the cost of doing business. Businesses are often forced to

FIGURE 13: The percent of firms experiencing electricity outages. Electricity outages in Mauritania broadly impact firms with relatively few firms that do not report such outages



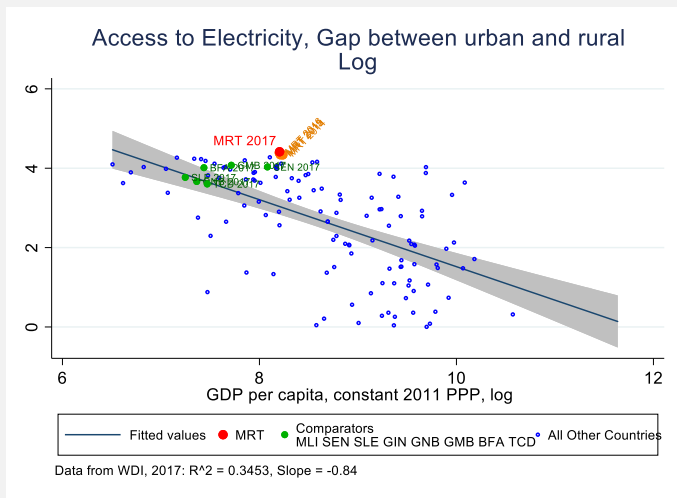
Source: World Bank Enterprise Survey 2014

stop or restart production processes, pay idle workers, or other burdens to cope with these challenges.

Public data on electricity outages in Mauritania is lacking. To deal with this challenge, MCC collected data on outages for a period of a single week during the spring of 2023. At least during the week in question, this data confirmed the reports from Mauritanian businesses that outages were both frequent and long duration. Moreover, MCC’s data most likely underestimates the scale of the grid’s reliability problems. The period of peak demand in Mauritania is during the hot summer months, not the spring, implying that the period of most significant grid interruptions occurs several months after MCC’s data was collected, a pattern confirmed by businesses during MCC’s consultations.

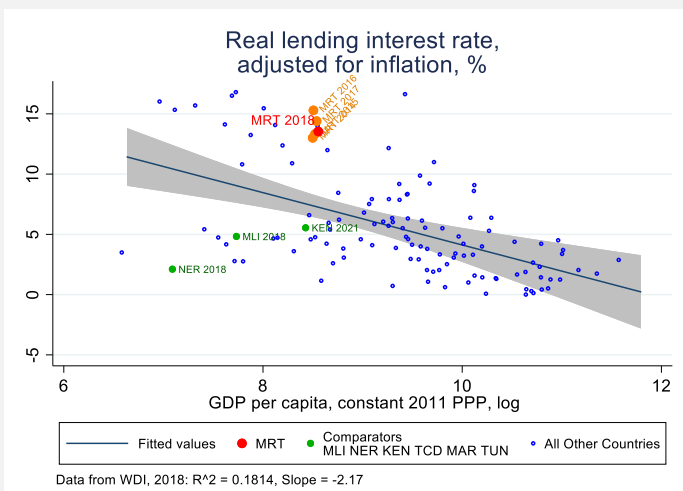
These challenges exist in the context of an electrical grid that mostly only serves Mauritania’s urban population. In fact, the gap between access to electricity for urban consumers and rural consumers is higher for Mauritania than for any other country in the sample (Figure 14). Of course, Mauritania’s dispersed, low-density desert geography can largely explain this gap, but this lack of rural access nevertheless has several implications for growth. First, poor rural electricity access puts upward pressure on urban migration (and by implication, on urban infra-

FIGURE 14: The percent difference between access to electricity for urban and rural customers. Mauritania has the largest gap between these groups than any other country in the sample



Source: WDI 2022

FIGURE 15A: Interest rates and interest rate spreads are high in Mauritania. The lending rate in Mauritania (shown here) is sufficiently high that the cost of a loan in Mauritania almost certainly constrains business investment to some extent



Source: authors' calculations from WDI 2022

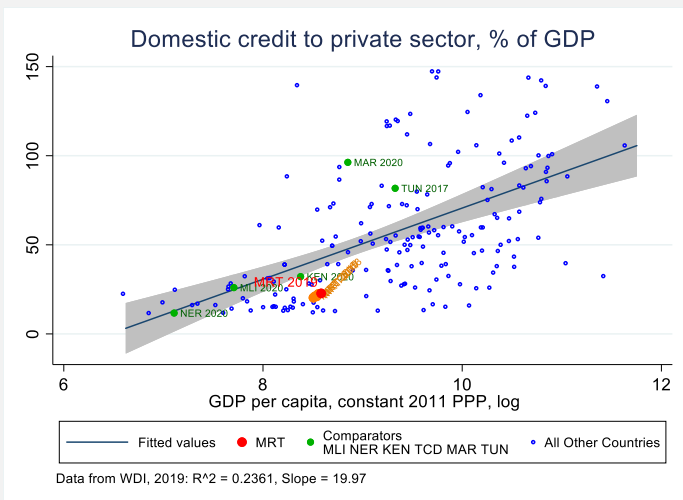
structure), and second, this urban/rural divide means that the high costs of electricity in Mauritania cannot be explained by Mauritania's geography alone.

High Cost and Barriers to Accessing Formal Credit

Mauritania's banking system is fragmented. Officially, Mauritania has between 15 and 18 banks, although only a handful of these lend to the public. The fragmented financial system manages to serve large formal businesses reasonably well, although interest rates are high (Figure 15a), credit to the private sector is low (Figure 15b), and lending is mostly short tenor. However, few businesses can access credit through the formal banking system, with anecdotes suggesting that verification requirements are difficult to meet, among other issues.

Moreover, most individuals in Mauritania do not own a bank account, with only about 21% of the adult population with a bank account (Figure 16a), or about 416,000⁵ accounts across all banks. The implication is that the typical bank in Mauritania serves an average of less than

FIGURE 15B: Mauritania provides little credit to the private sector with little improvement or expansion in recent years

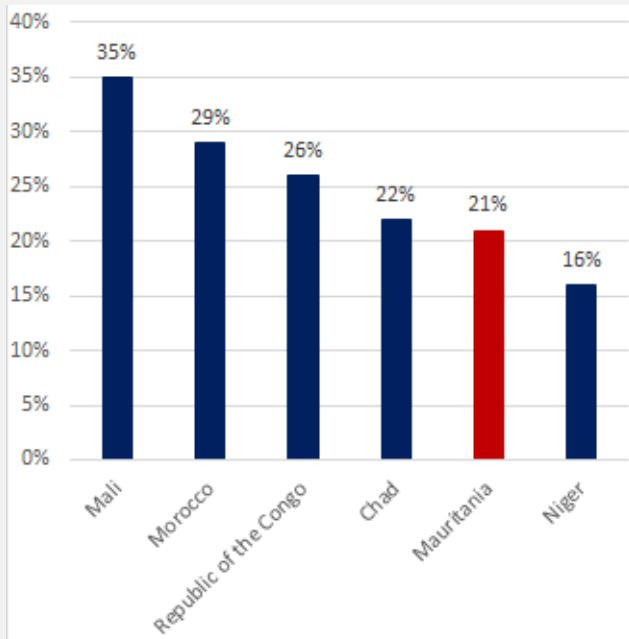


Source: authors' calculation from WDI 2022

26,000 distinct clients. According to Clark (1996), the banking industry exhibits economies of scale with a minimum efficient scale (MES) for banks in the United States (in 1996) around US\$2 billion. Therefore, a reasonable

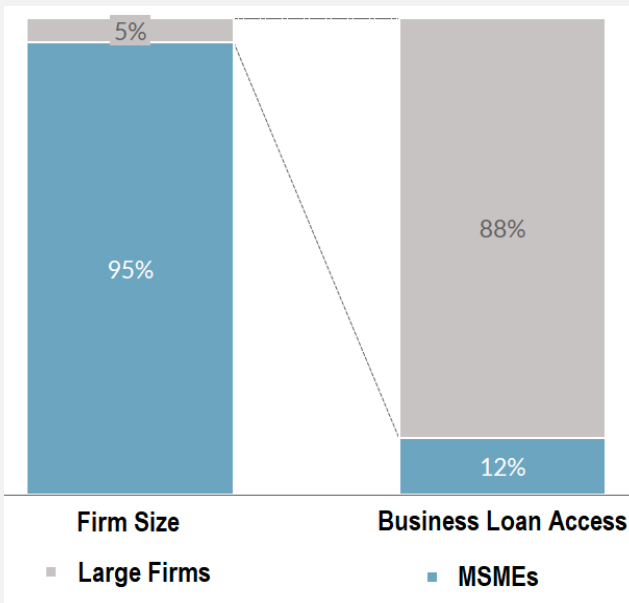
⁵ Mauritania had a population estimated to be about 4.25 million, with 49% of the population under 15 years of age.

FIGURE 16A: Bank account ownership in Mauritania among the over-15 population



Source: Dalberg 2023a

FIGURE 16B: Bank loan access for businesses for large businesses and micro, small, and medium enterprises (MSMEs)



Source: Dalberg 2023a

hypothesis is that many Mauritanian banks are below the efficient scale.⁶

Regardless, the net impact of Mauritania’s fragmented banking system is that most businesses are not able to access credit. Figure 16b shows how the largest 5% of firms receive 88% of loans. Given that MSMEs are more likely than large firms to depend on bank financing to grow, this suggests a restricted credit environment for smaller businesses.

Indeed, during consultations, stakeholders described a banking system in which some banks were established for the purpose of serving the business interests of specific groups. While these stories were anecdotal, according to evidence collected by MCC (Dalberg 2023a), the pattern in asset returns and capital (Figure 17) for Mauritania’s banks does seem to corroborate these stories, at least for some banks.

Burdensome Tax and Business Policy

Businesses in Mauritania struggle with the government’s approach to economic policy. Although the tax revenues are modest, this is a result of a relatively small tax base and high levels of business informality. The tax code is complex, and tax rates are very high, leading to a highly distorted economy in which most businesses operate informally at some level.

Businesses are also constrained by high levels of regulation, complicated licensing procedures, and significant tariff and trade barriers that further lead many firms to operate informally, limit the ability of businesses to reinvest profits, and import supplies.

Mauritanian businesses ranked licensing and permits, courts, customs and regulation, taxes and tax administration, labor regulation, practices of the informal sector, and corruption as major constraints to conducting business in the country (Figure 18). This suite of micro-level

⁶ Bank assets would need to be 40 times Mauritania’s total nominal (2023-estimated) GDP for the average Mauritanian bank to reach this MES. This is unlikely given that most Mauritanian banks will be smaller than the average, not all income will be transformed into assets each year, and a 40:1 assets-to-income ratio would take a considerable time to accumulate given reasonable expectations of returns. While the MES may be smaller in Mauritania than in 1996 US\$, the difficult macroeconomic situation of the country would tend to drive the MES higher than otherwise. The exact level for the MES of banks in Mauritania is not currently known, so this is an issue that warrants further study.

FIGURE 17: Return on assets versus capital adequacy for Mauritania’s banks. Typically, we might expect some tradeoff between bank capital and returns, but some Mauritanian banks have unusually high capital adequacy ratios and high return on assets. This pattern can be explained if these banks are not strictly maximizing profit but serve as savings vehicles for specific stakeholders or subsectors.

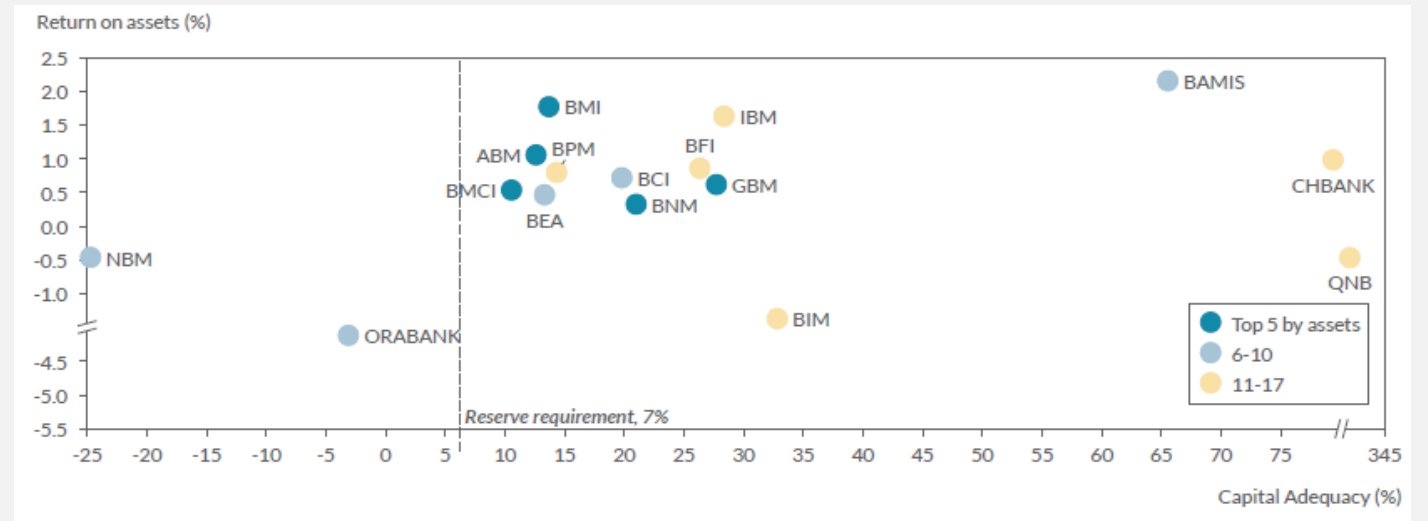
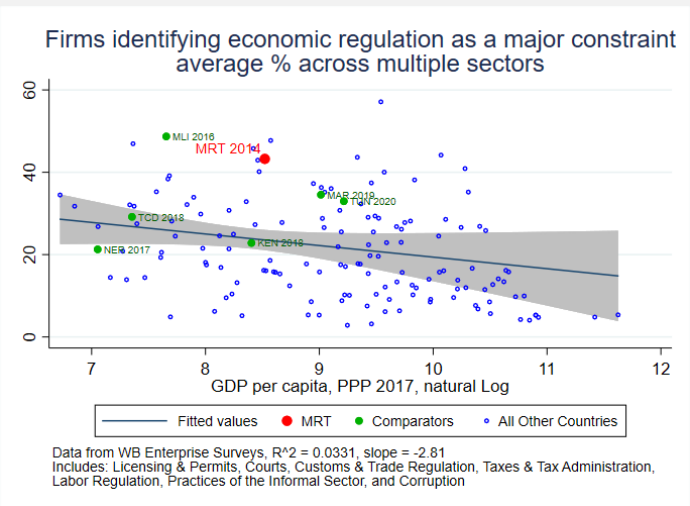
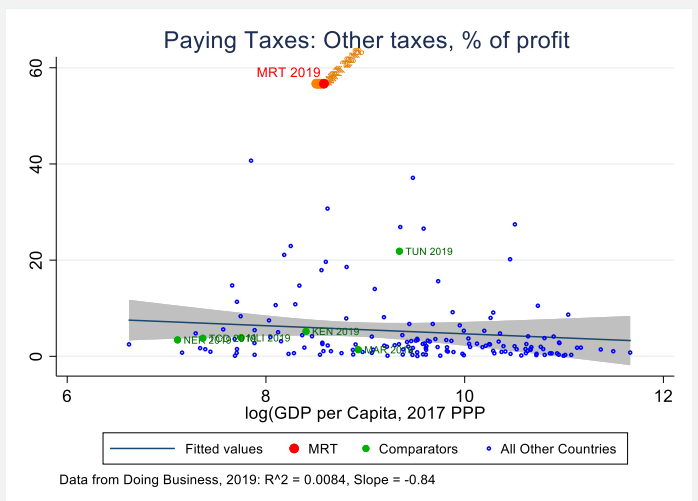


FIGURE 18: Firms’ self-reported perception of constraints due to a variety of factors related to economic regulation of the economy



Source: authors’ calculations from World Bank Enterprise Survey 2014

FIGURE 19: Mauritania’s taxes are very high and often fall into the “other” category (according to the Doing Business Indicators), illustrating that the tax system is also highly complex and distortionary



Source: authors’ calculations from Doing Business 2019

risks makes it challenging to start and operate businesses in Mauritania.

High taxes and a complicated tax code are constraining business development. Mauritania was an extreme outlier in the “other taxes” and “total taxes” categories from Doing Business Indicators (Figure 19), suggesting a high

tax burden for businesses. Furthermore, during consultations many firms reported that high taxes and a complicated tax code were among their primary constraints.

Firms in Mauritania respond to the burdensome tax and business policies by operating informally. Data from the World Bank Enterprise Survey revealed that firms

in Mauritania operated without a formal registration for longer than comparator countries. Furthermore, firms in Mauritania are more likely to hire temporary workers, and consultations revealed that businesses used temporary workers to circumvent labor taxes and labor regulations. Pervasive informality is problematic, in part, because it limits the overall tax base, lowering potential tax revenue for the government. Likely, Mauritania's high tax rates reflect the government's attempts to offset its low tax base by raising taxes on the firms that do pay taxes. In turn, the high rates create pressures for the government to provide numerous tax breaks and other tax incentives that further reduce Mauritania's tax base. That is, firms may evade high taxes by operating informally or hiring informal workers, and so many do. This can create a cyclical pattern in which the government then responds to informality by increasing taxes or regulations even further.

Non-Binding and Near-Binding Constraints

In addition to the binding constraints to growth discussed above, this analysis considered an array of

other potential constraints to economic growth. For Mauritania, numerous indicators across a wide array of sectors suggested a number of potential constraints that did not make the final list of five binding constraints to growth, including human capital (health and education), ports and international connectivity, roads and domestic transport, low national savings, and several distinct micro-risks.

Not all considered constraints are analyzed in this report; however, one area of note is human capital. Mauritania has exceptionally low literacy rates and very low government expenditures on education. There are also high percentages of firms offering formal training, suggesting potential circumvention of a human capital constraint. However, Mincer returns at all levels of education were very low, suggesting that Mauritania is currently in a low supply and low demand education equilibrium. Thus, human capital did not rise to the level of potential binding constraints to growth.

Conclusion

MCC identified five binding constraints to growth for Mauritania: (i) vulnerability to climate-related hazards, (ii) reliance on commodity exports that limits competitiveness, (iii) expensive and unreliable electricity, (iv) high cost and barriers to accessing formal credit, and (v) burdensome tax and business policy. During a mission in early March 2023, MCC presented a list of 10 "areas of interest" that included the final list of five binding constraints to growth, to a select group of experts, the Economic Advisory Committee (EAC), selected by the Government of Mauritania. The feedback MCC

received in this process helped refine the list of potential constraints.

This Constraints Analysis was conducted during the first half of 2023. The five binding constraints identified in this report were presented to the Government of Mauritania by MCC in June 2023. Of these constraints, the government selected to pursue the constraints related to Mauritania's vulnerabilities to climate-related hazards and expensive and unreliable electricity for further exploration for MCC Threshold Program development. Analysis to determine the root causes of these constraints began in July 2023.

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Annex: Constraints Analysis Heatmap Across All Sectors Considered

Following Doing Growth Diagnostics in Practice: A Mindbook (Hausman, Klinger, and Wagner 2008), MCC conducted a series of tests (using the “four tests” framework) across the entire Mauritanian economy. The “four tests” are:

Test 1: The social or shadow price of the constraint is high.

Test 2: Changes in the constraint drive changes in growth or investment.

Test 3: Agents in the economy will seek (costly) ways to circumvent the constraint.

Test 4: “Camels and Hippos,” i.e., When the constraint is present, only the firms that are adapted to the conditions will survive—just like there are camels, but no hippos, in the desert.

The Mauritania Constraints Analysis was conducted in an expedited process of rapid desk review. Rather than identify the sectors for the most binding constraints to growth, the analysis focused instead on identifying the top five most binding constraints, recognizing that significant effort goes into further refining such a list. To narrow the list to five potential constraints, the methodology focused on deductively eliminating most sectors as potential constraints. For Mauritania, this process was only able to narrow the list to 9–10 potential constraints, leading to additional work to further narrow the list of possibilities down to five. Figure A-1 shows how the evidentiary standard was interpreted for each test conducted.

FIGURE A-1: How each of the Mindbook’s “four tests” were interpreted for Mauritania. A binding constraint to growth should show a consistent pattern across each test. Hence, strong evidence against the constraint invalidates the hypothesis while evidence in favor of the constraint begs further testing.

Heatmap			
Color	Meaning	Color	Meaning
Grey	No Evidence for or Against Constraint; or No Test Completed	Yellow	Mixed or Weak Evidence; No test is statistically significant and/or some tests are contradictory
Blue	Strong Evidence Against Constraint; At least one clear and unambiguous test against constraint hypothesis – NB: invalidates the constraint hypothesis	Orange	Ambiguous Evidence; No test passes significance threshold, but Preponderance of Evidence (multiple test with same “sign”) suggests Constraint is likely
Green	Evidence Against Constraint; At least one test against constraint hypothesis, or Preponderance of Evidence (multiple tests with same “sign”) suggests Constraint is unlikely	Red	Evidence in favor of Constraint; At least one test shows clear evidence for constraint hypothesis – NB: Does NOT validate constraint hypothesis without further testing

Source: Authors

MCC summarizes the result of its Constraints Analysis process through color-coded “heatmaps.” Figure A-2 summarizes the results for the constraints analysis using the heatmap developed during the Constraints Analysis process for each of the sectors considered.

Two types of evidence that do not fit into the “four tests” framework are included in the heatmap: (A) “Benchmark” tests are supporting evidence that do not fit neatly into any one of the four tests, and (B) firms’ self-identified constraints.

FIGURE A-2: Summary of the Mauritania Constraints Analysis for each of the potential constraint sectors. The “Test” columns represent the summary of several tests, where each box is colored according to the methodology described in Figure A-1 for the strongest test conducted for that test and sector unless there is contradictory evidence (e.g., “green”-coded evidence and “orange”-coded evidence for the same sector and test would be coded “yellow” in this table).

	B-mark	Test 1	Test 2	Test 3	Self-ID'd	Constraint?
Constraints Identified						
Vulnerability to Climate Hazards	Red	Grey	Red	Grey	Yellow	Red
Limited Competitiveness	Orange	Red	Red	Orange	Grey	Red
Expensive & Unreliable Electricity	Orange	Orange	Grey	Yellow	Orange	Orange
High Cost & Barriers to Access Finance	Orange	Orange	Yellow	Yellow	Orange	Orange
Burdensome Tax & Business Policies	Red	Red	Grey	Orange	Orange	Red
Other Constraints Considered (non-exhaustive):						
Low Human Capital - Skills	Red	Blue	Orange	Orange	Orange	Yellow
Health & WASH Infra	Yellow	Green	Orange	Grey	Grey	Green
Domestic Transit	Green	Orange	Green	Grey	Orange	Green
Ports & International Connections	Orange	Blue	Grey	Yellow	Green	Green
Detailed List	B-mark	Test 1	Test 2	Test 3	Self-ID'd	Constraint?
Finance						
Low Domestic Savings	Yellow	Orange	Red	Green	Orange	Orange
Inefficient Finance	Yellow	Orange	Green	Yellow	Orange	Orange
Access to Foreign Finance	Orange	Grey	Yellow	Grey	Orange	Orange
Low Appropriability						
Limited Competitiveness	Orange	Red	Red	Orange	Yellow	Orange
Micro-appropriability Risks	Red	Red	Grey	Orange	Orange	Orange
Low Intrinsic Returns						
Poor Natural Capital	Orange	Yellow	Green	Grey	Grey	Yellow
Low Human Capital - Skills	Red	Blue	Orange	Orange	Orange	Yellow
Low Intrinsic Returns - Infra						
Health & WASH Infra	Yellow	Green	Orange	Grey	Grey	Green
ICT	Yellow	Grey	Green	Green	Grey	Green
Power	Orange	Orange	Grey	Yellow	Orange	Orange
Domestic Transit	Green	Orange	Green	Grey	Orange	Green
Ports & International Connections	Orange	Blue	Grey	Yellow	Green	Green