

MAURITANIA

Country Economic Memorandum:
Accelerating Growth Through
Diversification and Productive Cities



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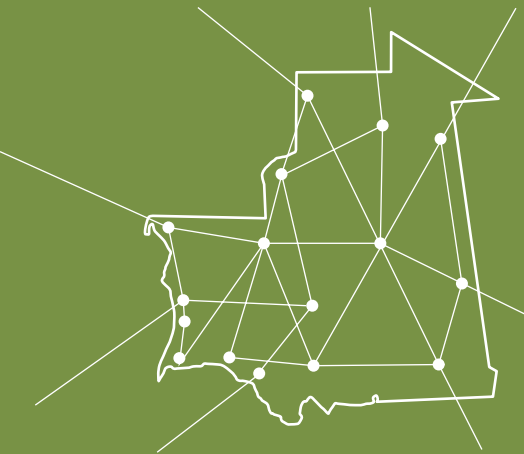
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Abbreviations

ACFTA	African Continental Free Trade Area	ONS	National Office of Statistics
AMU	Arab Maghreb Union	NFHR	National Fund for Hydrocarbon Revenues
BCM	Banque Centrale de la Mauritanie	NQI	National Quality Infrastructure
CBD	Center of Business District	NTMs	Non-Tariff Measures
CBM	Central Bank of Mauritania	ONS	Office National de la Statistique
CAGR	Compound Annual Growth Rate	OECD	Organisation for Economic Co-operation and Development
CEM	Country Economic Memorandum	PIP	Public Investment Program
CPF	Country Partnership Framework	RGPH	Recensement Général de la Population et de l'Habitat
DB	Doing Business	RCA	Revealed Comparative Advantage
ECOWAS	Economic Community of West African States	RUN	Urban Region of Nouakchott
ECI	Economic Complexity Index	SMCP	Société Mauritanienne de Commercialisation du Poisson
EPCV	Enquête Permanente sur les Conditions de Vie des Ménages	SCAPP	Strategie Nationale De Croissance Aceleree et de Prosperite Partage
EU	European Union	SSA	Sub-Saharan Africa
FDI	Foreign Direct Investment	ToT	Terms of Trade
GCI	Global Competitiveness Index	TFP	Total Factor Productivity
GoM	Government of Mauritania	USDA	United States Department of Agriculture
GTA	Grant Tortue Ahmenyim	WBL	Women, Business and the Law
GDP	Gross Domestic Product	WB	World Bank
IMF	International Monetary Fund	WDI	World Development Indicators
JICA	Japan International Cooperation Agency	WTO	World Trade Organization
LFS	Labor Force Survey		
LCSI	Liner Connectivity Shipping Index		
LPI	Logistics Performance Index		
CNERV	National Livestock and Veterinary Research Centre		

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Executive Summary

The Mauritanian economy is at an important crossroad. Despite significant increases in its natural resource wealth, economic development in Mauritania remains weak. The over-reliance on natural resources has left the economy undiversified with growth, exports, and fiscal revenues all dependent on extractives. Responding to the 2015 commodity price shock, the authorities implemented a strong fiscal consolidation program that restored macroeconomic stability and steered the economy onto a recovery path. The new administration—appointed following the election in mid-2019—now has the challenge and opportunity to map out a more sustainable development model and steer the economy onto a path of accelerated and equitable economic growth for the rapidly growing population.

The objective of this report is to support policy makers in Mauritania in their reform efforts to accelerate growth as outlined in the National Development Plan (SCAPP). It attempts to answer the following questions: (i) Why Mauritania could not diversify its economy in the past and

what are the opportunities to do so in the future? (ii) What are the reasons behind the weak link between urbanization and growth, and is Nouakchott lifting its weight as an urban agglomeration? (iii) Which policy actions could help build those pathways? By answering these questions, the report aims to contribute to the economic discussion and provide policy recommendations for the choices that Mauritania is facing to accelerate growth and improve the living standards of its population.

The report is organized around five chapters. Chapter 1 starts with a brief introduction. Chapter 2 analyzes the key characteristics of Mauritania’s past growth performance. Chapter 3 evaluates the current and future potential for economic and export diversification. Chapter 4 examines the challenges that are preventing urbanization from contributing to growth, with a focus on Nouakchott. Chapter 5 concludes by proposing a menu of policy recommendations that could help Mauritania achieve faster and more sustainable economic growth. The main messages are summarized below.

Weak foundations of past growth

Between 1992 and 2018, economic growth was moderate but highly cyclical. During this period, GDP growth in Mauritania averaged 4 percent, a rate almost equal to the SSA average. However, due to the rapid increase in population, growth was lower in per capita terms. As a result, the gap in real GDP per capita between the SSA average and Mauritania has widened, reaching USD 306 in 2018. The growth path also displayed cyclical fluctuations, reflecting the country's vulnerabilities to natural resource, climate, and political shocks.

Growth and wealth accumulation were largely driven by natural resource extraction. The extractive sector made the biggest contribution to GDP growth, driven by the oil discovery in mid-2000s and the onset of gold and copper extraction in the late 2000s and early 2010s. The surge in natural resources was also behind the 64.7 percent rise in real wealth per capita between 1995 to 2014.

However, the extractive windfalls were not efficiently invested to boost competitiveness in non-extractive sectors. Mauritania did not leverage its natural capital to invest in its weak human capital. With a Human Capital Index of 0.35 (150 out of 157 countries) in 2017, the average Mauritanian child born today will only reach 35 percent of his productivity potential endowment, thus hindering future productivity and growth. Mauritania also suffers from large infrastructure gaps that are inherited from colonial times, but also from mismanagement of large public investment projects that did not yield the expected returns.

The Mauritanian economy suffers from an unchanged and unsophisticated export basket. The export structure has changed little between 2000 and 2017 and is still dominated by products requiring little complexity in processing, namely extractives and low value-added fishing products. Not only Mauritania failed to diversify its exports, but its productive capabilities are weak compared to peer countries. This could slow long-term per capita growth, particularly if the current population growth trend continues.

Another manifestation of Mauritania's weak growth foundations is the missing link between urbanization and economic growth. Mauritania is one of the most urbanized countries in SSA as 52.8 percent of its 4.2 million population lived in urban areas in 2017, compared to a 39.5 percent average in SSA. Urbanization has usually gone hand in hand with sustained GDP growth, but this was not the case in Mauritania. This missing link manifests itself through the large percentage of individuals living in urban slums (about 80 percent in 2014).

Given the importance of diversification and a well-managed urbanization to Mauritania's development, the rest of the report focuses on these two topics. While acknowledging that Mauritania may face additional challenges to growth such as human capital and private sector development, this report is not designed to be exhaustive. Rather it tries to provide policy recommendations with a focused approach.

The need to diversify the Mauritanian economy

The lack of diversification hurts the Mauritanian economy. In 1997, mining and fish products accounted for 97.6 percent of merchandise exports, with almost no manufacturing exports. Two decades later, this picture has not changed much as both sectors accounted for 98.1 percent of total exports in 2017. The lack of diversification not only resulted in limited job creation, but it also exposed the economy to external vulnerabilities. This was evident after the fall in commodity prices in 2014 when GDP growth more than halved from 5.5 percent in 2011-2014 to 2.5 percent in 2015-2018.

Commodity-dependence and a small and disconnected internal market are major reasons for product and market diversification. Extractive industries are unable to absorb the rapid demographic boom because they are highly capital-intensive. The Mauritanian economy also suffers from a small and disconnected domestic market that limits its ability to attract private investments. Hence, unless the country diversifies its export basket and expand

its market reach, strong reliance on commodity-based exports will keep the economy underperforming, except for periods of booming commodity prices.

Agriculture (hereinafter defined as crops, fish, and livestock) is the only non-extractive sector in which Mauritania has a clear comparative advantage and has the potential to develop new export opportunities.

At the same time, a significant percentage of households in this sector are poor. Therefore, developing this sector could promote economic diversification and accelerate poverty reduction. Yet, this goal would not be feasible with a lackluster productivity that faces numerous challenges including insufficient government spending, poor and even deteriorating human capital, land issues, and governance weaknesses.

Structural constraints impair Mauritania from expanding its production base and diversifying its economy away from natural resources.

The real exchange rate is overvalued due to limited exchange flexibility and ineffective monetary policy. This is coupled by financial vulnerabilities that undermine economic diversification. In addition to large financial constraints, the business environment is impaired by limited competition, low skilled labor, and poor electricity infrastructure. The challenging business environment is compounded by high import tariffs which shield domestic producers from international competition and impede access to cheap imported inputs. Beyond tariffs, the prevalence of non-tariff measures (NTMs) and the absence of clear procedures hinder trade. The lack of preferential trade agreements further reduces trade connectivity. Finally, large infrastructure and logistic gaps coupled with limited connectivity increase trade costs.

The missing link between urbanization and growth

Productive cities could drive diversification through agglomeration effects, that is the clustering of firms and individuals in an environment that promotes scale and specialization. Scale can be achieved by producing a lot of the same product, thereby reducing the fix cost per

unit of production. Specialization occurs when workers concentrate on doing a few narrowly defined tasks and in that process accumulate specialized skills that increase productivity. Scale and specialization interact and are stimulated by the proximity that successful cities provide to connect producers and consumers.

The rapid population urban growth in Mauritania was driven by migration and a high fertility rate.

In 2017, the country's urban population reached about 2.3 million or about 52.8 percent of the total population. Mauritania's fertility rate is among the highest in the world at about 5.1 births per woman. In addition to the high fertility rate, migration drove population dynamics, particularly in Nouakchott which now accounts for half of the urban population. If past migration trends continue, Nouakchott's population would grow disproportionately faster than the rest of the country, potentially leading to further congestion.

Even though Mauritania has made positive strides in reducing spatial inequality in the past, the welfare gap between rural and urban areas remains large.

Between 2008 and 2014 rural poverty declined, driven by a robust growth in median income of rural households. In contrast, urban areas registered fewer gains in poverty reduction and Nouakchott witnessed an increase in poverty as it did not absorb poor migrants into high productive sectors. This led to some convergence between rural and urban poverty rates. Yet, welfare differences between rural and urban communes remain sizeable and poverty rates remain highest in the South where the population is highly reliant on agriculture.

Mauritania did not benefit from the economic dividends of urbanization due to low density, large distances, and acute divisions.

Urban agglomerations in Mauritania are among the least densely populated in Africa, meaning that few cities are sufficiently large to create market potential or generate economies of scale. In addition, urban centers are distant from each other because of geography and disconnected from other urban regions in neighboring countries due to hard borders. They also face acute divisions due to inadequate infrastructure, low levels of social cohesion, and limited trade linkages. These

challenges limit the benefits of agglomeration economies, thus undermining long-term growth.

Several factors have rendered Nouakchott a consumption city that is not serving as an engine of economic growth. Nouakchott's contribution to the economy is below its potential given its population size. This stems from the mismanagement of extractives which rendered Nouakchott a consumption city that urbanized without acquiring the industrial sectors that are typically associated with productive cities. Unplanned expansion, deficiencies in connectivity, weak governance, and financing constraints have all undermined agglomeration economies and made it costly to connect workers and firms. Meanwhile, the low skill base, owing to low educational outcomes of the city's original population coupled with the influx of less educated immigrants and the outflow of more educated emigrants has failed to invigorate the private sector.

Like other capitals on the West African coastline, Nouakchott is exposed to important climate risks that threaten its sustainability. Given that a large part of Nouakchott is located below sea level (42.9 percent), climate change places vulnerable communities at risk from sea-level rise, more frequent and intense flooding, and extreme weather events. These topographic challenges are aggravated by uncontrolled infrastructure building and inadequate drainage systems.

The way forward for a more sustainable and resilient growth path

While there is no universal recipe for success, Mauritania could orient its diversification strategy toward improving the quality of exported fish, exporting new products, and expanding its market reach: In particular, Mauritania should:

- Export more volume of products in which it has a consolidated and emerging comparative advantage, including: fish products, leather and animal hides, Arabic gum, malt, and minerals products.

- Improve the quality of high-value added fish products like fish fillets, fresh/chilled fish, and dried fish. The financial gains of upgrading the quality and increasing the exported quantities of these products would be high given that Mauritania is far behind on the corresponding quality frontier.
- Pilot and develop new products in which Mauritania can gain a comparative advantage based on its existing capabilities. These include sheep's or lamb's wool, live animals, copper alloys, and ores and concentrates.
- Develop the North-South road corridor that is crucial to support diversification in primary sectors.
- Expand its market reach by strengthening ties with West African countries.

A package of policies could help Mauritania achieve the proposed diversification strategy and leverage the urban dividends. In particular, this report proposes policy recommendations that can be implemented in the short, medium, and long-term. The policy agenda, summarized in Table 1, is anchored around four interlinked dimensions:

- Promote a more-market oriented economy;
- Enhance production factors;
- Improve planning and strengthen institutions;
- Better manage natural resources and adopt a more market-based exchange rate policy.

Table 1: Summary of recommendations that could help Mauritania achieve a sustainable growth path

Objective	Proposed recommendation(s)	Time horizon*
1) Promote a more market-oriented economy		
Develop an export-oriented trade policy	Submit a “statement of implementation” to notify WTO members about relevant laws regarding trade procedures	ST
	Appoint a trade facilitation enquiry point	ST
	Agree on a common external tariff with ECOWAS	ST
	Submit a schedule of tariff concessions and negotiate tariff reductions for key export products under AfCTA	MT
	Eliminate non-transparent import taxes	MT
	Coordinate with Morocco and Senegal to further develop the Tangier-Nouakchott-Dakar trade corridor	LT
Improve the business environment and promote local entrepreneurship	Implement the 2019-2020 reform program to strengthen access to finance and monetary policy mechanisms	ST
	Establish a well-coordinated institutional architecture for startup and entrepreneurship	ST
	Remove anti-competitive procedures and policies	MT
	Advocate for legal reforms to encourage women’s participation	MT
	Study the possibility of joining OHADA	LT
2) Enhance production factors		
Boost education and skills	Strengthen teacher management and professional development of teachers	MT
	Review curricula of schools	MT
	Develop a school-based management system	MT
	Encourage education of girls	LT
Improve infrastructure and connect cities	Finalize the rehabilitation of the Nouakchott-Rosso road and enlarge it in a later stage	ST
	Design a framework for prioritizing infrastructure and service development based on demand	MT
	Expand and improve road networks, sidewalks and pedestrian equipment in Nouakchott	MT
Maximize land use	Develop a centralized and digitized land registry	ST
	Streamline land registration procedures	ST
	Strengthen and decentralize the public land administration	MT

Table 1: Continues

Objective	Proposed recommendation(s)	Time horizon*
3) Strengthen governance and improve planning		
Strengthen governance	Develop a National Quality Infrastructure (NQI)	MT
	Increase and re-orient Government spending in agriculture toward productive factors	MT
	Allocate appropriate finance on a population-based formula to local governments	MT
Improve urban planning	Develop and implement master plans for different urban cities	ST
	In Nouakchott, introduce appropriate zoning laws that differentiate and connect residential, industrial and office zones	ST
	Intensify efforts to build large-scale drainage facilities, particularly in Nouakchott	ST
	Protect the coastal dune of Nouakchott from illegal activities	ST
	Study the possibility of prohibiting construction in areas at high risk of flooding and rising groundwater	MT
	Impose a tax on land	MT
4) Better manage natural resources and adopt a more market-based exchange rate policy		
Strengthen management of natural resources	Increase transparency by clarifying the operational rules of the NFHR and conduct yearly audits	ST
	Design an effective rule-based fiscal strategy to manage natural resources	MT
	Strengthen capacity in the areas of medium-term budget planning, revenue forecasting and fiscal risk analysis	LT
Adopt a more flexible exchange rate	Review the calculation of the daily reference exchange rate	ST
	Establish an FX auction budget and interbank market	MT
	Introduce FX auctions in a competitive official market	LT

Source: Authors' elaboration. Note: * ST means short-term, MT means medium-term, and LT means long-term.

Chapter 1

Introduction

Mauritania is a sparsely populated and arid country that is one of the least developed in the world. Geographically, Mauritania links the Arab Maghreb and western Sub-Saharan Africa (SSA). It is characterized by a very low population density of 4.3 people per square kilometers, which is significantly lower than the 44.9 average in SSA. While the poverty rate declined over time (Figure 1), Mauritania remains one of the least developed countries in the world (Figure 2), ranking 159th out of 189 countries on the HDI index in 2017.

In 2015-2018, economic activity receded as the authorities addressed the underlying macro-economic imbalances resulting from the over-reliance on extractives. Rather than leveraging the potential of the extractive boom for productive investment and fiscal resilience, ineffective management of extractive revenues has left Mauritania vulnerable to Terms of Trade (ToT) shocks. As the commodity-price shock in 2014-2015 negatively impacted domestic resources, the Government embarked on a fiscal consolidation program, including a

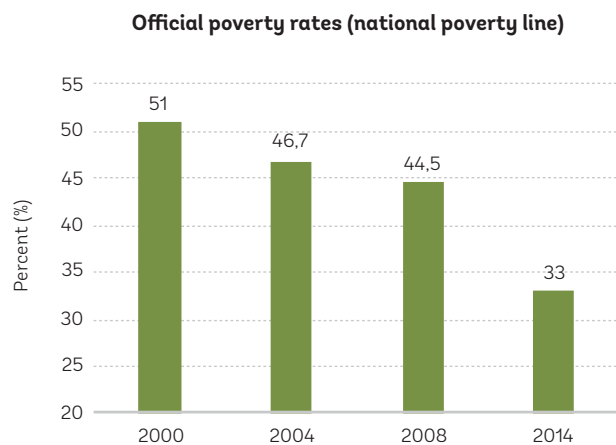
significant cut in public investment. This was coupled with a severe contraction in the extractive sector (11.6 percent in 2017-2018) stemming from mismanagement and operational problems at the public mining utility.¹

As macroeconomic stability was regained, the Mauritanian economy is today at a significant juncture to shift to a more inclusive and sustainable growth path. The challenge for the new administration that took office in mid-2019 is to lay the foundations for a new growth model that promotes economic diversification through policies that boost productivity in non-extractive sectors and improve the management of current and expected natural resources. The structural transformation to a less resource-dependent and state-driven economy would not be possible without well-functioning and interconnected cities that cater to the needs of a young and rapidly growing population.

This Country Economic Memorandum (CEM) examines Mauritania's principal challenges and opportunities

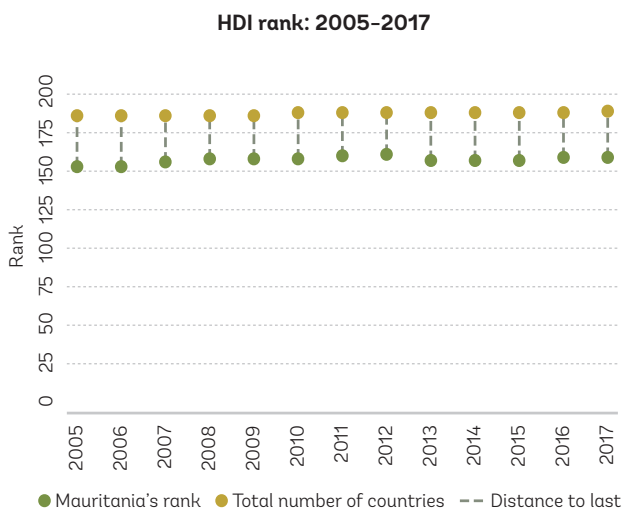
1 Société Nationale Industrielle et Minière (SNIM).

Figure 1: The poverty rate declined rapidly over time in Mauritania...



Source: World Bank (2017b).

Figure 2: ..., but the country's development level did not improve relative to other countries



Source: Human Development Reports. Note: Distance to last represents how far Mauritania's ranking is from the worst ranking.

to achieve a more balanced and sustainable growth through economic diversification and sustained urbanization. This choice has been motivated by the results of the country scan diagnostic which is an integral part of the new CEM 2.0 analytical framework (Box 1). In addition, the Government's development plan (SCAPP, 2016-2030)² and the World Bank's Country Partnership Framework (CPF, 2018)³ both stressed the importance of diversifying the economy and developing growth-enhancing cities. The CEM format is not designed to be exhaustive, and Mauritania may face additional challenges to growth which are outside of the scope of the report. It should be also noted that several empirical questions pertaining to urbanization and diversification were not tackled due to data scarcity (appendix I).

Across this study, the performance of Mauritania on different economic aspects will be benchmarked to three groups of countries. The first group, referred to as regional peers, includes the Sub-Saharan African (SSA) average and Algeria, Tunisia, and Morocco as neighboring Arab countries. These have been used as comparators in recent studies (World Bank, 2017b, 2018b). A data-driven approach is

then used to identify structural and aspirational peers.⁴ Structural peers are defined as countries that currently have similar structural characteristics and economic features as Mauritania, while aspirational peers are countries that were able to grow much faster than Mauritania over time, despite having had similar initial economic and structural conditions. In sum, this methodology results in the selection of Benin, Nicaragua, and Senegal as structural peers, and Laos, Moldova, and Zambia as aspirational peers.

The remainder of this study is organized as follows. Chapter 2 describes the main macro-economic trends and analyzes the key characteristics of Mauritania's past growth performance. Chapter 3 evaluates Mauritania's current and future potential for economic and export diversification, while chapter 4 examines the challenges that are preventing urbanization from contributing to national economic growth, with a focus on Nouakchott. Finally, chapter 5 concludes by proposing a set of policy recommendations which could help Mauritania achieve a more resilient and sustainable growth path.

² The National Development Plan of Mauritania is called: Strategie Nationale De Croissance Aceleree et de Prosperite Partage (SCAPP): 2016-2030.
³ World Bank 2018. "Mauritania - Country partnership framework for the period of FY18-FY23 (English)", Washington D.C.
⁴ See World Bank (2019f) for details about the methodology.

Box 1: Description of CEM 2.0 analytical framework

The CEM 2.0 approach proposes innovations in the process and substance of growth analyses. In terms of substance, the CEM 2.0 proposes a simple analytical framework organized around 20 guiding questions: 10 questions at the macro level and 10 questions at the micro level. This is combined with 2 overall questions regarding the choice of period of analysis and peer countries. The macro questions are designed to encourage the employment of the most common growth diagnostic tools and decomposition techniques. The micro questions are designed around the framework proposed by Syverson (2011). In terms of process, a key innovation is the close involvement of national counterparts (government and private sector) in the design stage and the identification of modules.

In the Mauritanian content, this CEM 2.0 approach was adopted to conduct consultations with various Mauritanian stakeholders. The workshop was held at the World Bank office in Nouakchott on October 11, 2018 with representatives from key Mauritanian stakeholders. These included the Ministry of Economy and Finance (MEF), the Ministry of Habitat, Urbanism and Landscape Planning (MHUAT), the Ministry of Commerce, Industry and Tourism (MCIT), the Central Bank of Mauritania (BCM), the Office of National Statistics (ONS), the Federation Mauritanienne de l'agriculture, the Centre Mauritanien d'Analyse de Politiques (CMAP), and the Union Nationale du Patronat.

Based on the country scan presentation, participants agreed that urbanization and diversification – with a focus on agriculture – merit in-depth analysis as part of this study. The workshop was structured into three main parts. First, the team introduced the overall objective of this study and explained the procedure that will be adopted to complete it. Second, it presented the country scan and engaged in fruitful discussions with the participants about the data sources used, the methodologies adopted, and the interpretation of results. Third, the workshop concluded with a consensus among participants that a more structured urbanization and a diversified economy (with a focus on agriculture) are key to achieve a sustainable growth in Mauritania.

Understanding Mauritania's growth story

2.1. Growth history

Between 1992-2018, economic growth was moderate, but highly cyclical.⁵ GDP growth averaged 4 percent during this period, a rate almost equal to the SSA average (Figure 3). However, due to the rapid increase in population, growth was lower in per capita terms and, as a result, the gap in real GDP per capita between the SSA average and Mauritania has widened from USD 227 in 1992 to USD 306 in 2018. The growth path also displayed cyclical fluctuations (Figure 4), largely reflecting peaks (related to natural resource discoveries) and troughs (related to weather and political instability).

Structural break analysis suggests that Mauritania's growth history can be divided into three periods (Figure 5),⁶ Following the conflict with Senegal in 1989, output grew by an average of 2.9 percent per year between 1992 and

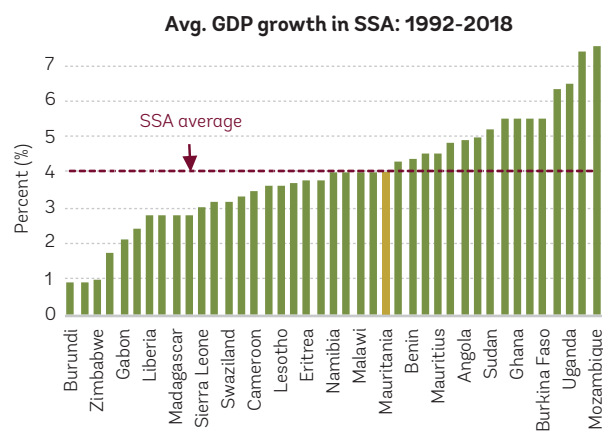
2003, at par with SSA's average. Despite relative political stability, droughts during this first period depressed growth. The second period, from 2004 to 2014, was characterized by an initial major positive shock represented by the onset of oil production in 2006 with a brief peak of 75,000 barrels of oil per day (bpd) during that year. This growth acceleration was, however, not sustained due to technical difficulties in oil extraction,⁷ political instability and internal conflicts, and the severe drought in 2011 that largely impacted the primary sector. Yet, this period ended on a high, with growth averaging about 5.8 percent in 2012-2014, owing to the mining boom and the commodity super-cycle. In the third period, spanning 2015 to the present, economic activity receded as it endured the fiscal and economic effects of low commodity prices, aggravated by droughts and regional insecurity. Although it remains below the pre-2014 shock levels, GDP growth started to recover in 2018.

⁵ We start from 1992 because Mauritania had a conflict with Senegal in 1989-1991.

⁶ Econometric tests identified 2004 as a structural break, which represents the onset of investment in the oil industry. The year 2015 marks the end of the commodity super cycle and was identified through visual inspection as econometric tests could not be applied due to the small number of observations.

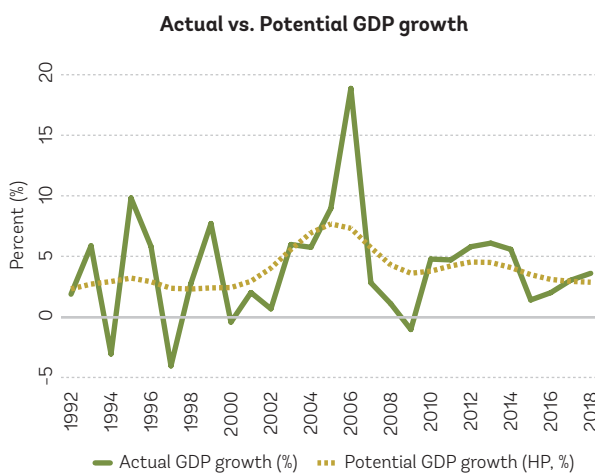
⁷ The Chinguetti oil field was decommissioned in early 2018 after production plummeted rapidly to about 3,000 bopd in 2017.

Figure 3: Between 1992 and 2018, GDP growth in Mauritania was almost equal to the SSA average, ...



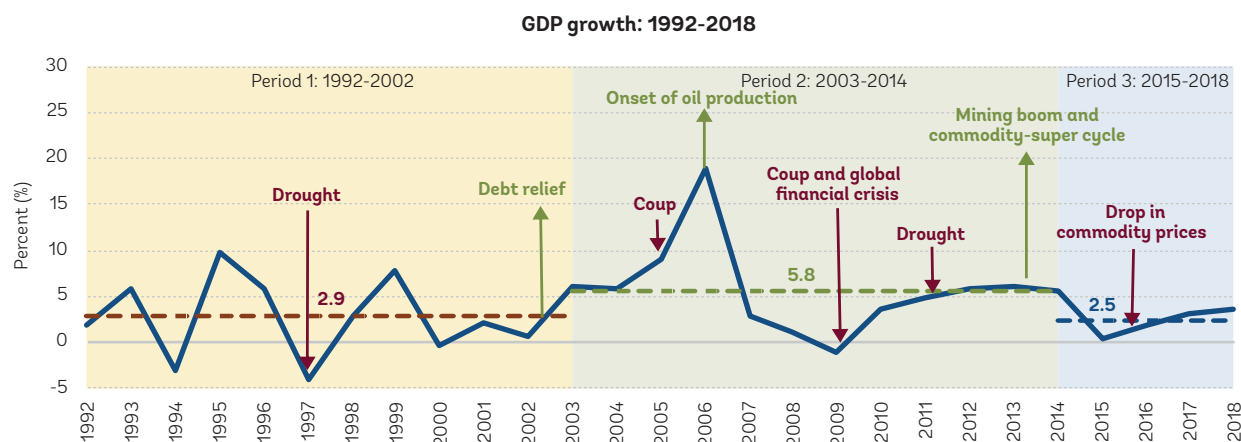
Source: WDI and authors' calculations. Note(s): SSA excludes rich countries: Botswana, Nigeria and South Africa. We start from 1992 to exclude the conflict with Senegal in 1989-1991.

Figure 4: ... but it was very volatile with a standard deviation of 4.5 percent



Source: WDI and authors' calculations.

Figure 5: Mauritania's growth path can be decomposed into three main periods that were characterized by natural resources, climatic hazards, and political instability



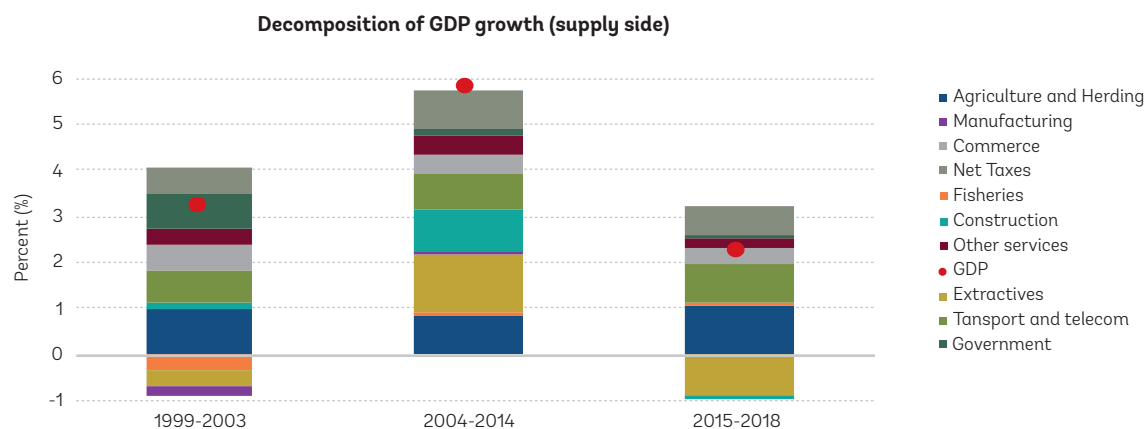
Source: WDI, ONS and authors' calculations.

Aided by procyclical public investment during the boom period, private consumption was the main driver of growth. Private consumption fueled growth as it grew by an average of 4.4 percent between 2005 and 2018 thanks to the windfalls from the extractive boom and increased revenues from the primary and non-tradable sectors (see below).⁸ Public investment was procyclical. It increased

from 3.8 percent of GDP in 2009 to 15 percent of GDP in 2015 during the commodity super-cycle, before dropping to 8.8 percent of GDP in 2018 as the Government cut public investments to adjust for the decline in extractive-related revenues after 2015. Meanwhile, the contribution of net exports in 2005-2014 was negative as the pick-up in extractive exports was fully offset by the rise in

⁸ The Mauritanian authorities only publish national accounts from the supply side. Demand side estimations are only available from MFM from 2005.

Figure 6: Extractives, transport and communication, and agriculture were the main drivers of growth



Source: ONS, BCM, and authors' calculations. Note: National Accounts are only available since 1998.

infrastructure imports related to the Public Investment Program (PIP) and the construction of new mining fields. It turned slightly positive in 2015-2017 due to lower import-related investments and higher fishing exports.

On the supply side, the traditional sectoral drivers of growth remained the same over the different periods.

The extractive sector made the biggest contribution to GDP growth due to oil discovery in mid-2000s and the onset of gold and copper extraction in late 2000s and early 2010s, respectively (Figure 6). Driven by the production boom in extractives, the commodity super-cycle, and the PIP, non-tradable sectors (construction, retail, and public services) grew by a combined 6 percent per year. The agro-pastoral sector (also referred to in this study as simply agriculture) remains a pillar of the Mauritanian economy as it accounts for about 30 percent of employment and a significant percentage of its households are poor. However, the 3.3 percent average growth of this sector in 1999-2018 was very volatile with a standard deviation of 4 percent. This high volatility was driven by climatic hazards as reflected by the positive (0.4) correlation between rainfall variability and agricultural GDP.

The unchanged and unsophisticated structure of the Mauritanian economy is also reflected in the composition of exports. The product space shows that

the export structure has changed little between 2000 and 2017 and is still dominated by low complex products, namely extractives and low-complex fishing products (Figure 8).⁹ Not only Mauritania failed to diversify its exports, but its productive capabilities, as proxied by the Economic Complexity Index (ECI), are weak compared to peer countries (Figure 9). This could hold back long-term GDP growth, which according to the Hidalgo and Hausman (2009) model, is projected at 2.8 percent per year up to 2027, that is -0.1 percent per capita terms assuming the current population growth trend continues.

2.2. Weak foundations for growth and structural transformation

Mauritania's growth model suffers from an overreliance and mismanagement of natural resources and an incomplete urbanization that have hindered structural transformation. Rather than leveraging its natural resources in productive investments into physical and human capital and fiscal resilience, ineffective management of extractive revenues has left Mauritania vulnerable to commodity price shocks and ultimately contributed to the economic deceleration post-2015. Meanwhile, rapid urban population growth without spatial densification of people and firms has deprived Mauritania of significant

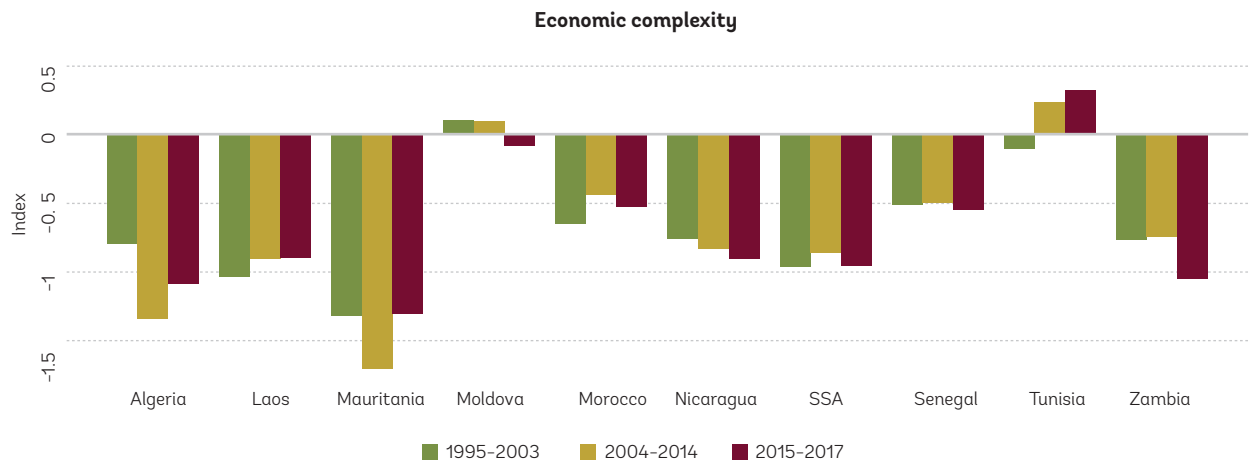
9 Appendix III defines the Product Space concept.

Figure 7: The product space in Mauritania remained almost the same between 2000 (left) and 2017 (right)



Source: Atlas of Economic Complexity; Center for Development of Harvard University.

Figure 8: Mauritania lags its peers on economic complexity



Source: Atlas of Economic Complexity; Center for Development of Harvard University.

benefits and growth dividends from economies of scale and structural transformation.

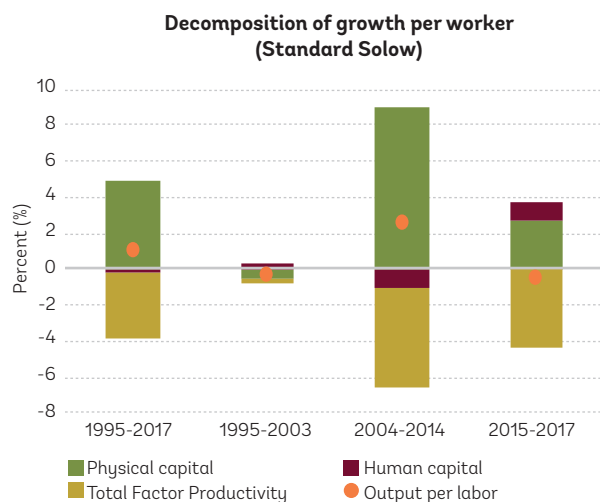
2.2.1. Over-reliance on extractives

Growth in Mauritania was largely driven by natural resource extraction. The standard Solow decomposition shows that capital accumulation, rather than productivity

improvements, was the major driver of past growth per worker (Figure 9). However, since Mauritania is abundant in natural resources, it is important to capture the contribution of natural resources. When doing so using the model developed by Calderón and Cantú (2019),¹⁰ natural capital becomes, by far, the major contributor to growth per worker (Figure 10). This reflects the onset of production in oil (in 2006), copper (in 2007), and gold (in

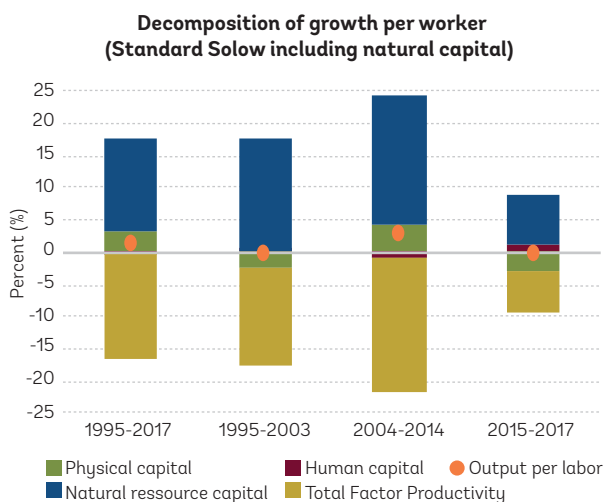
¹⁰ See appendix II for details about the methodology of adding natural capital as an addition factor of production.

Figure 9: The standard Solow decomposition shows that physical capital was the driver of growth...



Source: PWT 9.1, the Changing Wealth of Nations (2018) and authors' calculations.

Figure 10: ..., but this masks the major growth effect of natural resource extraction in the past two decades



Source: PWT 9.1, the Changing Wealth of Nations (2018) and authors' calculations.

2012). Meanwhile, the TFP contribution is reduced sharply with the inclusion of natural capital, a result that is in line with the one found by Calderón and Cantú (2019) for other SSA resource-rich countries. In simple terms, these findings imply that Mauritania mismanaged its resource discoveries.

Natural resources were also the major driver of wealth accumulation over the past two decades. Real wealth per capita rose nearly 64.7 percent from 1995 to 2014, increasing from US\$ 17,843 to US\$29,380. Mauritania's wealth accumulation was dominated by an increase in non-renewable natural resources (Figure 11). This stemmed from the onset of oil production in 2006 and the extraction of gold and iron mines in early 2010s. In fact, Mauritania moved from being ranked as the 11th country in the world with the highest wealth stock of metals and minerals per capita in 1995 (2nd in SSA behind Zimbabwe) to the position 6th in 2014 (1st in SSA), only behind Australia, Chile, Suriname, Mongolia and Peru.

However, Mauritania did not leverage its natural capital to strengthen its weak human capital that is key to

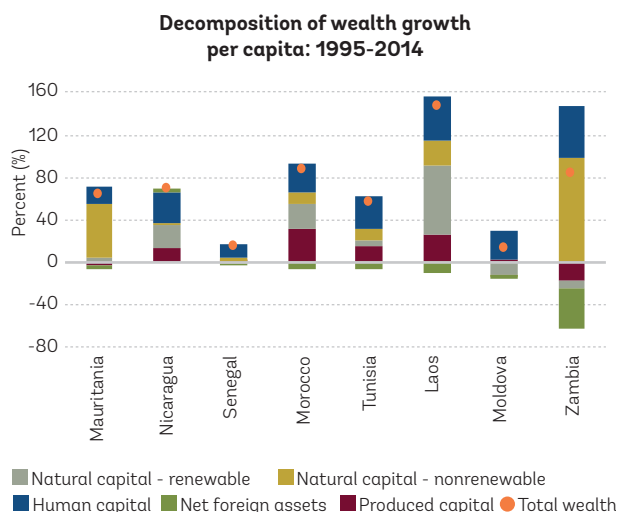
boost productivity. Human capital per capita grew by 2 percent per annum (CAGR) between 1995 and 2014, a rate lower than in most peer countries. With a Human Capital Index of 0.35 (150 out of 157 countries), the average Mauritanian child born today will only reach 35 percent of his/her productivity potential. The weak human capital, which hinders future productivity, reflects a general education system which is not providing foundational skills for most children, with problems in low enrollment, weak retention and poor learning outcomes especially at the basic level (World Bank, 2019h).

The economywide lack of productivity growth is also observed in agriculture which is critical to reduce poverty.¹¹ Using the growth-accounting methodology developed by the United States Department of Agriculture (USDA),¹² we find that agricultural growth in Mauritania has been largely resource-led rather than productivity-led between 1992 and 2015 (Figure 13). Over this period, more than 70 percent of agricultural growth stemmed from intensive use of inputs (labor and livestock accumulation), in contrast to only 20 percent from productivity

11 In this report, we use the broader definition of agriculture which includes fishing and livestock.

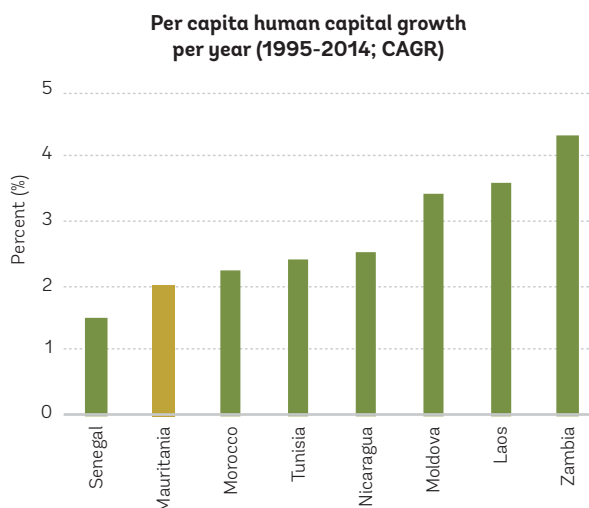
12 For more details about the USDA methodology, kindly refer to (Fuglie and Rada, 2013). The data can be accessed using the following link: <https://www.ers.usda.gov/data-products/international-agricultural-productivity.aspx>

Figure 11: About 80 percent of per capita wealth growth in Mauritania was driven by natural capital



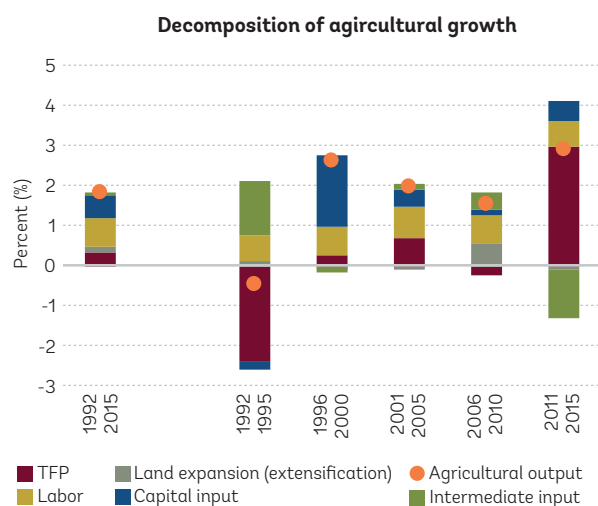
Source: The Changing Wealth of Nations (2018) and authors' calculations.

Figure 12: In contrast, Mauritania suffered from limited human capital accumulation



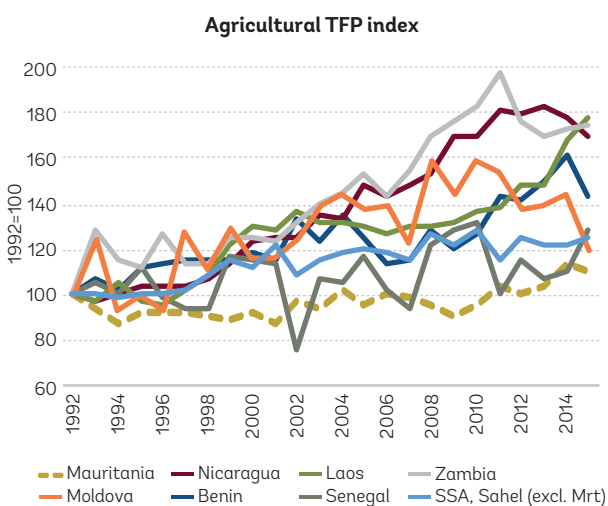
Source: The Changing Wealth of Nations (2018) and authors' calculations.

Figure 13: Agricultural growth in Mauritania stemmed from labor and livestock accumulation



Source: USDA ERS and authors' calculations.

Figure 14: Despite some improvement in recent years, Mauritania still lag its peers on agricultural TFP



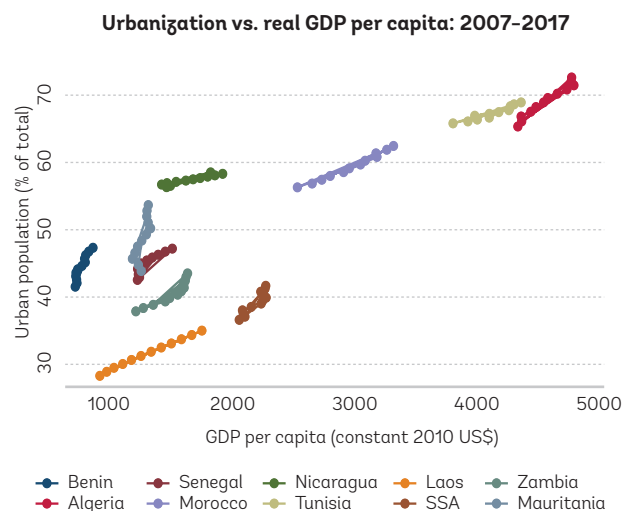
Source: USDA ERS and authors' calculations.

improvements. Agricultural productivity in Mauritania was low compared to peer countries, even lagging behind the Sahel average (Figure 14). However, this productivity gap has slightly narrowed since early 2010s thanks to public subsidies for rice production and the launch of a large-scale pro-poor irrigation program in the Senegal River Valley.

2.2.1. A missing link between urbanization and growth

Mauritania has been urbanizing rapidly in the last decades, but the country failed to reap the benefits usually associated with urban growth. Mauritania

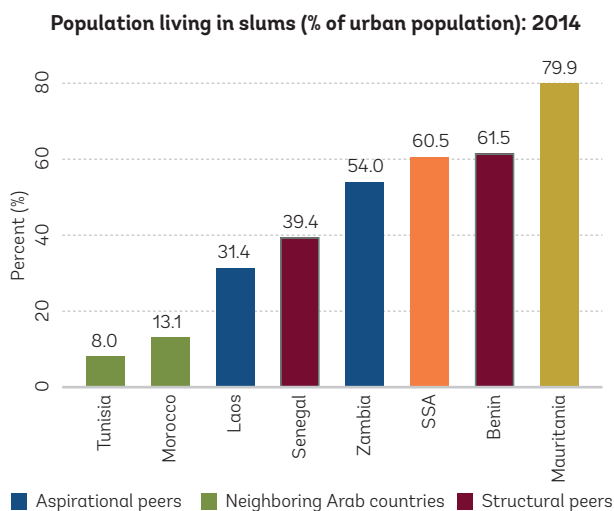
Figure 15: The rapid urbanization in Mauritania was not accompanied by parallel increases in GDP per capita, in contrast to the relationship in its peers



Source: USDA ERS and authors' calculations.

was one of the most urbanized countries in SSA in 1990, even more so nowadays as 52.8 percent of its 4.2 million population lived in urban areas in 2017 compared to 39.5 percent in SSA (WDI, 2019).¹³ Urbanization has usually gone hand in hand with GDP growth and no country has reached middle income status without becoming at least 50 percent urbanized (Spence et al, 2009). The power of cities to drive growth stems from agglomeration effects – the clustering of firms and individuals in an environment that promotes scale and specialization (Hommann and Lall, 2019). Population densities bring workers closer to jobs, increasing workers' opportunities and fueling their productivity. However, cities in Mauritania did not generate agglomeration economies as evident by the rapid urbanization that was not associated with parallel increases in GDP per capita, in contrast to the relationship in peer countries (Figure 15). Urbanization without commensurate planning and regulation of investments in infrastructure has resulted in almost 80 percent of the urban population residing in slums (Figure 16).

Figure 16: The percentage of urban population living in slums is very high in Mauritania

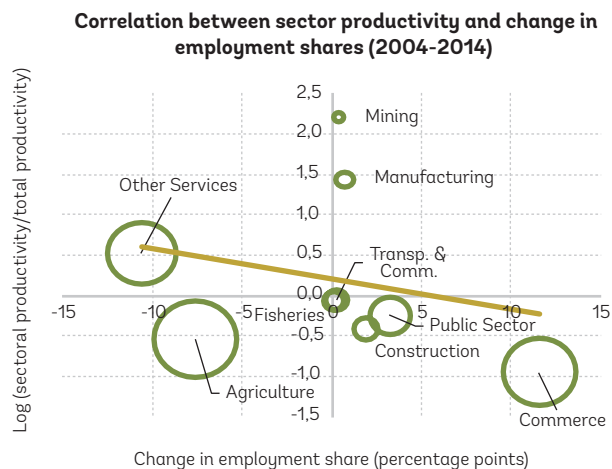


Source: USDA ERS and authors' calculations.

Although the share of employment in the primary sector has declined since the mid-2000s, labor has been mostly absorbed by low productivity construction and services. Most West African countries experienced some structural shift from low-productivity agriculture to higher productivity sectors including manufacturing and services (Haile, 2018). This was not the case in Mauritania as, between 2004 and 2014, labor shifted from agriculture toward non-tradable sectors such as construction, retail, and government services in which productivity declined over time (Figure 17). These sectors have also been among the least productive, with even lower productivity than agriculture. This result is corroborated by the Shapley decomposition which shows that within sector gains – largely reflecting the surge in the value added of the capital-intensive extractive sector – drove economic growth, while inter-sectoral labor shifts reduced growth (Figure 18). In sum, Mauritania urbanized without structural transformation toward higher productivity sectors.

¹³ Noting that ONS estimates the urbanization rate to be 49.8 percent in 2016, this report relies on data from WDI to ensure consistency when comparing Mauritania with other countries in the world. In particular, WDI uses the UN methodology which defines urban centers as localities with 5,000 inhabitants or more and/or administrative centers of departments (moughataa).

Figure 17: Between 2004 and 2014, labor moved from agriculture to sectors with low and declining productivity



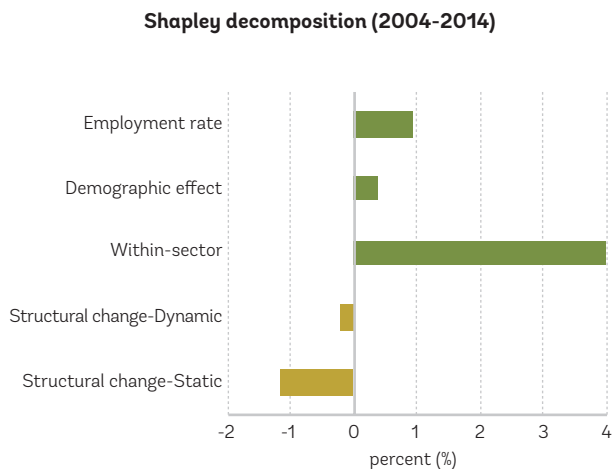
Source: ONS and authors' calculation. Note(s): The size of a circle represents the relative labor size of each sector in 2004. The red line represents fitted values.

Three factors explain the reverse structural transformation. First, the extractive boom fueled an ambitious public investment program (PIP) that translated into an increase in the share of employment in construction from 4 percent in 2004 to 5.9 percent in 2014. Second, the Government used the oil-related revenues to significantly expand the public sector workforce which rose from 8.8 percent of total employment in 2004 to 11.6 percent in 2008. This was reflected by the 123 percent surge in the public sector wage bill between 2006 and 2007. Third, labor moved from rural-agriculture to the less productive urban-related sectors that are dominated by informality and limited value added.

The reallocation of labor to lower productivity sectors reflects spatial poverty dynamics. The poverty rate in the agriculture and livestock sectors in rural areas decreased by respectively 13.5 and 13.2 percentage points (pp) between 2008 and 2014. In contrast, in urban centers the poverty rate in the retail sector decreased by only 3 pp and even increased by 4 pp in the construction sector. These trends indicate that urban centers were not able to absorb poor households into high productive sectors, rendering living conditions in cities, particularly Nouakchott, worse off.

The absence of a structural change and the movement of workers into non-tradable sectors prevents

Figure 18: Despite the oil and mining boom, Mauritania did not experience a structural transformation

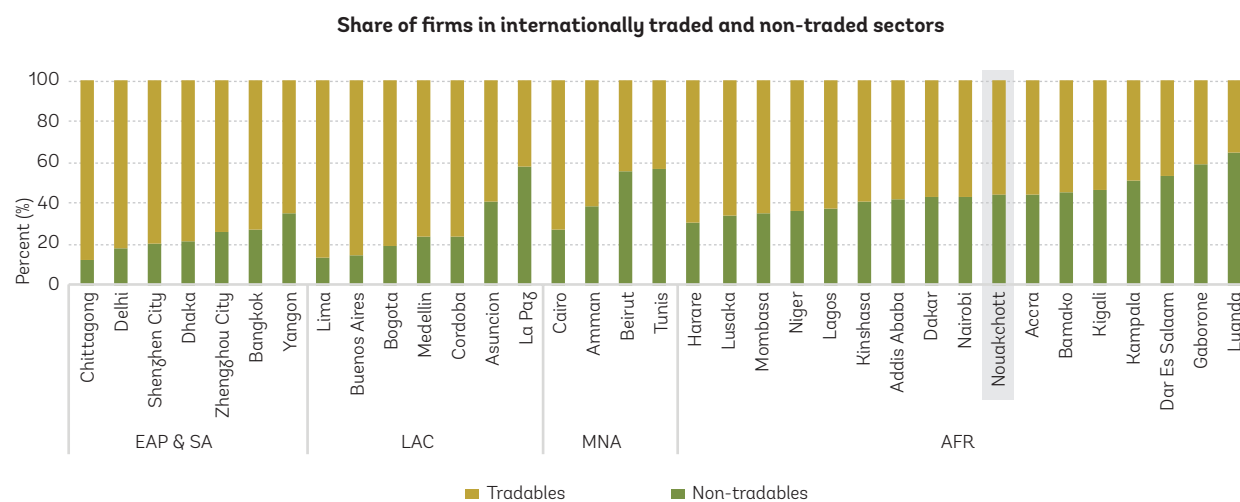


Source: ONS and authors' calculation.

the creation of a more complex and specialized economy. Driven by favorable terms of trade, domestic non-tradable sectors, such as construction, public administration, utilities and transport, have expanded with a combined growth rate of almost 9.3 percent a year in 1999-2018. Dependency on domestic demand – as non-tradable sectors are by definition – will cap the potential of economies of scale and therefore efficiency improvements. Among the firms registered in Nouakchott, 44 percent are producing goods and services that are not traded internationally (Figure 19). While Nouakchott is no different from other African cities, the proportion of non-tradable goods and services is still much higher in Nouakchott than in cities of all East and South Asia and most of those sampled in Latin America.

Given the importance of diversification and a well-managed urbanization to Mauritania's development, the rest of the report focuses on these two topics. While acknowledging that productivity growth within sectors (particularly agriculture) and structural transformation across sectors requires a number of important ingredients, the remainder of this report focuses on the underpinnings of economic diversification and a well-managed urbanization. Maintaining a clear focus and depth of analysis on these areas is a core value added of this report.

Figure 19: The share of firms operating in non-traded sectors in Nouakchott is high



Source: Adapted from Lall and Venables (2018).

The need to diversify the Mauritanian economy

This chapter explores the opportunities for Mauritania to diversify its economy. It is organized as follows. Section 3.1 explains why diversification matters for Mauritania. Section 3.2 examines what are the opportunities for economic and export diversification. Section 3.3 analyses the key constraints preventing agriculture from playing its strategic role in enabling a dynamic growth environment. Section 3.4 concludes by evaluating the diversification ecosystem. Policy recommendations are presented in chapter 5.

3.1. Why diversification matters to Mauritania?

3.1.1. Diversification is a top priority for Mauritania's development process

The lack of diversification hurts the Mauritanian economy. The country ranked 8th in the world in terms of natural resource dependence, outclassing all of its peers, many of which are resource-rich (Figure 20). However, the

management of extractive rents did little to encourage economic diversification and support private sector-led job creation (World Bank, 2019c). The country's policy framework was not supportive of growth in competitive labor-intensive sectors, while natural resources were not used to invest in productive sectors (see chapter 2). The lack of diversification not only resulted in limited job creation, but it also exposed the economy to external vulnerability. This manifested itself after the end of the commodity super cycle in 2014 when GDP growth more than halved from 5.5 percent in 2011-2014 to 2.5 percent in 2015-2018, positioning Mauritania as a backslider in SSA (Figure 21).

As a result, diversifying the economy is a key strategic area of the country's development plan. The SCAPP for the period 2016-2030, is articulated around three strategic levers: (i) promoting robust, sustainable and inclusive growth; (ii) developing human capital and access to basic social services; and (iii) strengthening governance in all sectors. Economic diversification is clearly highlighted as a key channel through which Mauritania can support the first pillar (Figure 22).

Figure 20: Mauritania remains highly dependent on extractives

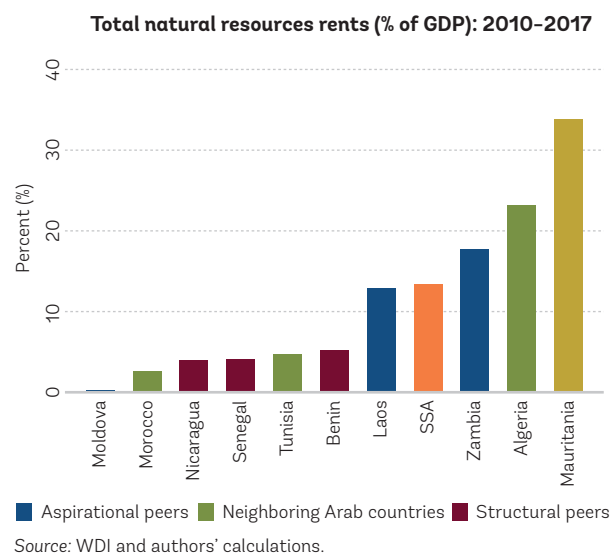
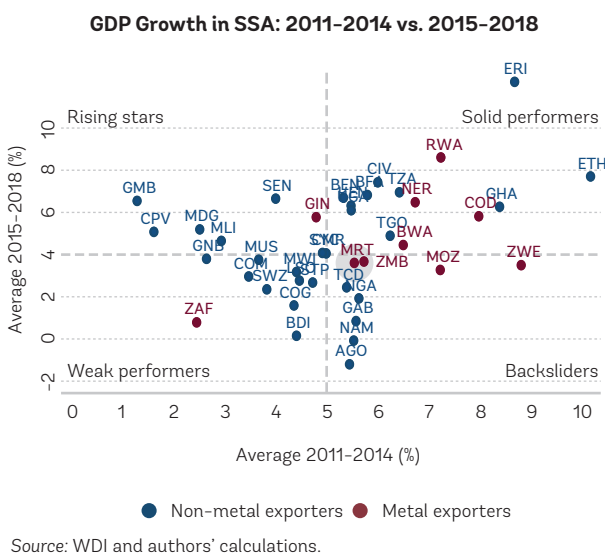


Figure 21: GDP growth more than halved after 2014, positioning Mauritania as a backslider in SSA



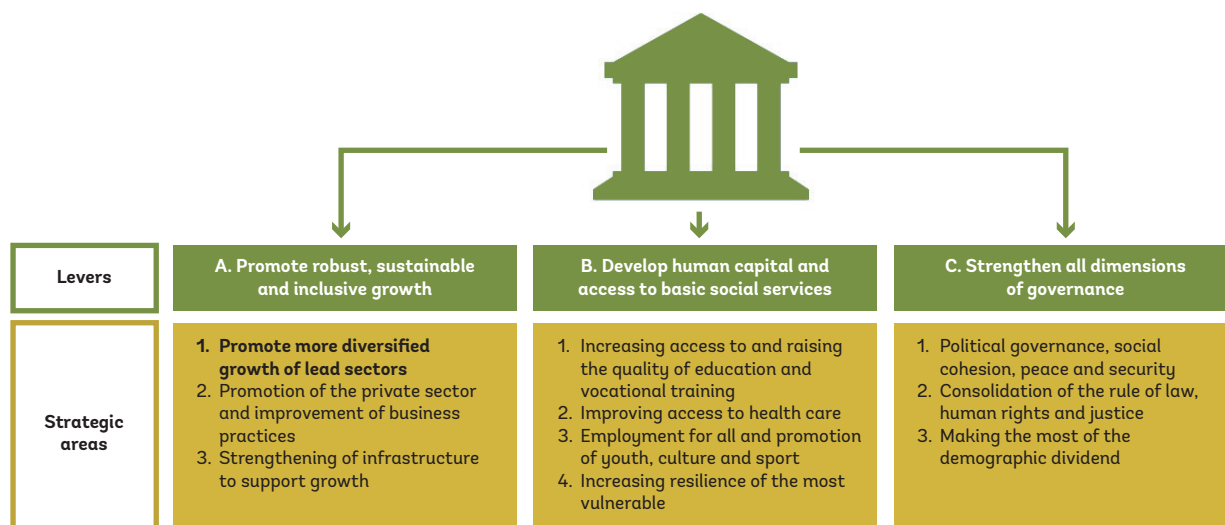
Economic diversification is critical for long-term development in Mauritania. The literature provides various narratives and evidence regarding the economic benefits of diversification (appendix III). In the case of Mauritania, diversification is critical to achieve sustainable growth for the following reasons. First, it would reduce the country's reliance on the extractive sector and help create buffers against commodity price shocks and attenuate the effect of procyclical fiscal policies on growth. Second, growth decompositions in chapter 2 show that past growth was driven by resource accumulation rather than productivity enhancements. This growth model is not sustainable as natural resources are finite and their growth impetus could not last indefinitely. Third and last, more diversified countries are characterized by more productive cities that enable specialization and have more workers in manufacturing and tradable. Productive cities tend to have lower poverty rates and shares of population in slums, in contrast to consumption cities in resource-rich countries (such as Mauritania) with a large share of non-tradable jobs (Gollin et al., 2016).

A well-thought diversification strategy could also help reduce spatial inequalities. As shown in chapter 4 below, Mauritania suffers from large regional disparities in terms of access to public service and access to opportunities. In particular, resource-rich wilayas – Tiris Zemmour (home to iron mines), Inchiri (home to the main gold and copper mines), and Nouadhibou (home to main fishing stock) – are much more economically complex (Figure 23) than communes in the south and southeast, with the latter being one of Mauritania's most isolated and disadvantaged regions (Melly, 2019).¹⁴ This suggests that natural resource dividends were distributed unequally across regions as poverty rates are the highest in non-resource rich communities of the South (Figure 62).

The need for a more diversified production and export base is made even more critical after the recent discoveries of hydrocarbon wealth in the Grant Tortue Ahmenyim (GTA) field to avoid Dutch Disease effects. The ultra-deep offshore gas field straddling the maritime borders between Mauritania and Senegal is estimated

¹⁴ This concept is based on the notion that the most "complex" regions have many different capabilities, whereby they have more diverse economic activities and specialize in the least ubiquitous and rare economic activities. Using the 2017 LFS, a complexity score for each Wilaya was estimated in two steps: first, we recorded the revealed comparative advantage of a region based on the number of economic activities conducted by the employed population in that region, and second we used the "method of reflections" algorithm introduced by Hausmann, Hidalgo (2009). The complexity score rewards locations that (i) are involved in many different activities (the more diverse an economy, the higher the score), (ii) and are involved in highly specialized activities.

Figure 22: Economic diversification is clearly highlighted in the SCAPP as a key driver for growth



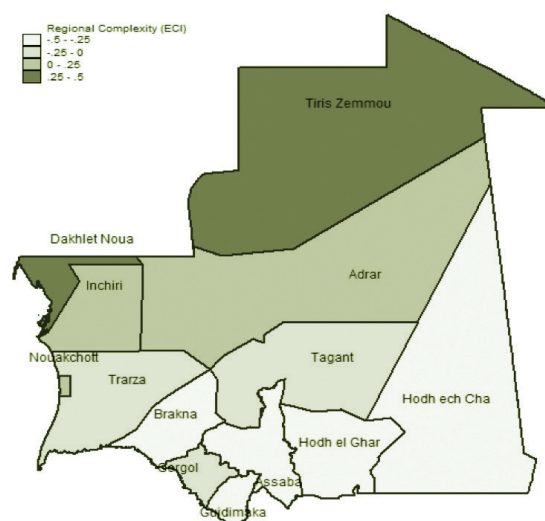
Source: Authors' based on SCAPP.

to hold between 15-25 trillion cubic feet of gas and a productive life of 25 years and could start producing in 2022. If managed well, this development could yield significant benefits to Mauritania. But, for this to happen and avoid past Dutch Disease effects,¹⁵ the country needs to strengthen its current framework for natural resource management (World Bank, 2019c).

3.1.2. Mauritania has struggled to diversify exports away from extractives

Mauritania's exports of goods remain heavily concentrated on extractives and fish products with no significant exports of manufactured products. In 1997, mining and fish products accounted for 97.6 percent of merchandise exports, with almost no manufacturing exports. Two decades later, this picture has not changed much as both sectors accounted for 98.1 percent of total exports in 2017 (Figure 24). The only difference over this period is that the extractives sector (light yellow) is now

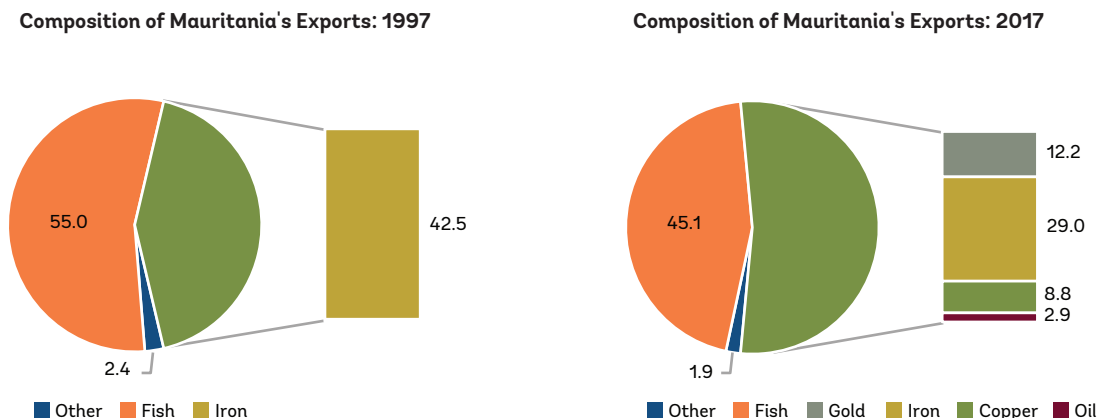
Figure 23: Wilayas with more natural resources are more economically complex in terms of labor force



Source: LFS (2017) and authors' calculations.

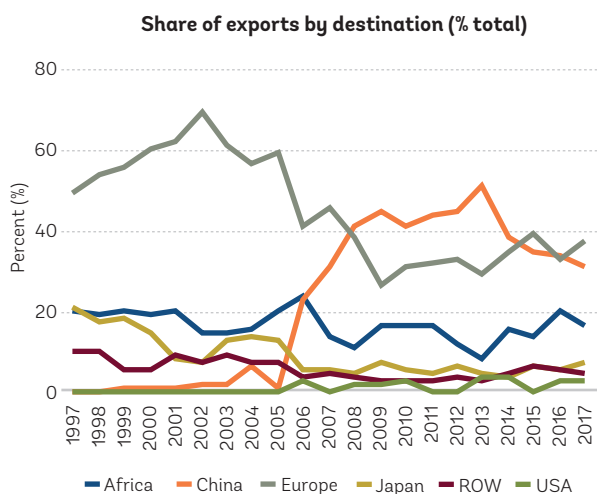
¹⁵ The extractives boom in 2007-2015 has lifted Mauritania into the ranks of lower-middle-income countries and contributed to reducing poverty by a remarkable 11.5 percentage points. Despite these achievements, the boom left a legacy of Dutch disease effects. High commodity prices prompted a rapid surge in foreign direct investments further increasing demand for non-tradeable services like construction, transport and commerce at the expense of job-creating sectors like manufacturing. Coupled with ineffective monetary policies, this has led to an appreciation of the real exchange rate, eroding the country's competitiveness and impeding its diversification efforts. Growth remained moderate averaging 3.5 percent over this period, and limited progress was made in human development outcomes despite large infrastructure investments in education and health. The boom years were also accompanied by a pro-cyclical fiscal policy that resulted in a rapid expansion of public debt and a high risk of debt distress rating.

Figure 24: Mauritania's export structure remains largely dependent on extractives and fish



Source: UN-COMTRADE and authors' calculations.

Figure 25: Although export destinations are more diversified overall, ...

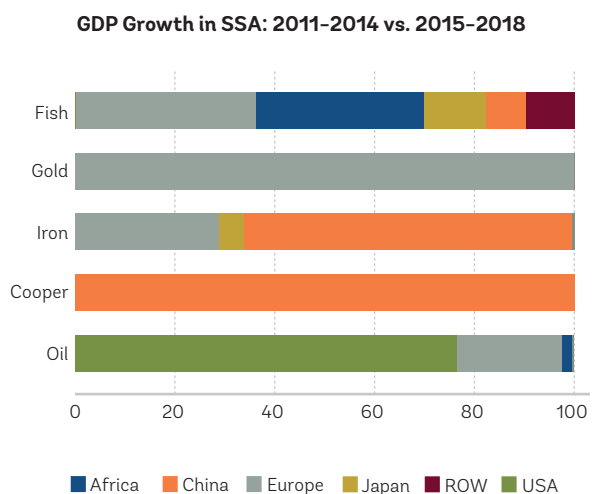


Source: UN-COMTRADE, IMF BOPS and authors' calculations.

more diversified after the country discovered and started to export oil (in 2006), copper (in 2007), and gold (in 2012). Mauritania is likely to remain dependent on exports of extractives and fish products given the wealth of its natural resources (Figure 11). However, the country will need to do much more to add value before exporting, and to diversify where possible, in order to generate more jobs.

In terms of market destination, most exports of goods go to China and the European Union (EU) with limited exports to Africa. The EU has traditionally been the main

Figure 26: ... exports of main products are concentrated in few destinations



Source: UN-COMTRADE, IMF BOPS and authors' calculations.

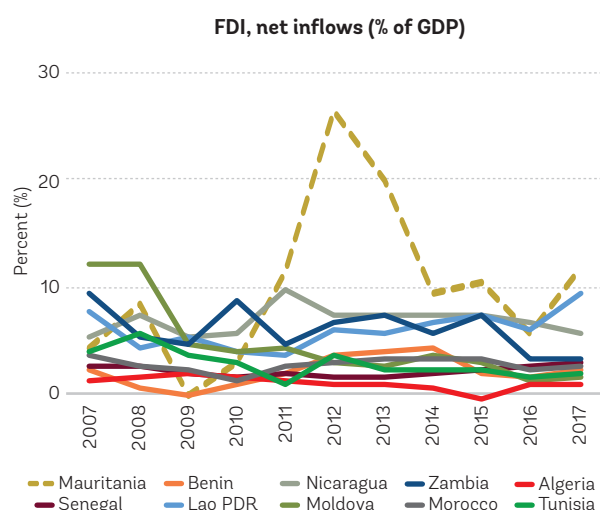
export market, accounting for as much as 70 percent of exports in 2002. The EU's share has, however, declined in favor of China after 2005, leading to an almost parity between the two destinations in recent years (Figure 25). While China is the main export market for iron and copper, the EU is a large export market for Mauritanian fish, gold, and iron (Figure 26). Meanwhile, Mauritanian exports to Africa, have been limited and accounted for less than 20 percent of total exports over the last two decades, even dropping to 15 percent in 2017. African countries remain important destinations for non-mineral exports, mainly fish

Figure 27: Mauritania's export growth was largely driven by the "intensive margin"



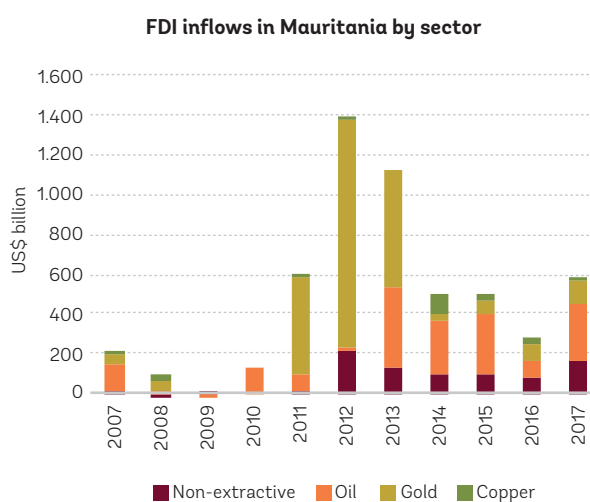
Source: UN-COMTRADE and authors' calculations.

Figure 28: FDI inflows in Mauritania are very high, ...



Source: WDI and authors' calculations.

Figure 29: ... but are destined to extractives



Source: BCM and authors' calculations.

but also animal hides and leather, textiles, and agricultural products.

Merchandise export growth was mostly driven by the "intensive margin". Figure 27 shows the decomposition of export growth between 1997-2003, 2004-2014, and 2015-2017 into four categories based on whether the export products or destinations were already established

at the start of the period ("old" products and markets) or were introduced at the end of the period ("new" products and markets).¹⁶ During most of the last two decades, export growth was driven almost entirely by increases in sales of old products to old partners (the so-called "intensive margin"), except for 2004-2014 in which new mineral products (oil, gold, copper) were introduced to the export basket.

¹⁶ Figure 1 in Amurgo-pacheco and Pierola (2008) illustrates the four different classifications of export growth. In particular, the intensive margin of trade refers to the exports of "old products to old markets", while the extensive margin refers to exports of "old products to new markets", "new products to old markets", or "new products to new markets".

Foreign Direct Investment (FDI) did not support diversification toward non-extractives. Empirical evidence shows that FDI can underpin diversification efforts through transfer of technology and knowledge (including modern managerial and business practices), access to international markets and financing (Amighini and Sanfilippo, 2014; Nicet-chenaf and Rougier, 2011). Compared to its peers, Mauritania has attracted a significant amount of FDI over the past decade (Figure 28), but extractive industries were the main destination of these inflows (Figure 29). FDI into non-extractive sectors accounted for less than ten percent of total FDI, with most investment projects going into non-tradable sectors like construction and retail.

3.2. What are the opportunities for diversification?

Diversification strategies can take many forms ranging from focusing on products with emerging comparative advantage, adding value to existing exports, and developing new products and services. This section uses several standard trade analytical measures like revealed comparative advantage, export quality, and product space analysis to inform a diversification strategy.¹⁷ In sum, the different analyses suggest that processed fish, leather and

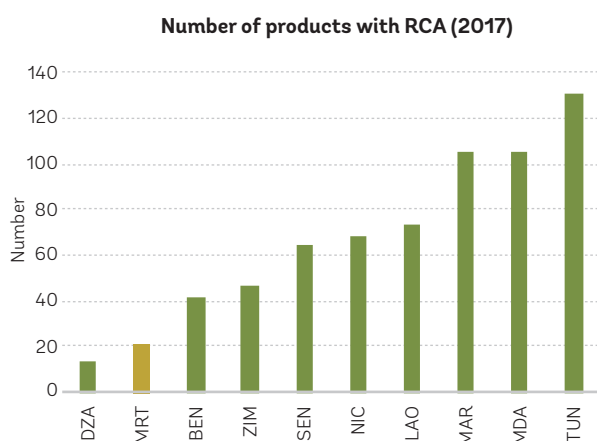
animal hides, copper derivatives, and transport services emerge as important options for Mauritania to diversify its exports. Increasing the quality and adding value to current export products – specially fish – will also help diversification.

3.2.1. Focus on products with emerging comparative advantage

Mauritania has struggled to increase the number of products with a Revealed Comparative Advantage (RCA). Except Algeria, Mauritania has the lowest number of products with an RCA among its comparators (Figure 30). What is more worrisome is that the number of products with an RCA did not increase significantly over time and fluctuated between 15 and 22 products between 2000 and 2017 (Figure 31), suggesting that Mauritania could not create new products with a comparative advantage. In comparison, the number of products with an RCA significantly increased in countries that managed to diversify their exports such as Laos (from 43 in 2000 to 73 in 2017) and Tunisia (from 104 in 2000 to 131 in 2017).

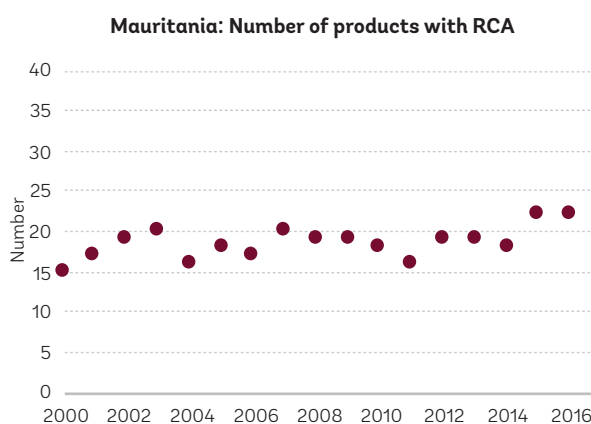
Few minerals and fish products with consolidated revealed comparative advantage constitute the core of the export basket. Among the 21 products in which

Figure 30: In Mauritania, the number of products with an RCA is small ...



Source: UN-COMTRADE and authors' calculations.

Figure 31: ... and did not increase over time



Source: UN-COMTRADE and authors' calculations.

¹⁷ See appendix IV for the definitions of the different trade concepts used in this study.

Mauritania had a comparative advantage in 2017, there is a core group of seven products – all fish and iron products – that exhibited revealed comparative advantage in every year over the 2000-2017 period (highlighted in red in Table 2). Exports of these products usually averaged over US\$ 100 million per year and can be considered as products

with consolidated RCA. Two products introduced over the last two decades, copper (in 2007) and gold (in 2012), showed revealed comparative advantage every year since their exports started and now have exports over US\$ 200 million per year, hence can also be considered as products with consolidated RCA.

Table 2: Mauritania has a consolidated revealed comparative advantage in mineral and fish products and a strong potential for creating a consolidated comparative advantage in some animal and mineral related products

SITC 4	Product Name	Avg. exports 2016-17 (US\$ thou.)	RCA in 2017	Number of years with RCA>1 (2000-2017)
341	Fish, fresh(live/dead) or chilled	88,653	21.1	18
342	Fish, frozen (excluding fillets)	405,303	115.6	18
350	Fish, dried, salted or in brine; smoked	1,338	1.4	18
360	Crustaceans and mollusks, fresh, chilled	160,621	4.1	18
814	Fish flours and meals	133,191	163	18
2815	Iron ore and concentrates, not agglomerated	657,035	48.4	18
2816	Iron ore agglomerates (sinters, pellets)	11,699	8.3	18
2922	Shellac, seed lac, stick lac, resins	470	4.2	14
4111	Fats and oils of fish	23,178	105.1	13
344	Fish fillets, frozen	3,515	1.6	12
2871	Copper ores & concentrates	232,905	25.9	12
6115	Sheep and lamb skin leather	352	2.5	11
2117	Sheep & lamb skins without the wool	317	9.4	10
9710	Gold, non-monetary	278,833	6.8	6
482	Malt, roasted or not	2,126	3.8	3
2732	Gypsum, plasters, limestone flux & ca	2,001	5	3
2785	Quartz, mica, felspar, fluorspar	818	4.4	3
2111	Bovine & equine hides	141	5.1	1
5623	Mineral or chemical fertilizers	2,349	1.2	1
6581	Sacks and bags of textile materials	167	2.7	1
6582	Tarpaulins, sails, awnings, sun blinds	3,551	8.4	1

Source: Authors elaboration with data from UN-COMTRADE. Note: An RCA>1 indicates that Mauritania has a revealed comparative advantage in the related product.

Processed fish, leather and animal hides, Arabic gum, malt, and non-metallic minerals are products with emerging RCA that could be targeted for increasing diversification. Some products gained revealed comparative advantage over the last two decades, but exports failed to increase significantly and usually stand at less than US\$ 5 million per year on average (see products highlighted in blue in Table 2). The list of products with emerging but unconsolidated comparative advantage include: processed fish products like fish oil (SITC 4111) and frozen fish fillets (344), sheep skins and leather (SITC 6115 and SITC 2117), malt (SITC 482), arabic gum (SITC 2922), gypsum (SITC 2732), and quartz (SITC 2785).

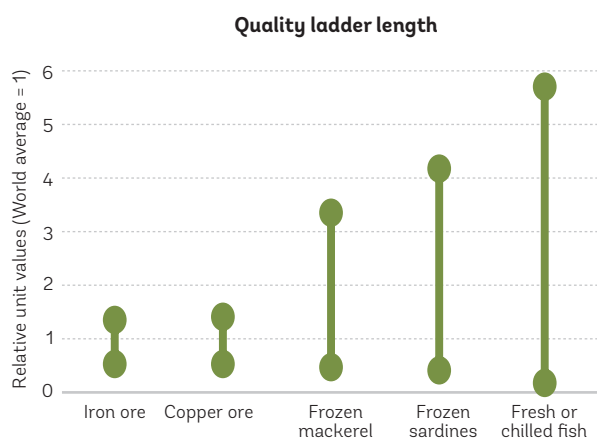
3.2.2. Export quality upgrading

Building on comparative advantages, improving the quality of existing products can raise productivity and hasten structural transformation (Henn et al., 2017). Export quality upgrading offers another avenue for diversification, but the upgrading potential varies with the length of a product's quality ladder. Products with long quality ladders – i.e. a significant difference between the prices obtained in world markets – hold the most potential for quality upgrading. Figure 32 shows that the differences between the maximum and average prices (normalized to one) for iron and copper are small compared to the price differences for fish products. This

means that if Mauritania were able to increase the quality of its mineral exports, the payoff in terms of obtaining higher prices in international markets would be small. In contrast, improving the quality of fish exports, could result in higher prices as the maximum prices paid in international markets are between 3 to 6 times higher than the average world price.

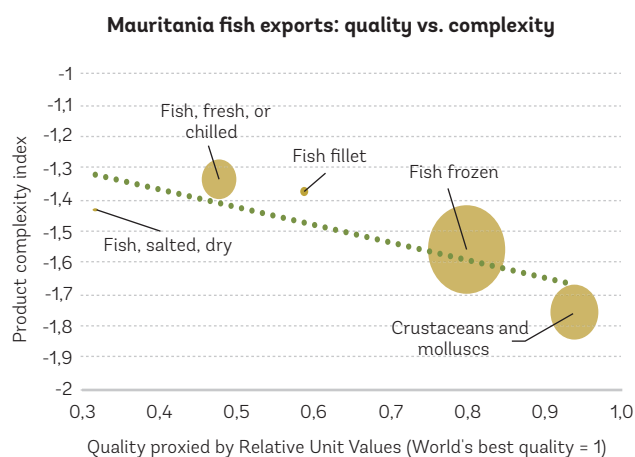
Quality upgrading could complement export diversification since Mauritania is close to the quality frontier on low complex fish products, while far behind on high complex fish products. Mauritanian exports of frozen fish and molluscs accounted for 86 percent of all fish products in 2016-2017. These products are of relatively high quality, as proxied by the average price obtained on these exports as a fraction of the world's highest prices (Figure 33). This means that the country already has the capabilities required to compete in terms of quality in these products and fulfill high standards in developed markets. Yet, these two products are the least sophisticated along the fishing value chain and their potential for further quality increases are somewhat limited given that they are very close to the world's quality frontier. On the other hand, Mauritania's exports of high-value added fish products like fish fillets, fresh/chilled fish, and dried fish are of low quality and very small (see upper left side of Figure 33), indicating that the country still has significant room to improve the quality of these products.

Figure 32: Fish products offer more opportunities for quality upgrading, ...



Source: UN-COMTRADE and authors' calculations.

Figure 33: ...especially high value-added products like fresh/chilled fish, fish fillets, and dried fish



Source: UN-COMTRADE, Observatory of Economic Complexity, and authors' calculations. Note: The size of a circle represents the export value in 2016-2017.

3.2.3. New export opportunities based on established patterns

Established export patterns provide a natural basis for export diversification. The capabilities needed to develop a revealed comparative advantage in exports can be redeployed to similar export products that are nearby in the product space. We focus on products where the development of a comparative advantage would seem most feasible. Such feasibility is based on the proximity of these products to the current network of products that Mauritania is already exporting.

The concept of “density” is used to determine the feasibility of developing new export industries and product upgrade options. This metric is a measure of proximity which allows to determine the relation of a

potential new product to a country’s existing capability stock (i.e. the goods that a country already exports with a high RCA). In essence, it captures the feasibility for a country to make a new product. The underlying idea is that the process of accumulating productive knowledge is not random, but rather dependent on existing capabilities. Hence, a country can easily develop a new product if it already possesses all or most of the capabilities required for production. In simple terms, it is easier for a country to move from producing chairs to producing couches than from chairs to cars.

Key industry and product clusters that appear promising for Mauritania to develop include animal meat and leather, processed fish products, vegetable products, and copper derivatives. Table 3 shows the main exports products into which Mauritania can more easily develop

Table 3: Industries in the nearby product space of Mauritania’s current capabilities include animal, vegetable, fish and copper-related products

SITC4	Product name	density	PRODY	Avg. exports 2016-17	Path
2879	Ores & concentrates of other non-ferrous metals	0.059	5,688	23	-5.3
9410	Animals, live, n.e.s.,	0.055	9,882	3	-0.4
2927	Cut flowers and foliage	0.055	6,250	3	1.1
2681	Sheep's or lambs' wool, greasy or fleece-washed	0.052	25,091	0	0
371	Fish, prepared or preserved, n.e.s. including caviar	0.05	7,059	680	-1.8
2225	Sesame (sesamum) seeds	0.05	1,448	0	3.8
6673	Oth. precious & semi-precious stones, unwork. cut etc	0.049	8,139	906	9.8
3330	Petrol. oils & crude oils obt. from bitumin. minerals	0.049	13,305	169,100	-12.9
2713	Natural calcium phosphat., natur. aluminium c. phos.	0.048	5,738	0	-10.9
2631	Cotton (other than linters), not carded or combed	0.048	4,210	0	-12.4
2114	Goat & kid skins, raw (fresh, salted, dried, pickled)	0.048	25,613	0	-100
112	Meat of sheep and goats, fresh, chilled or frozen	0.047	19,009	0	2.2
2929	Other materials of vegetable origin, n.e.s.	0.047	10,467	0	0
579	Fruit, fresh or dried, n.e.s.	0.047	9,200	6,667	6.2
542	Beans, peas, lentils & other leguminous vegetables	0.047	3,685	0	5.2
6899	Base metals, n.e.s. and cermets, unwrought	0.046	10,597	0	-3.9
2116	Sheep & lamb skins with wool on, raw	0.046	12,874	0	-13.4
6821	Copper and copper alloys, refined or not, unwrought	0.044	7,364	0	-3.9
2919	Other materials of animal origin, n.e.s.	0.043	16,287	0	-0.1

Source: UN-COMTRADE and authors' calculations.

revealed comparative advantage based on its existing capabilities. Four major options to target new products for export diversification emerge from the analysis:

- Preserve or build comparative advantages in animal products, including live animals, sheep and goat meat, sheep's wool, sheep and goat hides and leather;
- Increase exports of vegetable products, including fresh or dried fruits;
- Develop exports of prepared or preserved fish products;
- Deepen specialization in the copper value chain by developing exports of copper alloys.

3.2.4. Further develop exports of transport services

Service exports are small in Mauritania, but there are opportunities to build on the recent improvements in sea transport services and develop ICT and tourism sectors. The sea transport industry has made important strides both in its share of Mauritania's service exports and in its revealed comparative advantage (Table 4). The industry has grown faster than the global average and presents an opportunity to expand Mauritania's service sector, which is still small compared to product exports (services contributed to 11.5 percent of total exports in

2017). Looking beyond sea transport, Mauritania has a comparative advantage in tourism and ICT services. However, with export volumes declining rapidly, it will be important for Mauritania to strengthen these sectors. The ICT sector in particular is a key input for trade integration, private sector development, public service delivery, and overall growth.

Developing the North-South road corridor for transport services exports is crucial to support diversification in the agriculture, livestock and fishing sectors highlighted above. While Mauritania does not currently have a comparative advantage in road transport, the development of this industry is crucial to support diversification in agriculture and fishing. The North-South road corridor (Tangiers-Nouakchott-Dakar corridor) along the Mauritanian coast is one of the only viable and active transport routes between North Africa and SSA (WTO, 2018). Traffic appears to have grown since 2011, reaching over 1,000 trucks per month that are either destined for Mauritania or in transit to Mali or Senegal (World Bank, 2016a). This corridor has potential for further development to become an export route, in particular from agricultural zones in the south and for the fishing hub in Nouadhibou. With the objective of establishing a second North-South corridor, Mauritania opened its first border crossing with

Table 4: Mauritania has an increasing (decreasing) RCA in sea transport (travel and ICT) services

SITC	Export value (US\$ million)						Export RCA					
	2012	2013	2014	2015	2016	2017	2012	2013	2014	2015	2016	2017
Transport (sea)	6	20	28	27	20	55	0.5	1.4	1.3	1.7	1.3	5.9
Transport (other)	2	10	7	5	13	1	0.1	0.5	0.2	0.2	0.6	0.1
Travel	48	41	37	29	30	22	13.7	9.0	5.3	5.6	5.1	6.7
Insurance and pension services	3	2	3	2	3	2	0.3	0.2	0.1	0.1	0.2	0.2
Telecommunicatios	27	20	17	16	14	15	19.6	11.2	6.7	7.8	6.2	11.6
Other business services	41	74	164	124	144	37	0.3	0.4	0.6	0.6	0.6	0.3
Total Commercial services	127	167	256	203	224	132						

Source: IMF BPM6 and author's calculations.

Algeria in August 2018. However, trade benefits are likely to be small as this region was declared a military zone by Mauritanian authorities in 2017 because it was affected by terrorist activities of alQaida in the Islamic Maghreb, a jihadi group which remains a threat to the security in the region.

3.3. Constraints to agricultural productivity

The agriculture sector can play its role as the main driver of economic diversification only if its productivity is boosted. As suggested in section 3.2, agriculture is the only non-extractive sector which Mauritania has a clear comparative advantage and has the potential to develop new export opportunities. At the same time, a significant percentage of households in this sector are poor. Therefore, developing this sector could promote economic diversification and accelerate poverty reduction. Yet, this goal would not be feasible with a lackluster productivity (Figure 14) that faces numerous challenges.

This section examines the reasons behind the limited agriculture productivity growth in Mauritania. It relies on the literature which identified the following determinants of agricultural productivity growth: human capital, access to finance, infrastructure, developed markets, adequate and quality spending, good governance, and access to land (Block, 2014; Fuglie and Rada, 2013; Mandemaker et al., 2011).

3.3.1. Human capital

The low level of human capital is a major obstacle to agricultural productivity. According to the 2013 census, more than half of individuals working in the sector are illiterate (Figure 34). The 2017 Financial Inclusion survey corroborates these results and shows that more than 60 percent of individuals who received an agricultural payment did not attain more than primary education. This compares less favorably to peer countries (Figure

35). The high illiteracy rate makes transformation of the agricultural sector a challenge because it impedes the farmers' and herders' ability to learn new techniques and adopt productivity-enhancing technologies, especially in a context where support services are limited.

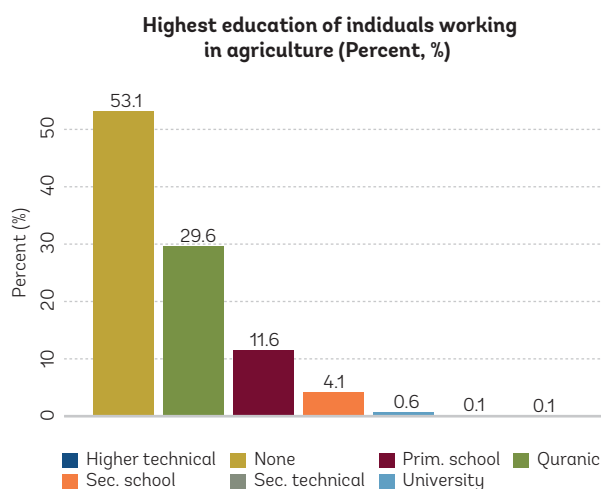
Public spending on agricultural Research and Development (R&D) has dropped in recent years.¹⁸ Among all types of agricultural expenditures, spending on R&D is argued to be the most important factor to growth in agricultural production (Goyal and Nash, 2017). In Mauritania, however, this has been neglected by the Government in recent years as public spending on agricultural R&D dropped from 0.7 percent of agricultural GDP in 2001-2005 to 0.5 percent in 2010-2014 (Figure 35), with half of this investment being dedicated to fishing. Wiebe et al. (2017) estimate that this R&D intensity rate is less than half of what Mauritania should invest in agricultural research given the country's economic conditions.

The drop in research intensity was associated with a deterioration in the skill level of researchers. The percentage of PhD-qualified agricultural researchers – who are fundamental to the conception, execution, and management of high-quality research – declined over time in Mauritania and fell behind the SSA average in 2012-2016 (Figure 37). The two main publicly-funded agricultural research centers (CNRADA and ONARDEL)¹⁹ simply no longer have the required personnel to conduct high-quality research, because they were not able to recruit or retain researchers due to lack of incentives. For instance, CNRADA's higher-level staff, working on research and development, are engineers without PhD and represent only 3 out of its 116 total staff (World Bank, 2019a). Moreover, the Institut Supérieur d'Enseignement Technologique (ISET) is the only institution in Mauritania that educates and trains agricultural researchers. It graduates only 15-20 students per year, which is insufficient to fill the large skills gap. All these capacity constraints are a major reason for the extremely low number of new agricultural products produced in Mauritania compared to other West African countries (IFPRI, 2018).

¹⁸ Agricultural Research intensity is defined as public spending on R&D in agriculture as a ratio of agricultural GDP.

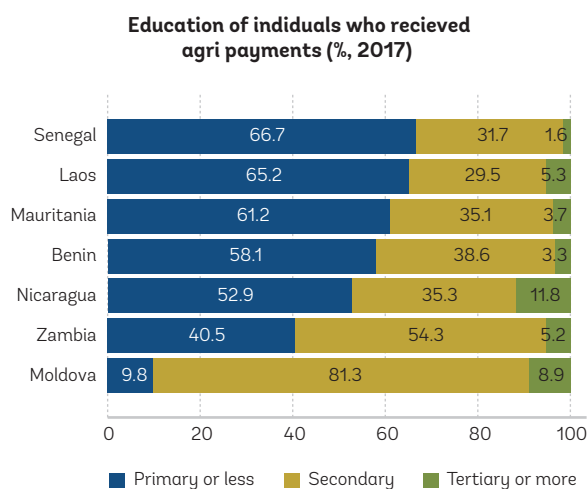
¹⁹ CNRADA: Centre national de recherche agronomique et de développement agricole; ONARDEL: Office national de recherche et de développement de l'élevage.

Figure 34: More than half of Mauritians working in the agriculture sector are illiterate...



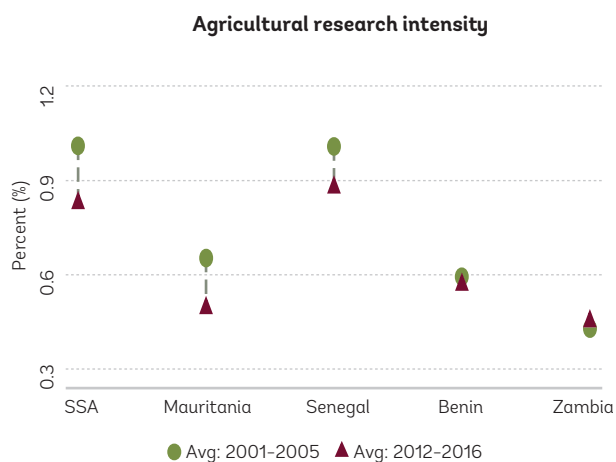
Source: RGPB 2013 and authors' calculations.

Figure 35: ... and the ratio of workers who receive agricultural payment with limited schooling is high



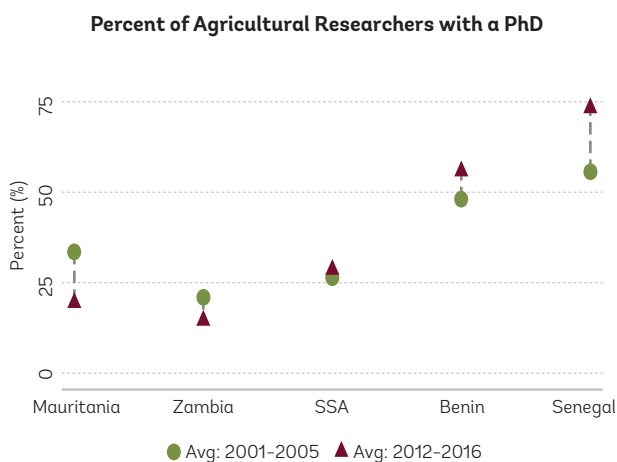
Source: Global Findex database and authors' calculations.

Figure 36: Public spending on agricultural research...



Source: ASTI database and authors' calculations.

Figure 37: ... and the skill level of researchers have dropped in Mauritania compared to comparators



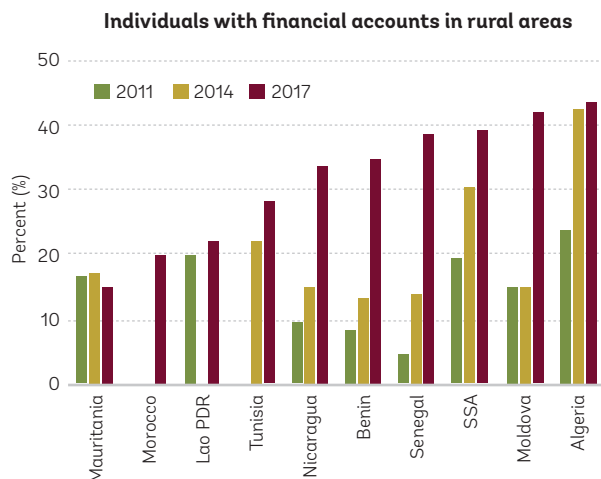
Source: ASTI database and authors' calculations.

3.3.2. Access to Finance

Access to finance in the agriculture sector is extremely limited. While crops and livestock represent more than 25 percent of GDP, the two sub-sectors accounted for less than 1 percent of total credit in 2010-2016. Commercial banks usually shy away from lending to the agriculture sector because the sector is highly volatile and subject to

systemic climatic risks. Moreover, agricultural households usually often lack collateral readily convertible into liquid assets and do not maintain financial records. For instance, the percentage of individuals with financial accounts in rural areas – where more than 80 percent of agricultural households reside – remains extremely modest and even declined between 2011 and 2017, in stark contrast to the increasing trend observed across peers (Figure 38). As a

Figure 38: Access to finance in rural areas declined in Mauritania, in contrast to the rising trend in peer countries



Source: Global Findex database and authors' calculations.

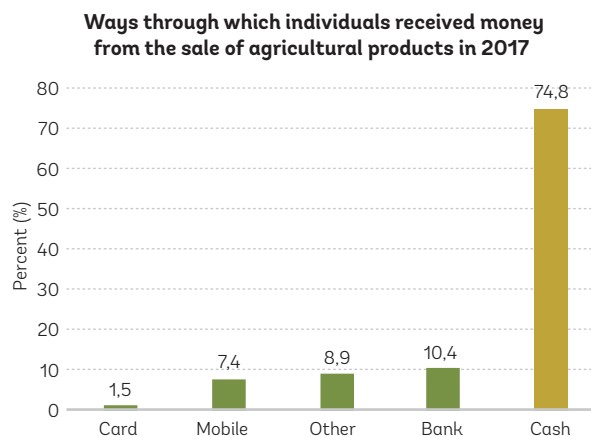
result, 75 percent of Mauritians, surveyed as part of the Global Financial Inclusion initiative in 2017, reported to have only received money in cash from the sale of agricultural products (Figure 39).

The concentration of financial institutions in urban centers makes access to financial services even more difficult. Only 1 percent of rural households live in proximity of a bank, compared to 22 percent among urban households (Amendola et al., 2017). Microfinance is highly concentrated geographically in Nouakchott where almost half the number of institutions are located (World Bank, 2013). The financing constraints prevents crop and livestock producers from (i) modernizing their farms, (ii) getting innovative and productive technologies, and (iii) efficiently market their agricultural output.

3.3.3. Value chains and Markets

This section examines the constraints to value chain upgrading in the fishing sector and hides and skins. These two sectors are mainly the only non-extractive sectors in which Mauritania has a clear comparative advantage to export.

Figure 39: Most Mauritanians still rely on cash to receive agricultural payments



Source: Global Findex database and authors' calculations.

Fishing

Fishing is an important source of export revenues, yet the sector is specialized in relatively basic processes generating little added value. Over the past five years (2014-2018), inflows from the fishing sector accounted for more than 31 percent of exports of goods. Nonetheless, the sector accounted for only 2-3 percent of GDP, highlighting the sector's limited integration with the rest of the economy. As highlighted earlier in Figure 33 Mauritania's fish exports are concentrated in products that are at the bottom of the value-chain. This is because Mauritania has not taken the extra step of processing fish (fillets or meat), nor has it developed an upstream industry to provide inputs to the sector. As of 2015, there were 72 fish processing plants in 2015, out of which only two produce value added products, while the remaining companies mostly freeze and package fish products (World Bank, 2016a).²⁰

Several challenges in the current policy of the fishing sector restricts competition and limits the development of the value-chain (World Bank, 2019d):

- **First, the state-owned Société Mauritanienne de Commercialisation du Poisson (SMCP) has a**

²⁰ One in Nouakchott with the preparation of ready-to-eat meals for the EU catering sector and another in Nouadhibou that prepares headed and gutted small pelagics for Eastern Europe's canning sector.

monopoly over fish exports. Since the mid-80s, SCMP is mandated to regulate and sell frozen fish products on behalf of producers at the reference prices set by SMCP's price Commission. This price-setting mechanism disincentives firms to compete based on quality, because setting minimum export prices that might not always reflect the market dynamics could hinder lower-cost suppliers from gaining market share by developing cost-saving production techniques.

- **Second, the price-setting mechanism may act as a focal point for collusion between fish exporters.** The mechanism of export prices is determined by SMCP's committee, which is formed from three public sector representatives and seven private sector representatives, all appointed by the Minister of Fisheries for a (renewable) three-year mandate. The commission can make decisions based on a two-third majority, meaning that private sector players can self-regulate and protect themselves if they all collude together. This bears the risk of facilitating cartel-like behavior, thus damaging market entry and competition.

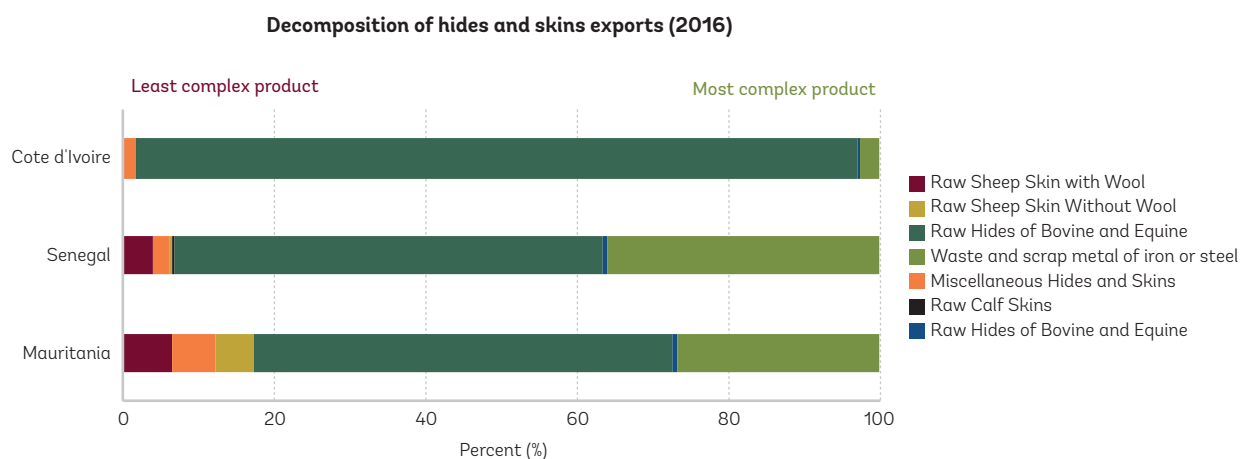
Hides and skins

Despite having a clear comparative advantage, exports of hides and skins are low and of poor quality.

Mauritania's exports of leather and animal skins were only US\$ 8.8 million (or 0.5 percent of total exports) in 2016. In addition, these exports were of low added-value when compared to exports in peer countries (Figure 40).

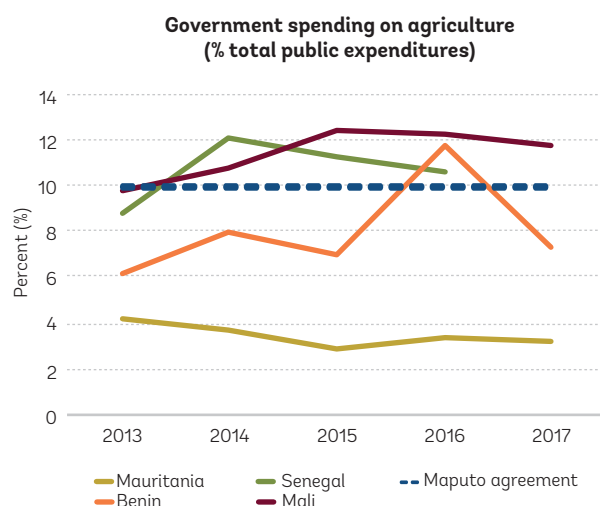
The main obstacles to the development of the value chain in the sector are the absence of local tannery and large informality (World Bank, 2016a). Although global demand for hides and skins is expected to increase, only the smallest of the four tanneries operates at half capacity. Operators cite poor quality of hides, due to inadequate skinning and limited tanning capacities, and lack of revolving funds as major obstacles. Another challenge is the large informality. Most skins of small ruminants are informally exported in raw to Senegal and Mali, while cattle and camel hides are burned on wheels and exported to Ghana and Nigeria for human consumption. This happens because Ghanaian and Nigerian buyers offer prices twice as high as those that local tanneries can offer (i.e. UM 4,000 instead of UM 2,000 for cattle hide). As a result, it is estimated that about 75-80 percent of skins is being informally exported with no significant value-added in Mauritania. Environmental pollution and the limited skills of the workforce are additional constraints that impede the development of this value chain.

Figure 40: Mauritania exports lower added-value hides and skins' products than Senegal and Cote d'Ivoire



Source: Atlas of Economic Complexity, the Observatory of Economic Complexity and authors' calculations. Note: the complexity of exported goods is defined by the Product Complexity Index. Goods with higher values are judged to be more complex. For instance, in the hides and skins sector raw sheep skin (waste and scrap metal) are the least (most) complex products.

Figure 41: Public spending on agriculture in Mauritania is very low and declined in recent years...



Source: MEF and authors' calculations.

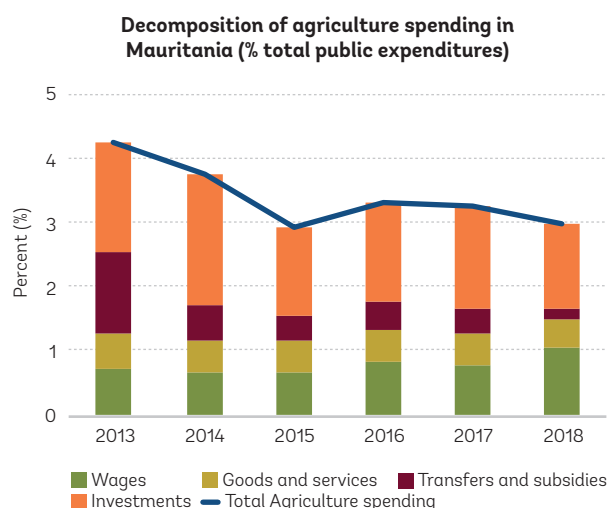
3.3.4. Public spending

Government spending on agriculture has declined and is insufficient to achieve agriculture transformation.

The share of public expenditures on agriculture as part of total government expenditures has declined from 4.2 percent in 2013 to 3.0 percent in 2018. This decrease widens the spending gap between Mauritania and its regional agriculture-based comparators which were able to significantly increase agriculture spending and reach the 10 percent goal set by the 2003 Maputo Agreement (Figure 41).²¹

The overall reduction in agriculture spending was driven by a large drop in subsidies which, however, was not offset by an increase in productive spending. The emphasis placed on subsidies in 2011-2013 – to support rice production and respond to the 2011 drought – has been reduced as the share of subsidies out of total agriculture spending dropped from 29.3 percent in 2013 to 5.7 percent in 2018 (Figure 42). This is a good policy since subsidies mostly benefitted input providers and larger producers (World Bank, 2016b). However, the generated savings were not re-oriented to increase investment spending that

Figure 42: ... due to the large cut in subsidies



Source: MEF and authors' calculations.

remained almost unchanged, nor R&D spending which decreased (see Figure 36 above).

Agricultural resources are also very centralized. Public expenditures in the sector are carried out at the central level in Nouakchott as less than 5 percent are geographically decentralized. In addition, more than 80 percent of the sector's staff are in central administrations and most of the staff in decentralized services are in regional capitals. This concentration of resources limits the ability of field services to be operational and provide the necessary services to farmers and herders (World Bank, 2016b).

3.3.5. Governance

The state actors and agencies involved in the sector are overwhelmed and unorganized. Many public bodies are involved in the sector and significant problems are common regarding mandates and responsibilities, sometimes with competing roles and confusion between policy management aspects and operational coordination. For instance, the Ministry of Rural Development has, without the Minister's office, more than 40 administrative structures and more than 10 public institutions under its

21 This target was reaffirmed in the Malabo Declaration in 2014 (Goyal and Nash, 2017).

supervision. This organizational chart shows organizational links that are not strong to implement ambitious policies.

Management capacities of human and physical capital are weak, posing significant challenges to the development of the sector. Previous staff assessments show a top-heavy public administration that is dominated by managerial rather than operational staff (World Bank, 2016b). Insufficient separation of technical and managerial functions is another challenge that results in inefficiencies and affects the quality of service delivery. The shortcomings in the management of agricultural staff are coupled with weaknesses in the management of public investments that are more focused on means than results (World Bank, 2016b). The sector does not have an expenditure planning tool (such as an MTEF), which partly explains the deterioration of hydro-agricultural facilities and the significant gap in storage infrastructure in production areas. Finally, the processes of selecting and developing projects remain very weak.

Monitoring and evaluation in the agricultural sector is very important, and its management must be based on factual data and evidence. The production and access to quality and complete data/statistics is a major problem for building policies on real evidence. The planning processes in the sector at the central level are totally disconnected from the field and its challenges as there is a gap between project design and implementation. Moreover, production objectives are not sufficiently based on factual evidence. Livestock data are the source of much controversy and production and harvest statistics depend on rather dubious surveys of the sector's added value.

3.3.6. Land

The longstanding land issue in Mauritania reflects the country's limited agricultural transformation. This issue should be at the core of any agricultural development policy and key to support economic diversification. In rural areas, secure access to land as a productive resource is essential for farmers' livelihoods. Land ownership is also important for investment in urban areas where economic

agents need physical space for processing, storage and marketing activities. While the scarcity of statistics on land administration prevents the development of an objective picture of the situation, Mauritania's land tenure situation is very particular and one of the most complex in the region (World Bank, 2019e).

The legal and institutional framework for land in Mauritania has been dictated by history. It was the outcome of different influences stemming from traditional forms of land access, religious principles, and the colonial era. The effects of the droughts in the 1970s, food crisis risks, and conflicts between livestock breeders and farmers over decreased agricultural and pastoral resources led lawmakers to draft a new land tenure legislation: Ordinance No. 83-127 of June 5, 1983.²² This ordinance was intended to develop irrigation projects on fallow land, and to reinforce the official abolition of slavery in 1981 with provisions designed to facilitate land access for the Haratins. Its objective were to (i) consider all land as the assumed property of the State, (ii) abolish the traditional land tenure system and its various forms of sharecropping, and (iii) facilitate access to individual private property.

Land availability in rural areas is not problematic, but its allocation is given that the 1983 ordinance was not founded on consultations with local communities. The 1983 was inspired by the principles driving the development policy of many African nations at the time and was based on a belief that policies communicated through simple legislation would be able to challenge the foundations of societies. Therefore, this ordinance was drafted without consultation with local communities, leading to social tensions that prevented its application. For instance, the administrative circular of 1985 authorized the administration to issue concessions for fallow lands (that the administrative authorities considered to be "dead") by derogating from the principle of development and of the purge of rights prior to the concession. Many land allotments took place without consideration of existing rights (World Bank, 2019e). At that time, the haste in the issuing of concessions by simple administrative authorization that benefitted new private

22 This ordinance is considered as the foundation of the new Mauritanian land policy and constitutes the legal framework currently in force.

owners fueled political tensions in the Senegal River Valley and contributed to the events of 1989.

Despite several attempts to improve the land situation, sensitivities over this issue persist. On the one hand, the Government intends to promote a modernized agriculture and considers public investments in irrigation for the benefit of all Mauritians no matter of the ethnic identity. On the other hand, communities want to maintain local land rights on exploited or undeveloped lands to preserve farmland for their members in the future. The communities living in the valley can be still traumatized by the 1989 events and the related abusive land allocation and react strongly to what they consider as dispossession.

An evaluation is needed to assess the actions of land offices in rural areas. The establishment of land offices in the four Wilayas of the Senegal River Valley Wilayas (Trarza, Brakna, Gorgol, Guidimaka) is one of the Government's major actions aiming to improve land management in rural areas. The land offices were created at the beginning of the 1990s following the 1989 events. They allowed the regularization of some concessions granted under the 1985 derogation system²³ and at the beginning of the regularization process in several developed areas. Despite some positive results obtained, the sustainability of these offices, initially supported by the international community, raises questions (World Bank, 2019e). Only the Rosso land office is still in operation today, whereas the Kaédi, Boghé and Sélibaby land offices have been closed due to a lack of personnel and insufficient financial and technical resources.

3.4. Is Mauritania's current diversification ecosystem adequate?

The diversification ecosystem in Mauritania suffers from several obstacles. An appreciated exchange rate, symptomatic of Dutch disease, eroded Mauritania's competitiveness and impeded its diversification efforts. The business environment is not favorable to attract FDI, despite steady progress since 2015. This is compounded by relatively high tariffs and the prevalence of non-tariff

barriers. The lack of trade agreements, coupled with the poor quality of infrastructure, hinders the inflow of goods within the country and hampers trade with neighboring countries.

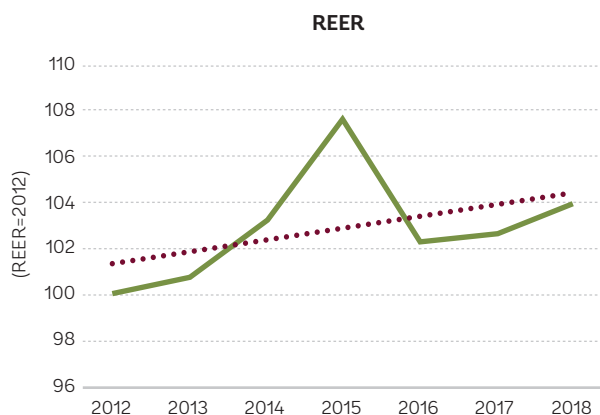
3.4.1. Rigid exchange-rate policy and underdeveloped banking sector

A fair-valued Real Exchange Rate (RER) is essential for economic diversification and private sector development, particularly in resource-rich countries. The existing economic literature suggests that maintaining the RER close to its equilibrium level is a necessary condition for sustained growth (Cottani et al., 1990; Rodrik, 2008). Countries that avoided overvaluation have been associated with substantial export diversification (Elbadawi et al. 2012). Currency overvaluation, particularly in resource-rich countries, exacerbates the distortions in the relative price of tradable and non-tradable goods, and amplifies the inefficiency in the allocation of production factors across sectors by implicitly imposing a tax on export-oriented sectors while subsidizing imports. This reduces prospects for new sources of growth. In addition to being more suitable for export diversification, exchange rate flexibility tends to help resource-rich countries better manage commodity price fluctuations and support macro stability (Peterson Institute, 2007).

In Mauritania, the real exchange rate is still overvalued, impeding the country's diversification efforts. As shown earlier, the commodity-price boom and the surge in extractives-related FDI in 2012-2014 increased demand for non-tradeable services at the expense of job-creating sectors like manufacturing. Coupled with ineffective monetary policies and limited exchange flexibility, this has led to an RER appreciation (Figure 43). Faced with depleting foreign reserves following the ToT shock in 2014-2015, BCM was pushed to abandon the fixed peg to the U.S. dollar, thus inducing a 4.9 percent depreciation of the RER in 2016. Yet, the RER started to appreciate again in 2017 and was still overvalued by 4-13 percent in 2018 because BCM continue to adopt a crawl-like peg with minimal depreciation (IMF, 2019). This overvaluation impairs the competitiveness of the economy and hinders diversification efforts.

23 In particular, Circular No. 20 of August 5, 1985 allowed administrative authorities to allot land without sufficient attention to pre-existing land rights.

Figure 43: The REER is on an appreciating trend

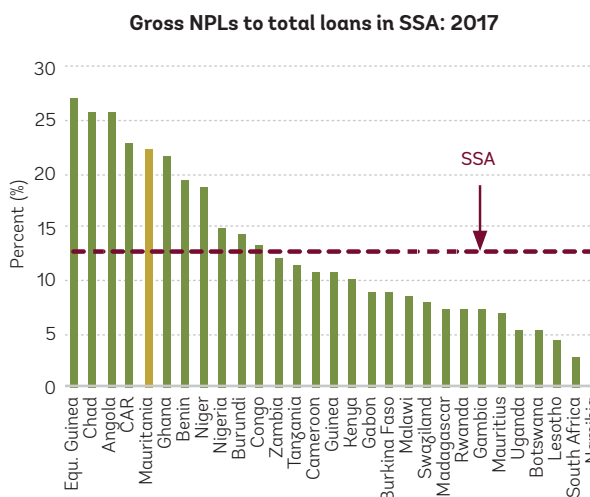


Source: IMF and authors' calculations.

Financial vulnerabilities also present risks to growth and economic diversification. Despite improvements ongoing efforts to write-off old debt, non-performing loans (NPLs) remain of the highest in SSA (Figure 44). This was also accompanied by 4.2 and 5.1 percentage point drops in the provisioning rate and the liquid-to-total assets ratio, respectively in 2018. These indicators reflect structural vulnerabilities in the sector linked to a narrow deposits base, low rates of access to finance (see below) and high credit concentration as 54 percent of the credit market in 2014 was dominated by four firms (World Bank, 2019d).

BCM started to address some of these constraints with IMF support. In July 2018, Mauritania has adopted a new banking law that boosts the BCM's independence and strengthens the crisis management mechanism by establishing a new framework for bank resolution and depositor protection. The law also expands BCM's scope of supervision to include insurance companies and the "Caisse des Dépôts et de Développement" (CDD). To reduce transactions costs and promote financial inclusion, the BCM is also developing automated payment tools and mobile banking instruments. The BCM also issued a new directive in November 2018 aimed at combatting money laundering and terrorism financing. As a consequence, 700 illegal money transfer service providers were closed by March 2019.

Figure 44: NPLs in Mauritania are very high



Source: WDI and IMF.

3.4.2. Despite recent improvements, the business environment remains challenging

Notwithstanding important business reforms implemented by the Government since 2015, Mauritania faces several issues that need to be addressed so that the business environment becomes favorable to private sector development. Thanks to the 17 reforms implemented by the authorities between 2015 and 2019, Mauritania improved by 28 positions in the last four years on the Doing Business (DB) Index, reaching the 148th rank out of 190 countries in 2018 (Figure 45). Yet, the business environment remains below its potential considering the country's income level (Figure 46) due to several structural issues (World Bank, 2019f):

- **Financing constraints:** Over the past few years, lack of credit has been consistently cited by businesses as the most problematic obstacle for doing business (Figure 47). In fact, Mauritania is one of the least financially inclusive countries in the world, with the percentage of people with an account in a financial institution declining from 22.8 percent in 2014 to 20.8 percent in 2017, in contrast to the rising global trend globally. These trends reflect the low participation of Mauritanians in the financial system, which constraints private sector development.

- **Limited competition:** Competition is very limited (Figure 48) due to strong oligopolistic tendencies in private markets that are dominated by well-connected companies, and the significance presence of state-owned companies (Box 2). Some reforms have recently taken place in this area, for example on conditions of access to public procurement, but much remains to be done. In particular, SMEs' access to public procurement markets remains low or non-existent, with most contracts being awarded to large, well-connected family groups.
- **Poor electricity:** The reliability and affordable provision of energy is considered a key product market into the competitiveness of firms. Despite the 50 percent rise in electricity production between 2015 and 2018 thanks to the Government's efforts, Mauritania has high cost and poor quality of electricity compared to its peers (Figure 49). This is due to the low generation capacities and high operating costs of power generation, operated by a single state-owned company.
- **Lack of skilled labor:** The Mauritanian workforce is less educated than in most peers (Figure 50). Many workers have little or no education and very few companies offer formal training to their employees. In addition, the supply of training programs in technical and vocational schools remains limited, representing less than 10 percent of all post-basic education enrolments. These skills shortages create serious problems for business development.

Box 2: Few large firms dominate key markets

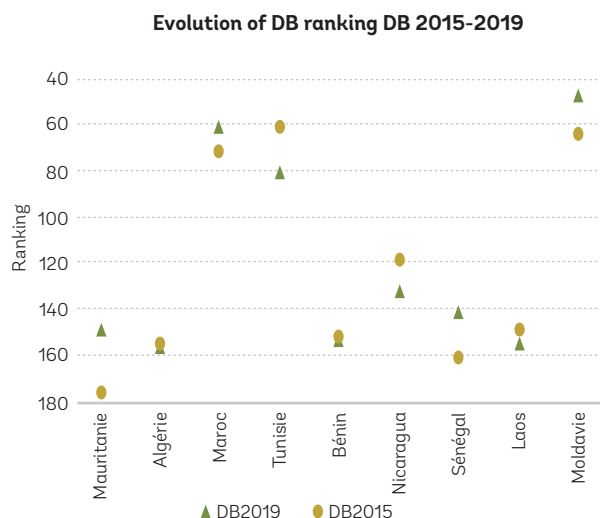
Enhanced competition could further promote a healthy investment climate in Mauritania and significantly contribute to private sector development and diversification. Efforts to shift toward higher-value-added activities and encourage economic diversification in the future will be a function of the intensity of domestic competition. Promoting domestic competition can ultimately prevent sectoral misallocation between tradeable and non-tradeable sectors. Furthermore, competition policy reforms can benefit the poorest households and improve income distribution and help reduce poverty.

Around nine large industrial and commercial groups dominate key markets in Mauritania. A handful of large family-owned groups control trade in imported food products (e.g., rice and cereal), construction, hotel and restaurant services, and the banking sector in a country where the imports of goods and services represented 63 percent of GDP in 2018. Out of these nine groups, three participate in at least eight sectors, while another two operate in six sectors (figure 22 of World Bank 2018b). Furthermore, seven of the nine identified groups are active in the banking sector, allowing them to ensure access to credit for their own enterprises. This may strengthen the market power of large groups and potentially crowd out smaller firms given that the large financing constraints in Mauritania. In the banking sector, the concentration ratio of the lending market of the four largest banks was 54 percent in 2014.

Informal ties between the Government and the private sector may provide well-connected businessmen with rent-seeking opportunities. In addition to regular functions of a government with regard to the market, such as taxation and regulation, the Government also participates in the market as a supplier (e.g. of electricity, water, gas) and as a buyer, for example of sugar, powdered milk and vegetable oils, primarily through SOEs. In some cases, the Government can act as a supplier and a buyer in the same market, for example when supplying cement through the SOE SNIM (Société Nationale Industrielle et Minière) to government construction projects.

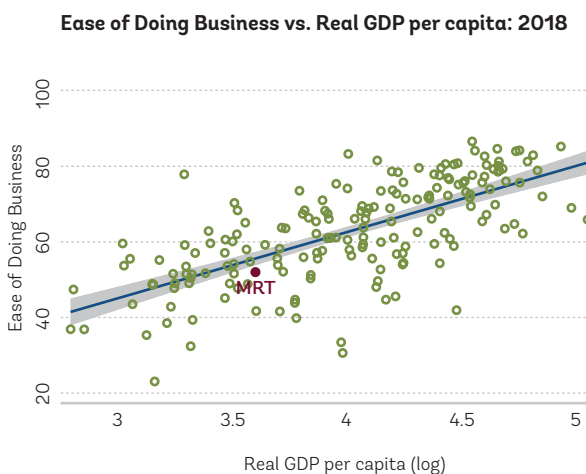
Source: World Bank, 2018b.

Figure 45: The business environment in Mauritania improved compared to its peers in recent years



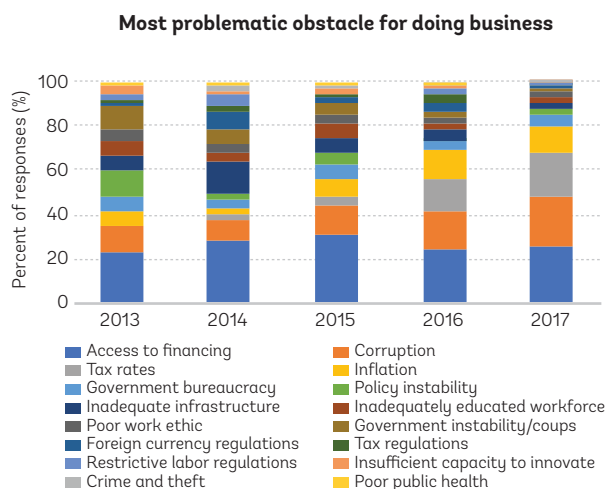
Source: ASTI database and authors' calculations.

Figure 46: However, it remains below the country's income potential because of ...



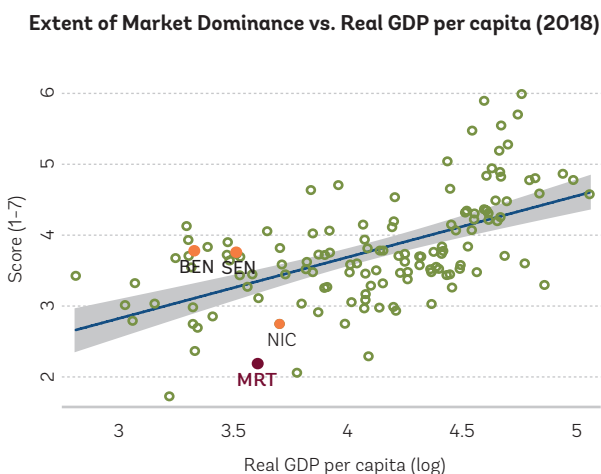
Source: ASTI database and authors' calculations.

Figure 47: ... financing constraints, ...



Source: GCI, WDI, and authors' calculations.

Figure 48: ... limited competition, ...

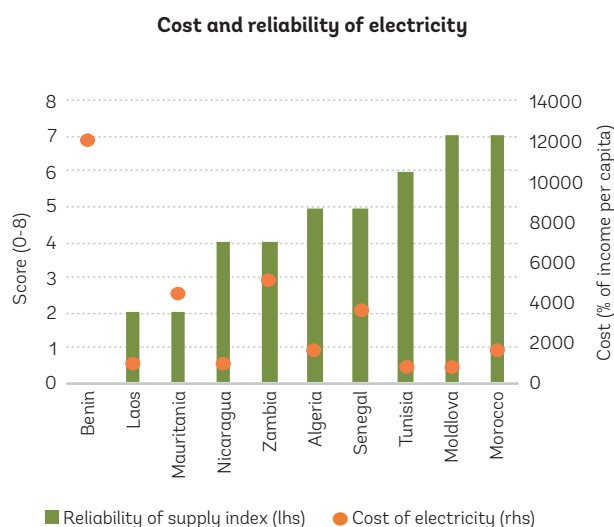


Source: GCI, WDI, and authors' calculations.

The entrepreneurship ecosystem is also primitive and not conducive to transformational entrepreneurs (World Bank, 2019i). The literature shows a significant effect of entrepreneurship towards economic growth (Wennekers and Thurik, 1999; Wong, 2005). Entrepreneurship represents hope to many young Mauritians who perceive fewer and fewer opportunities in the public sector and traditional rural sectors. Responding to a

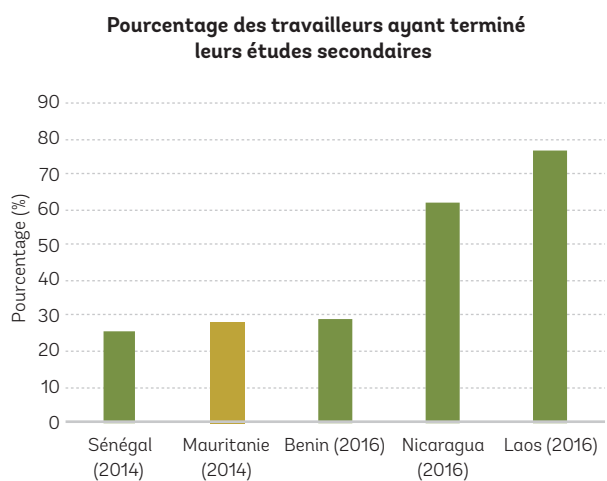
survey conducted jointly by the World Bank and CMAP in 2016, 77 percent of young Mauritians expressed strong motivation to launch their own business, yet just one in five felt "fully ready" to embark on their entrepreneurial adventure. This is partially due to the challenging business environment in which these aspiring entrepreneurs are operating. The Global Entrepreneurship Index, which measures how conducive ecosystem are to

Figure 49: ... poor electricity infrastructure, ...



Source: World Bank Doing Business.

Figure 50: ... and lack of skilled labor



Source: World Bank Enterprise Survey.

entrepreneurship, ranked Mauritania second to last in the world in 2018. This weak ranking not only reflects the challenging investment climate, but also reflects limited startup skills, low risk appetite due to culture factors, and lack of appropriate funding vehicles.

Policies to strengthen the business environment and the entrepreneurship ecosystem must acknowledge that Mauritanian women continue to face barriers to social inclusion and employment. Although women represented more than half of Mauritania's working-age population (57.5 percent) in 2017, only 28.2 percent participated in the labor market, compared to 59.6 percent for Mauritanian men and 62.9 percent for women on average in SSA. In addition, at 13.3 percent, the unemployment rate for women is higher than the 10.9 percent for men. This gender gap is perhaps not surprising considering that 37 percent of Mauritanian women are married by age 18 and that the country ranks among the bottom 20 percent of countries on allowing women access to property and inheritance (World Bank, 2019i). Mauritania's score on the Women, Business and the Law (WBL) index was 41.9 out of 100 in 2019 (176 out of 1867 countries), indicating that Mauritanian women enjoy less than half of the rights legal rights enjoyed by men.

3.4.3. High tariffs and trade restrictions compound a challenging business environment

Mauritania's import tariffs are high, shielding domestic producers from international competition and impeding access to cheap imported inputs. Import tariffs in Mauritania are more than twice the level found in other regions of the world. The average tariff rate of 12 percent in 2017 remained almost identical to the 12.1 percent average in 2010 (Figure 51). Some domestic sectors enjoy protection levels above the average tariffs like animal (18.4 percent), dairy (14.5 percent), fish (19.8 percent), clothing (20 percent), and electrical machinery (13.1 percent). Strikingly, the tariff gap remains substantial on intermediate inputs used in the production of other goods, decreasing the range of available inputs and raising the costs to produce new varieties. The average applied tariff on intermediates is 9.7 percent compared to the 3.5 percent globally. In the agricultural sector, for instance, tariffs for agricultural machinery and key inputs like seeds, fertilizer, and herbicides range from 5 to 15 percent with very few tariffs having a 0-rate tariff.

Beyond tariffs, the prevalence of non-tariff measures (NTMs) and the absence of clear procedures hinder trade.

²⁴ According to the Global Competitiveness Index (GCI), Mauritania is second to last in the world on the prevalence of NTMs (Figure 52). The country has experienced difficulties in implementing its legislation relating to the standardization, certification and accreditation process (WTO, 2018). Despite the adoption of a law in 2010, the regulatory framework for trade processes remains weak in the absence of implementing decrees. There is also a lack of equipment, human resources, and funding for testing laboratory and conformity control infrastructure. Moreover, sanitary and phytosanitary control is characterized by the presence of different services without any real coordination among institutions. (WTO 2018). The lack of transparency in NTMs is reflected in the fact that, by August 2019, Mauritania has not made yet any notification under Article 15.2 of the WTO's Technical Barriers to Trade (TBT) agreement and did not appoint a national enquiry point for questions related to TBTs in the country.²⁵

Non-transparent taxes increase protection for certain industries.

Consumption taxes applicable only at importation constitute hidden tariffs that increase the protection of selected industries. These taxes are levied on specific products like tea, sugar, meat, dairy, cement, and concrete reinforcing bars, and are usually revised upwards during the fiscal year. For instance, a 20 percent consumption tax on imported mineral water was created in 2015 and was subsequently raised to 50 percent in 2016 and 80 percent in 2018. Similar increases have happened with consumption taxes on imported poultry meat and edible offal, yoghurt, sweetened dairy products, and pasta.

3.4.4. Absence of preferential trade agreements

Mauritania is one of the few countries that is not a full member of a preferential trade agreement. Although Mauritania was a founding member of the Economic

Community of West African States (ECOWAS), it left the 16-nation body in 2000 to concentrate its efforts in the Arab Maghreb Union (AMU).²⁶ However, the AMU is not effectively operational and none of its conventions are currently being implemented. AMU's failure to achieve tangible progress on many of its goals results from political disagreements between its members, particularly due to differences between Algeria and Morocco over Western Sahara (Allouche, 2019). Faced with relative stagnation of AMU, Mauritania has negotiated re-entry and signed an Association Agreement with ECOWAS in 2017. The Agreement granted Mauritania an associate state status, under which it participates in the ECOWAS trade liberalization scheme and was due to apply ECOWAS's common external tariff (CET) and promote the free movement of people, goods, and investments starting January 2019. However, none of the arrangements have been implemented as of August 2019 due to ongoing discussions regarding the strategy to operationalize the agreement. According to Mauritanian officials, the agreement should enter into force in January 2020.

Mauritania has signed and ratified the African Continental Free Trade Area (AfCFTA), but its implementation needs to be defined.

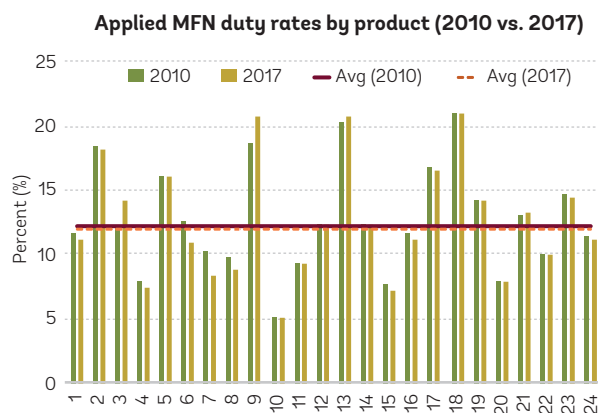
AfCFTA, which will create an African-wide free trade area over the next decade, aims to eliminate tariffs on most intra-regional trade in goods, eliminate NTMs, reduce restrictions on trade in services, and harmonize policies related to investment, intellectual property, and competition. It has the potential to deepen regional integration and drive economic diversification, attract FDI, and heighten regional connectivity. The agreement came into force on May 30, 2019 after The Gambia became the 22nd country to ratify it and entered its operational phase on July 7, 2019. However, critical parts of the agreement are yet to be finalized before countries start trading under the AfCFTA on July 1, 2020, including on schedules of tariff concessions, services commitments, and policies around investment, intellectual property, and competition. Negotiations for protocols under

²⁴ NTMs are policy measures other than tariffs that can affect trade. This include core measures such as quantity and price controls (e.g., quotas, prohibitions, discretionary import licenses, and para-tariffs), as well as standards and technical regulations (e.g., sanitary and phytosanitary measures and technical barriers to trade).

²⁵ The TBT aims to ensure that technical regulations, standards, and assessment procedures are non-discriminatory and do not create unnecessary obstacles to trade: https://www.wto.org/english/tratop_e/tbt_e/tbt_e.htm

²⁶ The Arab Maghreb Union was established in 1989 with the aim to establish a free-trade area between Algeria, Libya, Mauritania, Morocco, and Tunisia. No meeting of the AMU's presidency council took place since the last one in 1994 in Tunisia.

Figure 51: Mauritania's import tariffs are high



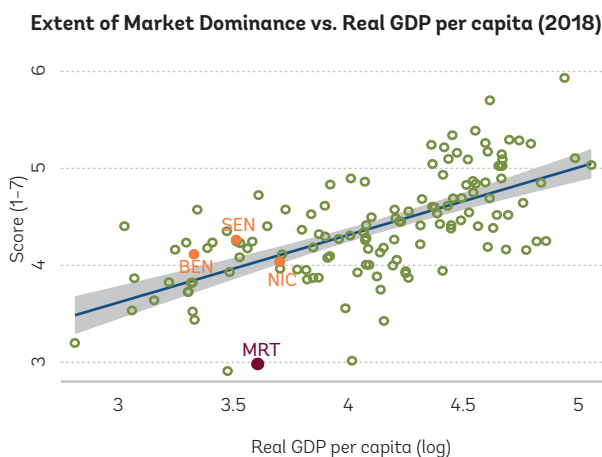
Source: WTO (2018). Note: the numbers correspond to: 1. Agriculture, 2. Animal products, 3. Dairy products, 4. Fruit, vegetables, 5. Coffee, tea, 6. Cereals, 7. Oil seeds, 8. Sugar, 9. Beverages, 10. Cotton, 11. Other agri products, 12. Non-agri products, 13. Fish products, 14. Metals and minerals, 15. Chemical, 16. Wood, paper, 17. Textiles, 18. Clothing, 19. Leather, footwear, 20. Non-electrical machinery, 21. Electrical machinery, 22. Transport equipment, 23. Other manufactured articles, 24. Petroleum

phase II which include protocols on intellectual property, rights, investment, and competition policy are all still outstanding. Most of these remaining issues are scheduled to be concluded and adopted by 2021.

Mauritanian exports benefit from tariff preferences in developed countries that can be revoked unilaterally. Exports to the United States enjoyed duty-free and quota-free access under the African Growth and Opportunity Act (AGOA) until Mauritania was declared ineligible in January 2019 due to human right concerns as cited by the US administration. The country had previously lost AGOA eligible status following the coup d'état in August 2008 but recovered in 2010. Mauritanian exports to the European Union benefit from tariff-free treatment under the Everything But Arms (EBA) initiative. However, once Mauritania graduates the status of least developed country (LDC), it risks losing free access to EU market without a free trade agreement. One of the benefits of the Association Agreement with ECOWAS is that the country can assure further free access to EU market as part of the ECOWAS Economic Partnership Agreement (EPA), which is yet to be implemented as Nigeria still has not signed it.²⁷

27 https://trade.ec.europa.eu/doclib/docs/2009/september/tradoc_144912.pdf

Figure 52: Mauritania is second to last in the world on the prevalence of NTMs



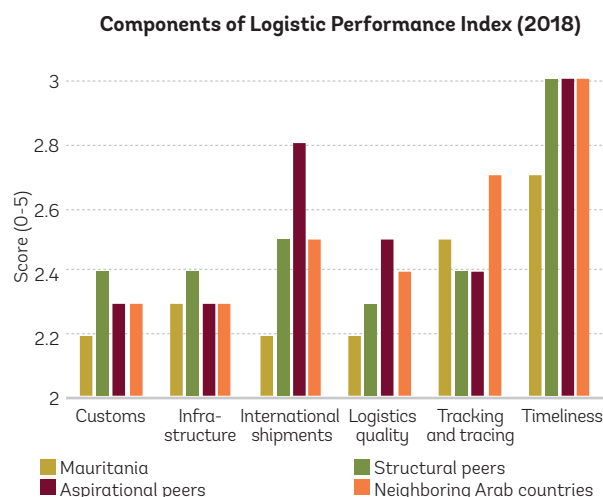
Source: Source: GCI 2018 and authors' calculations.

3.4.5. Poor infrastructure and connectivity increase trade costs

The logistics competency of Mauritania further reaffirms its weak trade facilitation environment. Despite the recent efforts made by the authorities to strengthen logistics and road services, the trade and transport infrastructure remains insufficient (WTO, 2018). As shown in Figure 52, Mauritania performs relatively poorly compared to its peers on key elements of the World Bank's Logistics Performance Index (LPI) such as the efficiency of customs and border management clearance, the quality of trade and transport infrastructure, the ease of arranging competitively priced shipments, and the competence and quality of logistics services (trucking, forwarding, and customs brokerage).

The poor road infrastructure coupled with geographical constraints, mean that trade costs are elevated. Despite declining over time, aggregate trade costs of Mauritania remain the highest among peer countries (Figure 53). While this partially relates to the insular nature of the country (such as the large distances) for which policymakers have little direct leverage on, trade costs are elevated due to

Figure 53: Mauritania performs poorly in terms of trade logistics



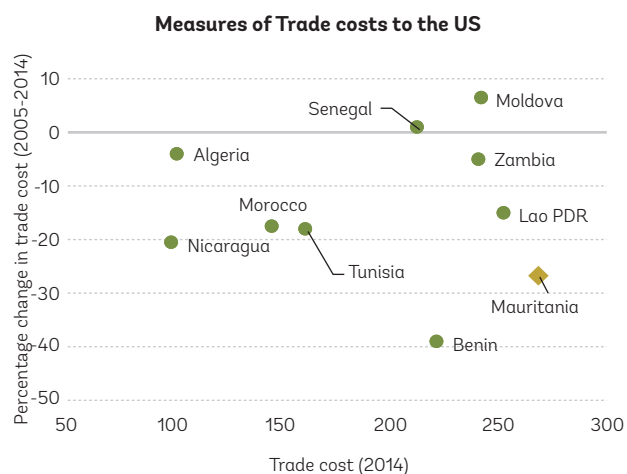
Source: LPI and authors' calculations.

poor domestic connectivity which stems from poor logistic services and infrastructure.²⁸

The lack of quality roads particularly affects agricultural production areas in the south, which remain isolated from the main economic and export centers.

Even important agricultural production centers, such as Rosso, get disconnected at the start of the rainy season. The situation is bad enough that fruits and vegetables production enterprises, which used to export to Europe, have suffered because products could not reach airport facilities in Nouakchott on time for shipping, or got damaged along the bumpy, muddy road (World Bank, 2019a). In fact, the speed at which an average vehicle reaches Nouakchott is by far the lowest from Rosso compared to the other main cities in Mauritania (Table 5). This suggests that the quality of the Rosso-Nouakchott corridor needs upgrading since it links the agricultural production center to the main demand and export destination. Nevertheless, things are slowly improving thanks to the support of the World Bank and the EU who financed the rehabilitation of large parts of this road.

Figure 54: Despite declining over time, trade costs in Mauritania remain elevated



Source: UNESCAP – World Bank Trade Costs database and authors' calculations.

Low maritime connectivity continues to undermine the access of Mauritania to global markets. In contrast to Morocco which improved its global ranking on the Liner Connectivity Shipping Index (LCSI) from 79th in 2006 to 22nd in 2019, Mauritania's position on the LCSI deteriorated from 112th in 2006 to 116th in 2019. Despite the expansion of the port capacity in Nouakchott from three to seven berths in 2014, the rapid growth of imports means that ships often wait for a long time to unload their cargoes. The construction of a container terminal and an oil jetty agreed as part of PPP in end-2018 would help expand the port's capacity in the future. In addition to capacity issues, the most recent Trade Policy Review by the WTO (2018) points to several institutional issues that affect the functioning of the port. These include the multiplicity of supervisory authorities which undermine the management of port affairs, the uncontrolled liberalization of transport auxiliaries, and the non-existence of a legal framework for coordination that would facilitate the passage of goods through the ports.

28 The trade cost measure captures two main categories: The first entails bilateral factors of separation between the exporter and the importer, more dependent on exogenous factors than particular policy choices such as geographical distance. The second includes endogenous trade costs, which measure the 'thicknesses of two countries' borders and includes logistics performance, trade facilitation bottlenecks, such as border control and transit systems, and international connectivity, as the existence of regular maritime, air shipments (Arvis et al., 2013).

Table 5: Among major cities, Rosso is the city where cars roll at the slowest pace when travelling from/to Nouakchott

Route to Nouakchott	Time (hours)	Distance (km)	Km per hour
Nouadhibou	5h 51	480	87.1
Atar	5h 28	439	83.1
Kaedi	5h 52	415	75.2
Guerou	7h 35	547	74.4
Zoueiratt	10h 51	767	73.0
Kiffa	8h 28	603	72.8
Aioun El Atrouss	11h 23	814	72.5
Nema	15h 12	1,089	72.0
Selibabi	9h 27	645	69.6
Rosso	3h 34	205	61.4

Source: Google maps accessed on February 15, 2019 at 18:00 pm local time.


3.4.6. Weak human capital

Despite sustained investment over a long period of time, Mauritania has not yet achieved universal access to primary education. While the Gross Enrollment Rate in primary education has been over 100 percent over the last decade, the Net Enrolment Rate (NER) of the primary education age-group (6-11 years) has remained under 75 percent, well below the average of SSA and Arab countries (World Bank, 2019b). Based on the MICS 2015²⁹ survey data, more than 236,000 children aged 6-15 years (24 percent of total age-group) were out-of-school. Two out of three were among the youngest (6-9 years old) signaling late-entry, and 46 percent have never been to school. While the primary education retention rate increased from 51.3 percent in 2000/2001 to 69 percent in 2016/2017, one third of primary school students drop-out before the end of the cycle with important regional disparities.⁴

Learning outcomes are poor. At the national level, the education system is failing to provide foundational skills that are critical to enable social and geographic mobility. In 2017, only a quarter of grade 6 students scored above 50 percent on the end-of-primary-school national exam, while

only 1.7 percent of grade 4 students in public schools could read a simple eight-word sentence in French and about 37 percent could not add two single-digit numbers (World Bank, 2018c).

29 UNICEF 2016 – Multiple Indicators Cluster Survey – Mauritania 2015



The missing link between urbanization and growth

4.1. Introduction

When cities function well, they are engines of economic growth and prosperity. Urban densities connect workers better to jobs and bring people physically closer, facilitating the exchange of ideas and innovations, fueling productivity, and reducing the cost of infrastructure and services (Lall et al., 2017). Functioning cities support the structural transformation of an economy: no country has reached middle income status without urbanizing (Spence et al., 2009). Today, African cities present themselves to investors as *crowded, costly and fragmented* (Lall and Venables, 2018). Mauritania's case, as will be shown below, is not so different and faces additional challenges arising from its geography (low population density and large distance from major markets) and its economic structure that is heavily reliant on natural resource exports. Although the latter challenge will not be further explored here, empirical evidence shows that the linkages between urbanization and growth in manufacturing and services is weaker among resource exporting countries versus non-resource exporting countries (Gollin et al., 2016).

Mauritania's geography and settlement pattern make urban centers distant from each other. Mauritania's cities and towns are sprawling and suffer from low population density, undermining the agglomeration benefits to be reaped from moving closer. Because of the vast terrain, urban areas in Mauritania are also distant from each other and further divided due to poor infrastructure and cultural differences. The larger cities are also disconnected from urban areas in neighboring countries due to trade restrictions and hard borders. For instance, the agricultural-based Southern region is disconnected from economic opportunities on the Senegalese side by the Senegal river that forms a natural border between the two countries. These challenges limit access to markets, thus undermining growth through specialization and diversification.

More than 50 percent of Mauritania's urban population reside in Nouakchott, though living conditions and economic opportunities underwhelm. Although it is the most diversified region, Nouakchott is not home

to productive firms or more complex manufacturing processes (see chapter 3). Plagued by sprawling and disconnected neighborhoods, the capital's infrastructure remains inadequate, thus stifling better services and improved connectivity for Nouakchott's residents and reducing two important benefits associated with density: improved connectivity and better services (Hommann and Lall, 2019). It is estimated that about 80 percent of Nouakchott's urban population live in slums, lacking either adequate housing, infrastructure, tenure or a combination of these.

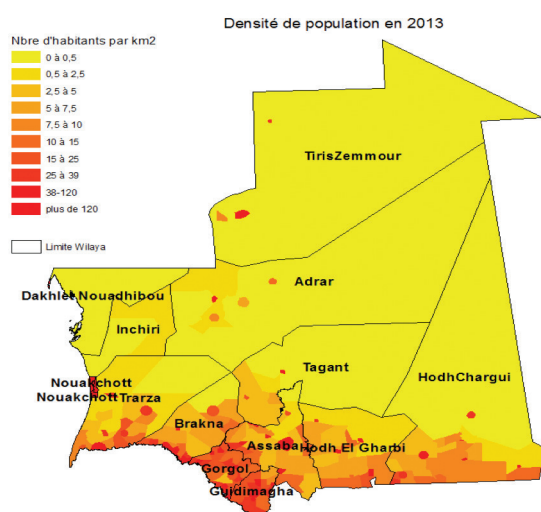
This chapter aims to examine the urbanization pattern of Mauritania and explains the challenges that are preventing urbanization from contributing to growth as expected. The rest of this chapter is organized as follows. Section 4.2 studies the urbanization patterns and the drivers of urbanization in Mauritania. Section 4.3 analyzes the challenges that prevented urbanization from contributing to growth as expected. Section 4.4 concludes by discussing the role of Nouakchott as a driver of economic prosperity. Policy recommendations are presented in chapter 5.

4.2. Understanding the urbanization landscape in Mauritania

4.2.1. Urbanization and its Drivers

Mauritania's population of 4.2 million is distributed across a vast territory of about 1 million square kilometers with four distinct ecological zones (Figure 55). The *desert-like Saharan zone* – comprising the regions of Tiris Zemmour in the North, Adrar in the middle, and Hodh Ech Chargui in the East – covers about two thirds of its population. The *Sahelian zone* extends from Boutilimit in the South Western part of Mauritania to Nema in the East and from the Saharan zone to about 30 kilometers North off the Senegalese river. This zone is characterized by vast steppe and savanna grasslands that form the natural home of Mauritania's goat and sheep herders. Further South stretches the only real fertile zone of Mauritania, the *Senegalese River Valley*, that supplies most of the country's agricultural production. Lastly, the *Coastal zone* extends 754 kilometers along the Atlantic coast and comprises mostly of dunes. Nouakchott (the capital) and Nouadhibou

Figure 55: Mauritania's territory is characterized by low population density



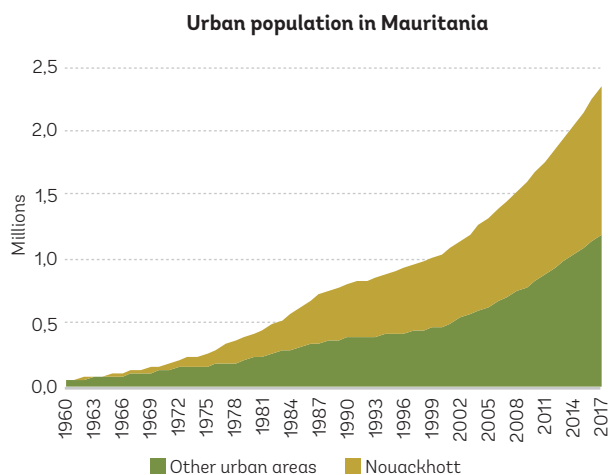
Source: Adapted from World Bank (2019).

Table 6: Administratively, Mauritania is divided into 13 regions, each with its own capital

Wilaya	Capital
Adrar	Atar
Assaba	Kiffa
Brakna	Aleg
Dakhlet Nouadhibou	Nouadhibou
Gorgol	Kaedi
Guidimaka	Selibaby
Hodg Ech Chargui	Nema
Hodg El Gharbi	Aioun el Atrouss
Inchiri	Akjoujt
Nouakchott	Nouakchott
Tagant	Tidhikja
Tiris Zemmour	Zouerat
Trarza	Rosso

Source: Google maps accessed on February 15, 2019 at 18:00 pm local time.

Figure 56: Half of the urban population in Mauritania resides in the capital Nouakchott ...



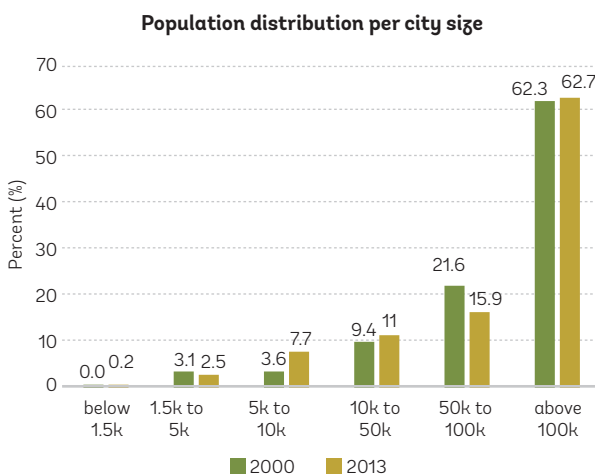
Source: WDI and authors' calculations.

are the most important cities in that zone. Mauritania's geography and climate determines its settlement pattern, and climate change has contributed to the expansion of the Saharan zone at the expense of the more fertile zones North of the Senegalese river and border.

Despite Mauritania's low population density across much of its territory, the country maintains administrative presence over its geographic area. Administratively, the country is divided into 13 regions (*wilayas*), each with a regional capital that act as a hub for economic activity (Table 6). Regions are further divided into departments (*moughataas*) that are subdivided into communes that represent the lowest administrative level within the government system. In turn, each commune has a "main town" with an elected mayor responsible for all localities within the commune. The main town is the center for basic services, like hospitals and schooling, and commerce.

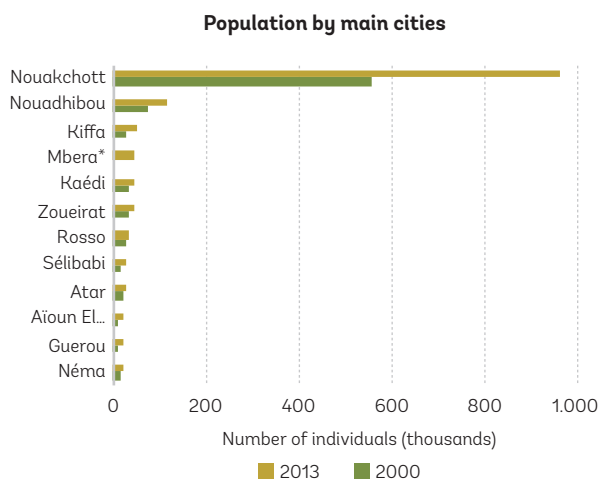
Given terrain and geography, half of Mauritania's urban population is concentrated in Nouakchott and about a third resides in small and scattered settlements in the South. In 2017, the country's urban population reached about 2.3 million or about 53 percent of the total population (Figure 56). After Nouakchott with 1.2 million inhabitants, the next largest city is Nouadhibou in the North with 120 thousand, followed by the town of Kiffa in the South with

Figure 57: ... while 37 percent reside in towns below 10 thousand inhabitants



Source: Citypopulation.de and authors' calculations.

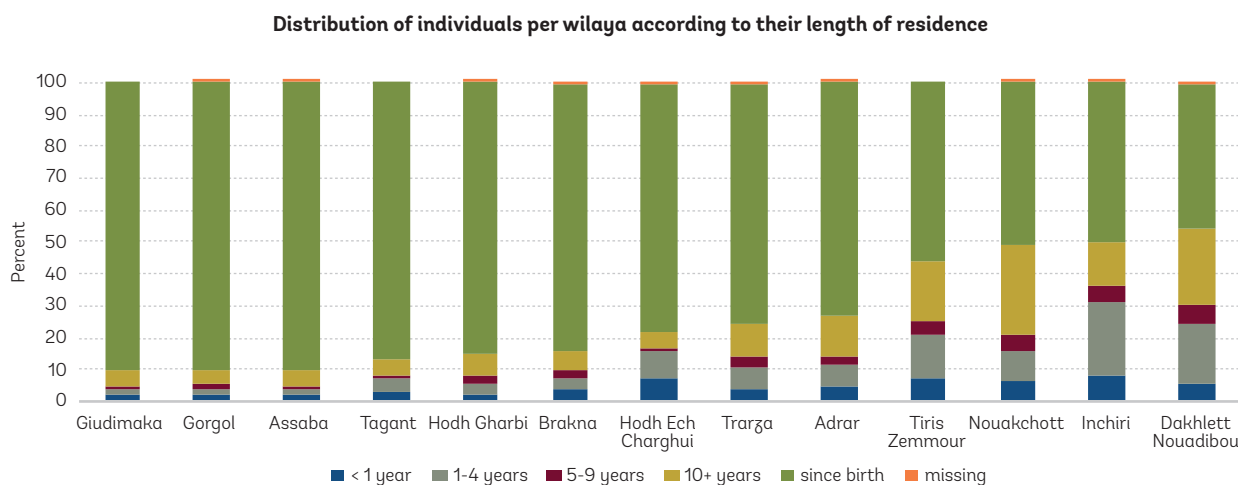
Figure 58: Nouakchott's population nearly doubled over the past two decades, driven mostly by migration



50 thousand (Figure 57). At the tail end of the distribution are almost 60 urban areas that have an average population of only 10 thousand inhabitants and account for about a third of the total urban population.

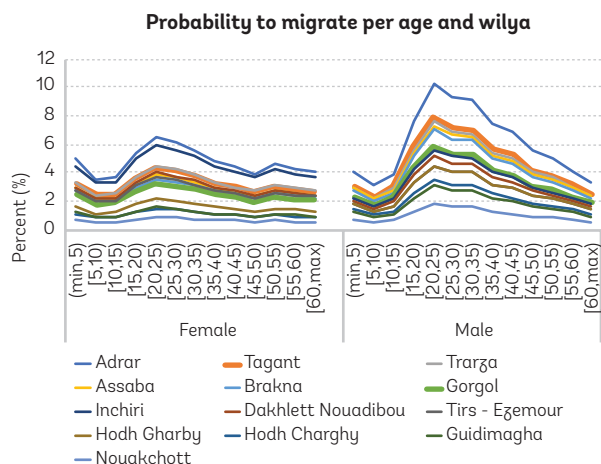
Even though some of the small towns in the South are growing rapidly, there is limited evidence of what drives urban population growth. Among towns with more than 20 thousand inhabitants, Aïoun el Atrous, located on the road between Kiffa and Nema, experienced the fastest growth

Figure 59: The main cities to which individuals migrated are Nouakchott and Nouadhibou and the mining areas



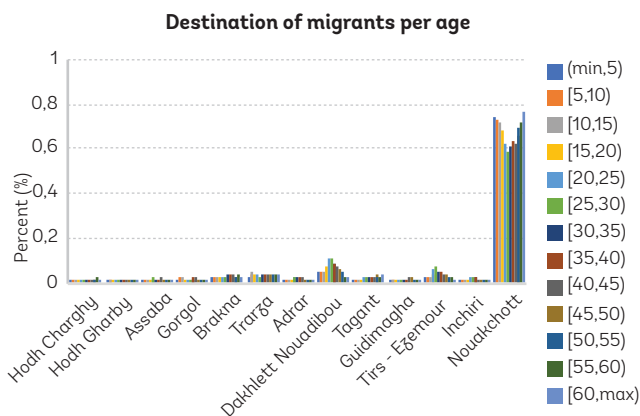
Source: RGPH 2013 and authors' calculations.

Figure 60: Young males are the most likely to migrate...



Source: Authors' calculations based on Dupriez and Spielauer (2017).

Figure 61: ... with Nouakchott being the main migration destination



Source: Authors' calculations based on Dupriez and Spielauer (2017).

of 6 percent between 2000 and 2013 (Figure 58). While several of these small towns (i.e. Guerou, Kiffa, Sélibabi) reported population growth rates higher than Nouakchott, their impact on overall urbanization is low given the small size of these settlements. What drives the population growth – migration or natural growth -- in specific towns is less understood.

Migration, coupled with a high fertility rate, fueled rapid population urban growth, particularly in Nouakchott and Nouadhibou. Mauritania's fertility rate is among the highest in the world at about 5.1 births per woman,³⁰ and higher in rural (6.1 births per woman) than in urban areas (4.3 births per woman). In addition to the high fertility rate, data from the 2013 census shows

30 Mauritania : Enquête par Grappes à Indicateurs Multiples (MICS) 2015 : http://www.ons.mr/images/mics/MICS5_rapport.pdf

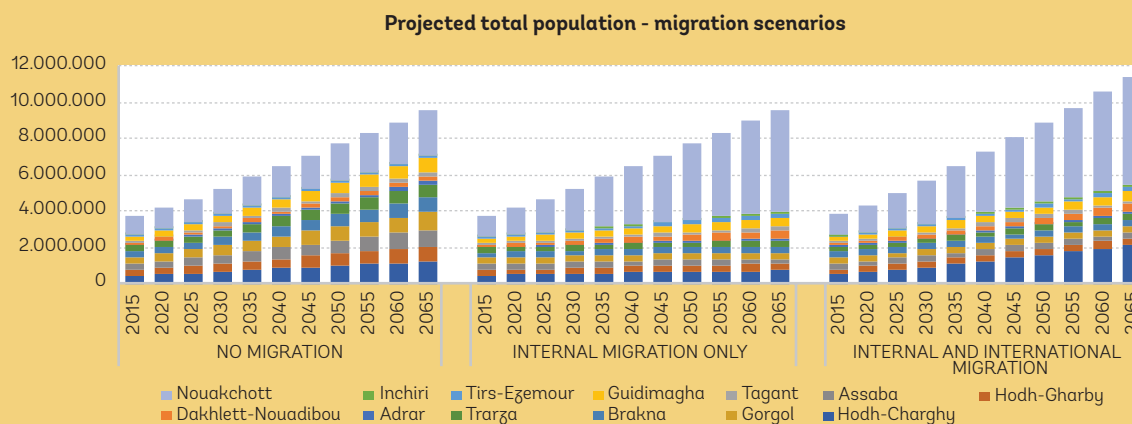
that migration fueled population growth, particularly in Nouakchott and Nouadhibou, where 50 and 55 percent of their respective residents report being born in another wilaya (Figure 59). This confirms a high level of migration into these two most urbanized wilayas. Other regions with higher migration status – but lower population numbers – include Inchiri (50 percent) in the North East of Nouakchott with gold and copper mines near the town

of Akjoujt, and Tiris Zemmour (56 percent) with iron mines in Zoueirat. While the census provides information of movements between wilayas in the temporal intervals, it does not record whether a person arrived from a rural or an urban area, nor does it show the intra-wilaya movement of population. At national level, about one quarter of the population have moved to another wilaya since birth.

Box 3: Future population will grow rapidly and be largely concentrated in Nouakchott if past migration trends continue

Mauritania’s population is projected to grow from 4.2 million in 2018 to almost 12 million in 2065 (Spielauer and Dupriez, 2017). This projection is consistent with previous dynamics between 1977 and 2013 when the total population in the country increased from 1.4 to 3.4 million. Population growth will be driven by fertility and migration, with the latter heavily influencing the regional composition of the population across wilayas if previous patterns of international and national migration continue in the future (Figure 62).³¹ Considering migration trends observed between 2000 and 2013, it is expected that Nouakchott would grow disproportionately faster due to a large number of migrants arriving in the capital city. Despite lower fertility rates in urban areas including Nouakchott, its population will increase from 1.2 million in 2018 to almost 6.5 million people in 2065.

Continued rapid population growth in Nouakchott may lead to congestion and increases the risks posed by climate change. Already delinquent on the provision of basic infrastructure services and economic assets, Nouakchott risks falling behind further, unless appropriate urban planning and land use regulation guide the investments into housing and infrastructure within the city. As outlined in section 4.4.6 below, existing threats posed by climate change will expose the city further, unless accompanied by commensurate investments into climate resilience.



Source: Authors’ calculations based on Dupriez and Spielauer (2017).

31. Population projections are based on a dynamic micro-simulation model, which account for a broad variety of individual characteristics, model realistic life-courses and their diversity, and support the modeling of interactions between people.

Figure 63: The difference between rural and urban welfare is sizeable ...

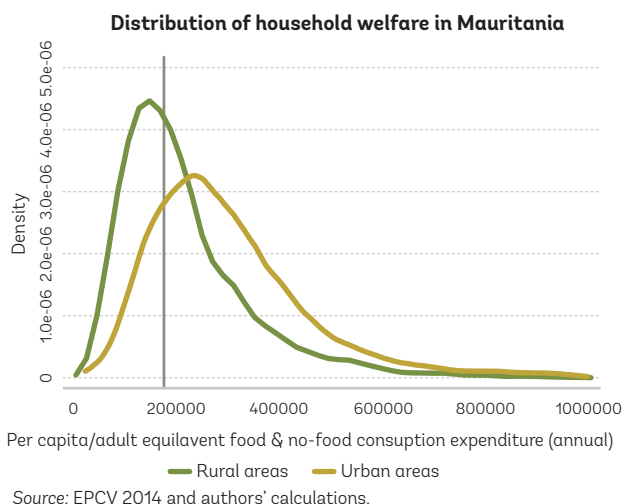
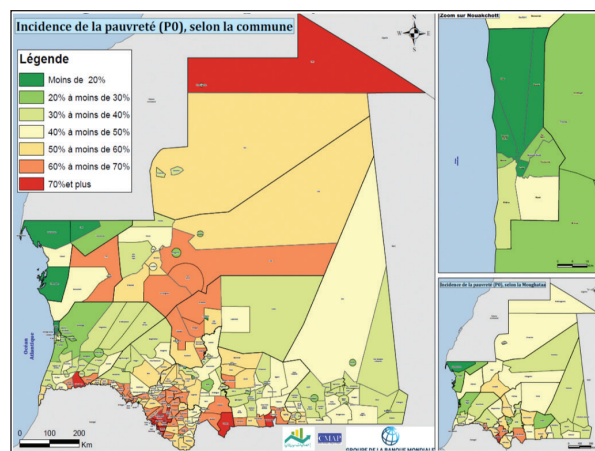


Figure 64: ... and is more pronounced in the South that has the largest headcount poverty ratio



Among the migrant population, migration is mainly oriented towards Nouakchott and it is mainly young men who migrate. Men are about twice as likely to migrate compared to women and the probability to migrate peaks around the age of 20 to 25 (Figure 60). Among wilayas, Nouakchott is by far the preferred migration destination as it attracts about 70 percent of total migrants (Figure 61). This is because most jobs (34 percent, LFS 2017) are found in the capital. If these past migration trends continue, Nouakchott's population would grow disproportionately faster than the rest of the country (Box 3), likely leading to congestion that could undermine its growth prospects further, and exposing the future generations to the threats imposed by climate change (see section 4.4.6).

4.2.2. Spatial Inequality in Welfare and Access to Services: a Driver for Migration?

Even though Mauritania has made positive strides in reducing spatial inequality over the past decade, welfare and living conditions are still very different between rural and urban areas. Between 2008 and 2014 rural poverty was declining behind the backdrop of more favorable terms of trade for commodities, which favored rural households by generating higher farm income (World Bank 2017b, p.9).

During the same period, however, urban areas registered fewer gains in poverty reduction and Nouakchott witnessed an increase in poverty likely driven by the arrival of poorer households. This led to some convergence of poverty rates between rural and urban areas (World Bank, 2017b). Still, welfare differences between rural and urban communes remain sizeable (Figure 63) and poverty headcount ratios remain highest in the populated South where population is highly reliant on agriculture (Figure 64).

The pattern of access to public services mirrors the poverty rates across communes. As expected, urban communes, particularly those in Nouakchott and Nouadhibou, are doing better in terms of access to public infrastructure and services, such as electricity, piped water, and sanitation compared to more rural communes (Figure 65 to Figure 68). More urbanized yet poorer communes in the South – such as Kiffa, Guerou, Kaedi and Aïoun el Atrouss – are doing better too, especially compared to their neighboring communes with rural characteristics. For these rural communes, the combination of lack of economies of scale, relatively higher cost of service provision and poverty explain the very low access to services.

The overlap between dependency on agriculture, poverty, and lack of infrastructure services is concerning when

Figure 65: Urbanized communes have better access to...

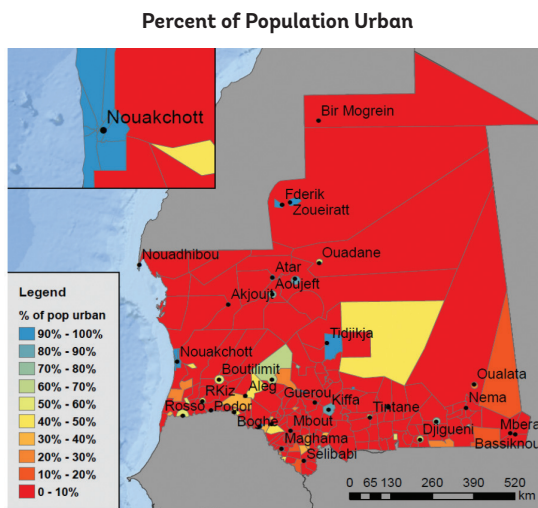


Figure 66: ... electricity...

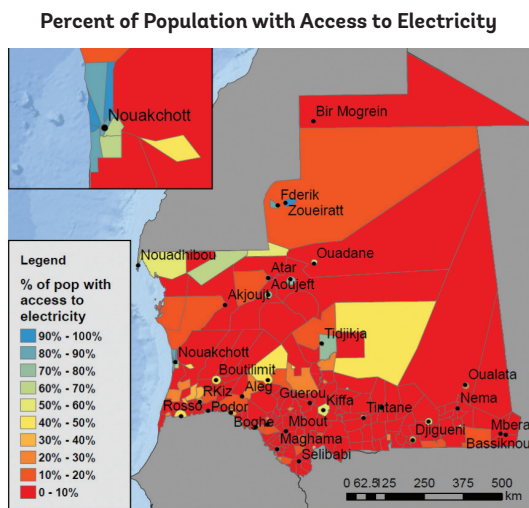


Figure 67: ... piped water...

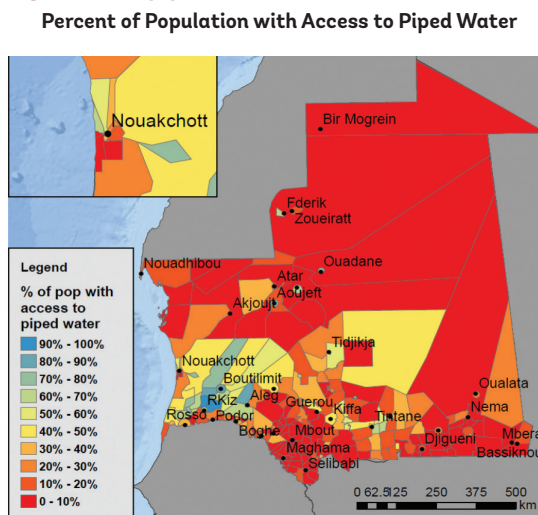
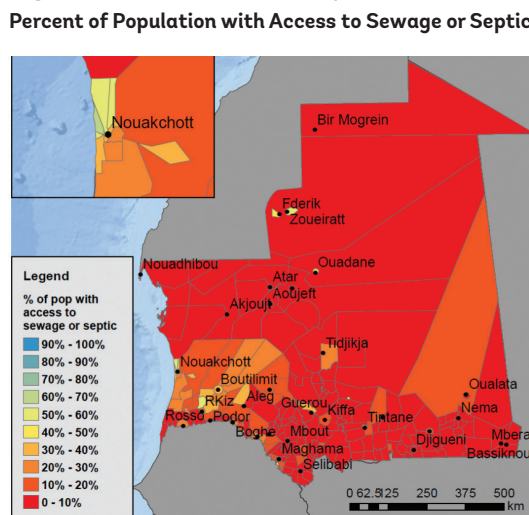


Figure 68: ... and sanitation systems



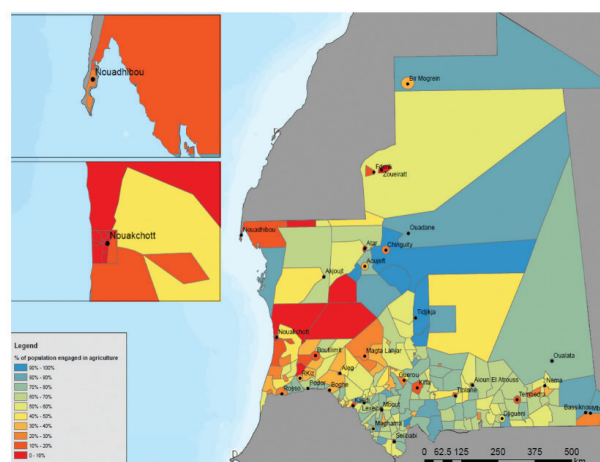
Source: RGPH 2013 and authors' calculations.

considering the likely negative impact of climate change. In Southern communes, the share of farmers and herders in the total workforce is very high (Figure 69). Agriculture dependence coincides with high poverty and deficiency of public services and infrastructure. Climate change will add stress to these communes that are already prone to food security crises (Figure 70) and is likely to push people in even greater numbers to the larger urban centers (Henderson et al., 2017).

4.3. Unpacking the linkages between urbanization and growth

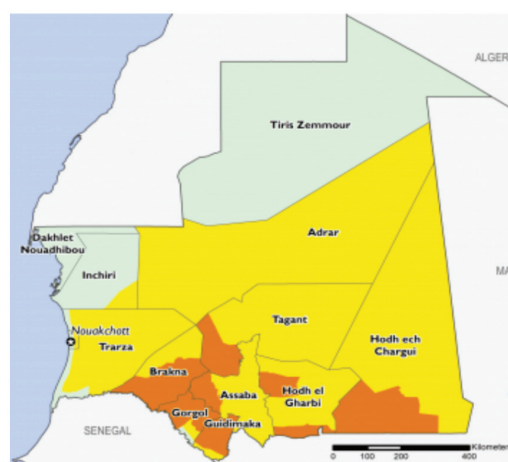
Empirical evidence suggests that successful cities enable firms to increase workers' productivity through scale and specialization. Scale can be achieved by producing a lot of one product or through technologies, thereby reducing the fix cost per unit of production.

Figure 69: Communes in the south of Mauritania are largely dependant on farming and herding



Source: RGPH 2013 and authors' calculations.

Figure 70: Regions in the South of Mauritania were affected by a food crisis in 2018



Source: <http://fews.net/west-africa/mauritania>.

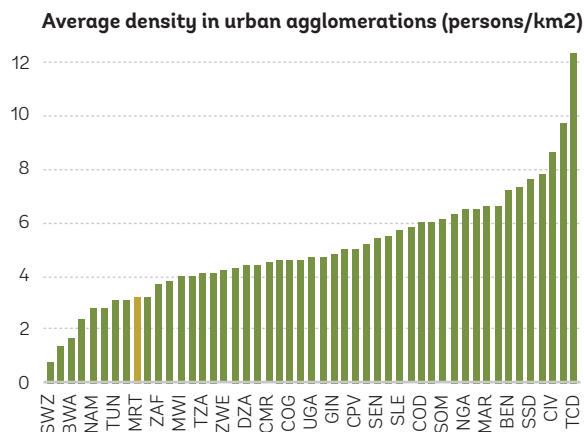
Producing at scale requires access to a large market, so that producers can sell to consumers at low transaction costs – either locally or exporting internationally. Specialization occurs when workers concentrate on doing a few narrowly defined tasks and in that process accumulate specialized skills that increase productivity (Collier and Jones, 2015). Scale and specialization interact and are stimulated by the proximity between producers and consumers. The abundance of complementary skills of specialized workers encourage diversification of products as firms compete for the market share.

When consumers, producers and workers cluster in proximity, they spur competition and enable scale and specialization that bring agglomeration benefits in form of higher productivity. To generate proximity, either the physical distance needs to be reduced or overcome by investing into connective infrastructure and transportation services. Therefore, productivity generated through scale and specialization, can only be reaped if connectivity between workers, producers and consumers is fostered through density and efficient transport options. Many African cities are fragmented and disconnected (Lall and Venables 2017) and therefore fail to reap these agglomeration benefits.

It is therefore through the lens of density, distance, and division that growth opportunities can be usefully assessed spatially in a country or city. The “3Ds” framework first emerged in the World Bank’s (2009) World Development Report, when location-based growth opportunities and related policies were analyzed in the context of population densities, lagging regions (distance) and hard borders (division). The framework allows to identify the constraints that impede growth and propose remedies to remove these constraints (Wang et al., 2018).

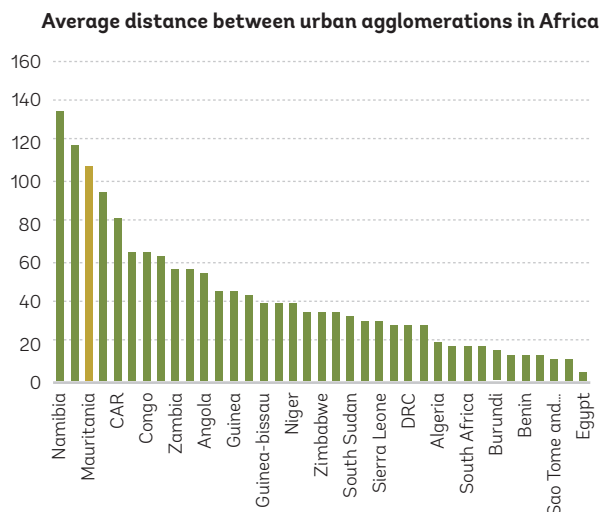
In Mauritania, the small size of urban settlements – apart from Nouakchott and Nouadhibou – means that few towns are sufficiently large to create market potential or generate economies of scale. The low density shown earlier at the national level is also an issue at the urban level. The average density among urban agglomerations in Mauritania is 3,162 inhabitant/km² in 2015, one of the lowest densities in Africa (Figure 71). It is thus not surprising that nightlight data – often used to depict economic activity, population or a combination of both – detects only Nouakchott, Nouadhibou and the mining area around Fderik and Zoueirat as emitting lights, but without substantial growth between 1996 and 2010, these being the latest years of comparable nightlight data (Figure 72).

Figure 71: Urban agglomerations in Mauritania are among the least dense in Africa



Source: Africapolis and authors' calculations.

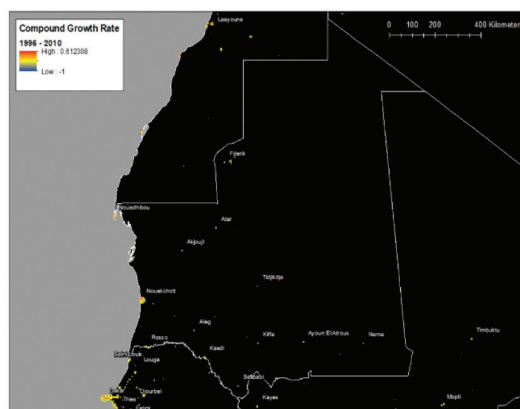
Figure 73: Urban agglomerations in Mauritania are very distant from each other



Source: Africapolis.

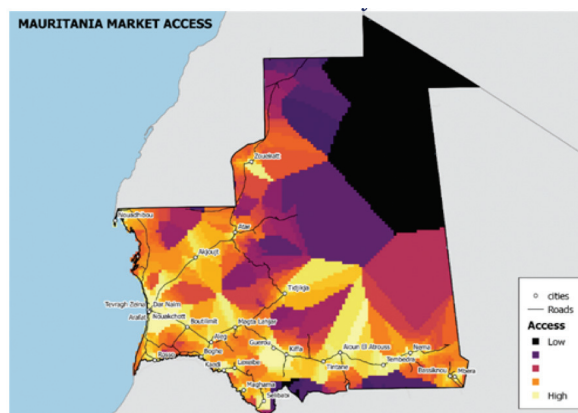
In addition to low density, distances between urban regions are vast, leaving large parts of the country disconnected. The average distance between urban agglomerations in Mauritania is 107 km, the third longest in Africa (Figure 73). When visualizing access to marketplaces across Mauritania's territory (and assuming thick borders to its neighboring countries), one can see that half of the country is disconnected (Figure 74). Lack of market accessibility mostly coincides with little to no populations,

Figure 72: Many localities, especially in the South, show low economic activity and do not emit light



Source: National Oceanic and Atmospheric Administration and authors' calculations.

Figure 74: About half of Mauritania's territory has no or limited connections to within country market towns

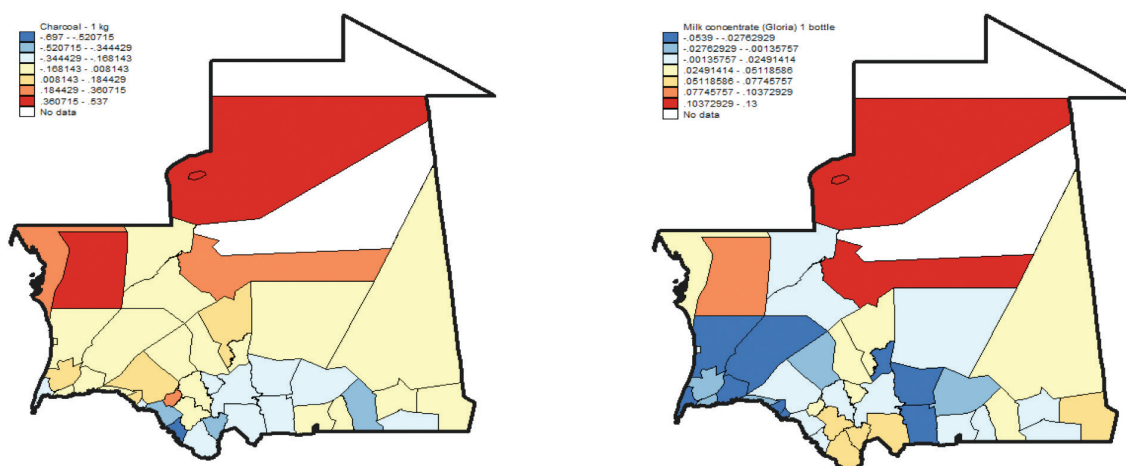


Source: Open Street Map (OSM), Africapolis and Authors' calculations.

such as in the North Eastern part of the country. However, the South Eastern border to Senegal has also inaccessible areas (highlighted in purple) where population settlements are disconnected from other towns in Mauritania due to non-existing roads.

Large distances and high cost of transportation limit the integration of product and labor markets. Figure 75 shows prices for charcoal and milk concentrate for

Figure 75: The spatial price variation for Charcoal (panel A) and Milk concentrate (panel B) points to high transport costs



Source: World Bank staff calculations based on EPCV 2014. Note: Results show percentage variation in nominal prices after controlling for observable characteristics. Red (blue) regions show higher (lower) prices relative to Nouakchott.

different Moughataas in Mauritania. These prices are systematically linked to patterns of production but also point towards high transport costs. For instance, prices for charcoal (Panel A) are relatively lower for the South-West of the country, which reflects the abundance of wood as input for production. In the North and East of the country, charcoal is imported and significantly higher prices signal high cost of transportation. Milk concentrate (Panel B) is normally imported through Nouakchott or comes from Mali, and spatial patterns suggest that distance matters. It is likely that high transport costs undermine domestic and international market integration.

Even when considering larger agglomerations in neighboring countries, Mauritania's towns are far from other towns. In Mauritania, the average distance to the nearest larger city was about 335 km in 2015 (Table 7), compared to 128 km, 264 km, 270 km, and 271 km in neighboring Senegal, Morocco, Mali and Algeria, respectively. These large distances increase transportation cost, thus reducing possible spillover benefits that could be reaped from a more tightly knitted network of cities. While Nouakchott has a geographically central location in the country, it is however distant from any other significant growth pole. Towns in the South, like Rosso or Kiffa, could perhaps play an important role to bridge the distance

to Saint Louis in Senegal or Bamako in Mali, or likewise Nouadhibou or Atar to connect to the North.

Acute divisions between settlements also prevail due to poor road infrastructure. Division is characterized by the shortage of effective transportation which adversely affects the travel time between cities and countries. Adequate roads are also important for the development of rural areas as they provide cheap access to both markets for agricultural output and for modern inputs (Jacoby, 2000). Despite the increase in investments, the quantity and quality of roads in Mauritania are extremely low as the country ranked last in SSA on both measures (Figure 76 and Figure 77). Poor road conditions also increase transportation costs, which adversely affect firm growth (Dinh and Clarke, 2012). In Mauritania 45.9 percent of firms surveyed as part the World Bank Enterprise Survey considered transport as major constraint to their operations, compared to 26 percent in SSA. The dearth of transnational highways and railways thwart mobility and trade and undermine the generation of economies of scale.

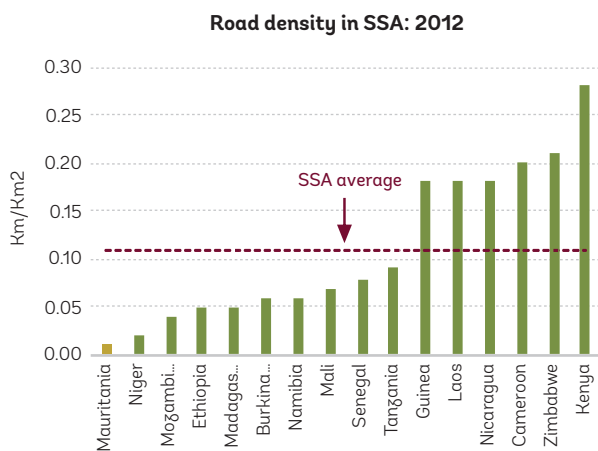
In addition to physical barriers, social barriers inhibit economic integration. In a general setting, acute social divisions inhibit growth as they encourage rent-seeking behavior, lead to market distortions, and mismanagement

Table 7: In 2015, 90 percent of the urban population (other than Nouakchott and Nouadhibou) lived in cities that were more than 200 km away from the next larger city

City or town	Population	Closest larger city	Distance (km)	City or town	Population	Closest larger city	Distance (km)
Tintane	14,117	Bamako, Mali	481	Atar	25,632	Nouakchott	407
Bassiknou	10,444	Bamako, Mali	420	Boghe	17,089	Nouakchott	243
Tembedra	15,538	Bamako, Mali	402	Selibabi	30,071	Touba, Senegal	400
Tidjikja	11,293	Nouakchott	480	Maghama	12,023	Touba, Senegal	335
Magta Lahjar	14,100	Nouakchott	308	Zoueiratt	47,188	Nouadhibou	512
Lexeibe	10,502	Touba, Senegal	332	Aleg	17,186	Nouakchott	244
Aioun El Atrouss	26,738	Bamako, Mali	481	Kaedi	48,858	Touba, Senegal	294
Nema	23,960	Bamako, Mali	449	Nouadhibou	129,573	Nouadhibou	0
Akjoujt	14,993	Nouakchott	247	Nouakchott	1,060,776	Nouakchott	0
Kiffa	56,941	Nouakchott	509	Rosso	34,325	Nouakchott	174
Guerou	25,325	Nouakchott	458	Mbera	50,000	Bamako, Mali	426
Boutilimit	16,377	Nouakchott	145				

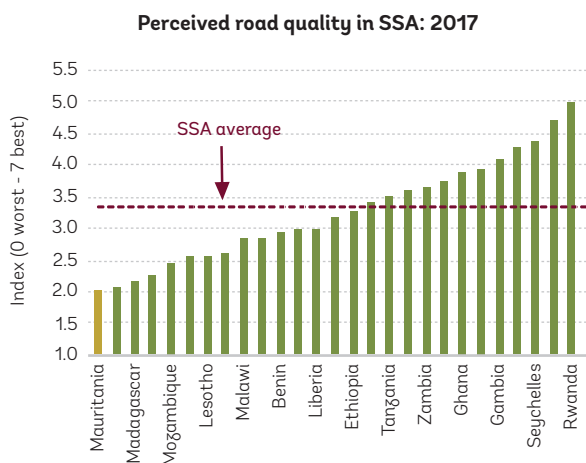
Source: Africapolis.

Figure 76: The quantity and ...



Source: World Road Statistics and authors' calculations. Note: 2012 represents the latest available data for in Mauritania.

Figure 77: ... quality of roads in Mauritania are poor

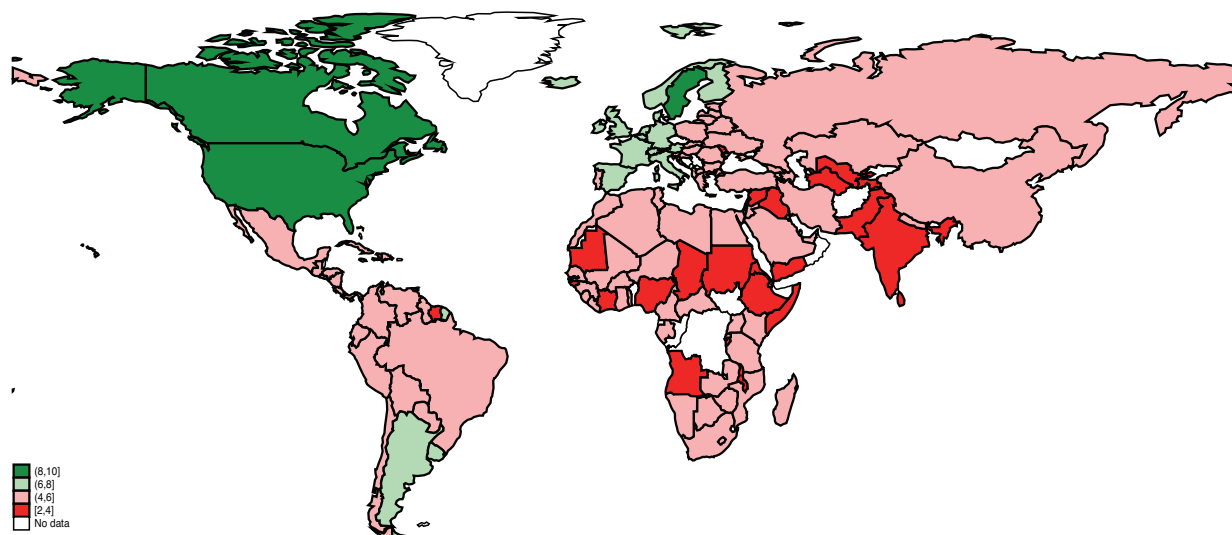


Source: World Economic Forum and authors' calculations.

of public resources (Gören, 2014). In turn, these challenges reduce connectivity within and between cities. Mauritania is one of the least socially cohesive countries in the world, even in Africa (Figure 78). This is partly because the society is constructed around a complex and hierarchical system, made up of three ethnicities: white Moors, black Moors (or Haratine), and Black Africans (World Bank, 2017b). This

ethnic fragmentation overlaps with spatial variation in access to services and poverty rates. In particular, Haratines and Black Africans (Melly, 2019) are largely present in the poorer South and the less well-off districts of Nouakchott such as Riyadh, Sebkha, and El-Mina. In addition to ethnic fragmentation, regulatory complexities undermine social cohesion. For instance, the process of birth registration

Figure 78: Social cohesion in Mauritania is very low when compared to other countries in the world



Source: Author calculations based on the Social Cohesion Index developed by Foa (2011).

is complicated and expensive, making it inaccessible for a large part of the population. According to the United Nations Children’s Fund, only 66 percent of under-5-year-olds are registered. Lack of identification makes it difficult for individuals to obtain formal employment and get access to basic services such as education and healthcare. Women are also marginalized as highlighted in section 3.4.1.

Lack of spatial integration through trade linkages generates further division and reduces Mauritania’s economic potential. Not a member of the Economic Community of West African States (ECOWAS) and further distant to the European Union countries – even though a recent signatory to a regional EU economic partnership agreement³² – Mauritania is neither belonging fully to the club of North African nor SSA countries (see chapter 3 above). Apart from terrain and distance, the rigidity of geopolitical boundaries impede trade and discourage the continuity of urban areas and urban corridors which could otherwise be developed into lucrative trade hubs.

4.4. Is Nouakchott lifting its weight as an urban agglomeration?

Since Nouakchott is the only agglomeration of any significant size, this section examines the city’s performance as an engine of growth for Mauritania’s economy. The focus on Nouakchott is motivated by three factors. First, it is the only city of any significant size in the country, i.e. dominant city in a low market potential area (OECD, 2017). Second, the wilaya of Nouakchott is the only one that is classified entirely as urban.³³ This enables use of data that is only statistically representative at wilaya level. Third, Nouakchott remains the country’s main interface for international trade through its port facility which receives most of Mauritania’s imports (WTO, 2018).³⁴

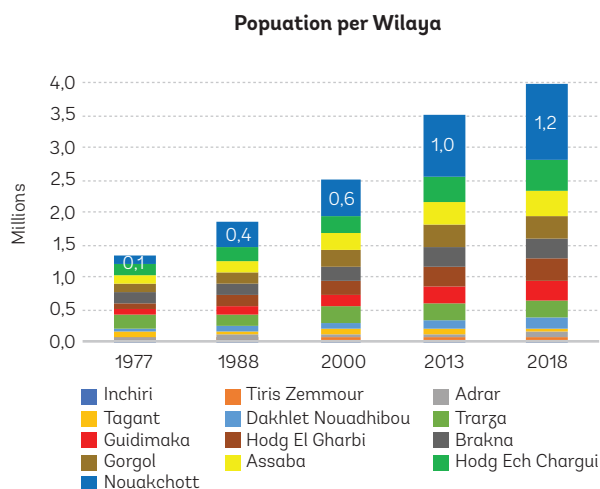
Nouakchott experienced one of the fastest population growth in Africa since it was chosen in 1958 as the capital of the then soon to be independent Mauritania. Back then, Nouakchott was a fishing village of about two

³² <http://trade.ec.europa.eu/doclib/press/index.cfm?id=1911>

³³ Nouakchott is divided into 9 moughataas – Arafat, Dar Naim, El Mina, Ksar, Riyadh, Sebkh, Teyarett, Toujounine, and Teyragh Zeina – of which Arafat had the largest population in 2013 (176 thousand) followed by the fast-growing areas of Dar Naim and Toujounine with both around 144 thousand in 2013 (JICA, 2018).

³⁴ Another ongoing study entitled “From rural towns to cities: Critical path to capture the economic potential of South Mauritania” is examining the urban potential of southern cities.

Figure 79: Between 1977 and 2018, Nouakchott's population grew by a factor of ten



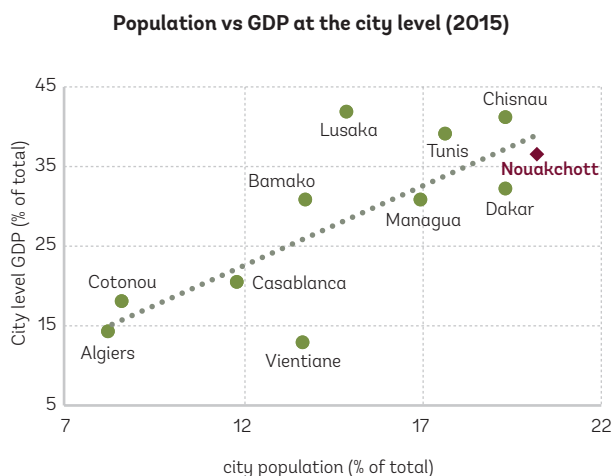
Source: ONS, Citypopulation.de and authors' calculations.

thousand inhabitants (Choplin and Dessie, 2017). In the decades that followed – and accelerated by a series of droughts since the beginning of the 1970s – Nouakchott's population grew exponentially from 135 thousand in 1977 to almost 1.2 million in 2018 (Figure 79).

Rising revenues from resource extraction accelerated income growth that translated into a higher public sector wage bill, a public investment program and a surge in consumption imports. As shown in section 2.2.1 above, natural resource extraction, coupled with the commodity super-cycle, raised income per capita in Mauritania in the past. This resource-boom led to a surge in food and manufacturing imports which rose from 27.1 percent of GDP in 2006 to 38.7 percent of GDP in 2014, and created opportunities in the import and domestic trade sectors. Public consumption became another driver of economic growth, when the Government increased the wage scale by 123 percent following the onset of oil production in 2006 and launched the PIP in 2009.

The resource boom rendered Nouakchott a consumption city that is not serving as an engine of economic growth as it shifted labor away from the manufacturing sector into non-tradable sectors. The increase in consumption imports, coupled with the higher public sector wage bill

Figure 80: Nouakchott's contribution to the economy is lower than what is expected given its population

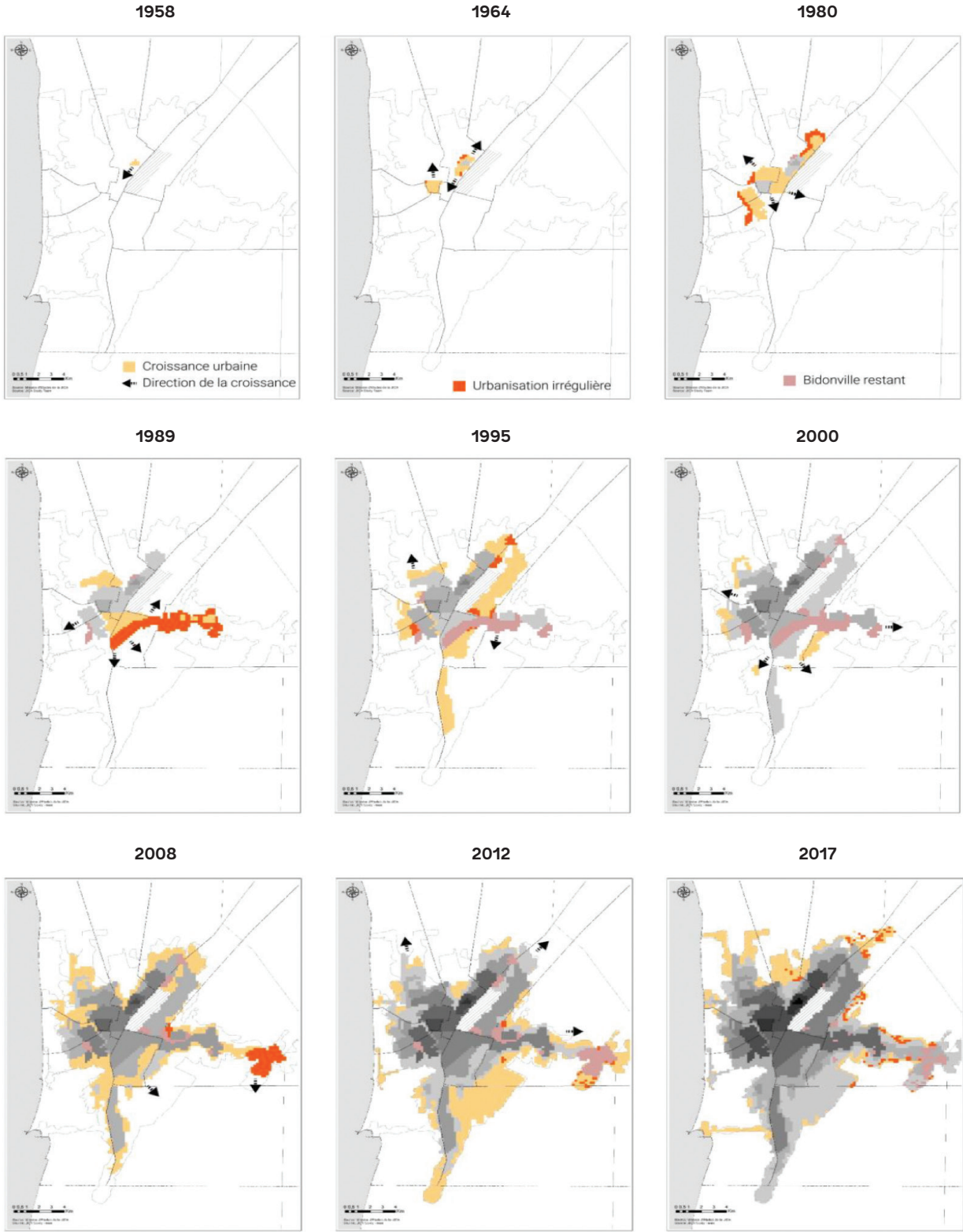


Source: Oxford Economics, WDI and authors' calculations.

and the boom in the construction sector distorted the labor market, inducing new migrants to find employment opportunities in non-tradable and low-productive sectors such as retail, construction, transport and public administration. Combined, these sectors accounted for about 50 percent of jobs in Nouakchott in 2017. As a result, Nouakchott represents a “consumption city” as defined by Gollin et al. (2017) as it urbanized without acquiring the industrial sectors that are typically associated with the development of productive cities.

Several factors prevented Nouakchott from evolving into a production city that could support economic diversification. Compared to capital cities in peer countries, Nouakchott's contribution to the national economy is below its potential considering its population size (Figure 80). Rapid and unplanned expansion, deficiencies in connectivity, weak governance, the lack of population density and access to finance have all undermined agglomeration economies and made it costly to connect people, workers, and firms within the city. Meanwhile, the low skill base, owing to low educational attainment outcomes of Nouakchott's original population coupled with the influx of less educated immigrants and the outflow of highly educated emigrants has failed to invigorate the private sector.

Figure 81: Nouakchott's urban footprint expanded 30-fold between 1964 and 2016



Source: Author calculations based on the Social Cohesion Index developed by Foa (2011).

4.4.1. Absence of effective land management and urban planning has resulted in urban sprawl

Since the city's inception, population growth has not been guided by urban planning and land use regulation.

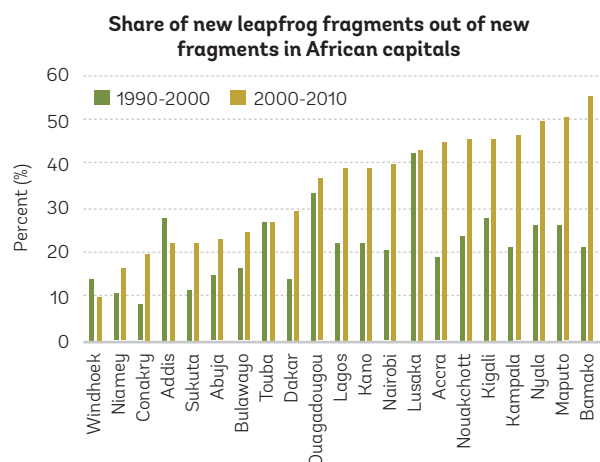
Nouakchott's urban footprint, which is visualized in Figure 81, expanded from only 5 square kilometer (km²) in 1965 to 150 km² in 2016 (CILSS, 2016). Rather than prioritizing the development of land within or near the city core (infill development), thereby increasing density and using prime land more efficiently, Nouakchott's urban expansion, especially since 2000, took more the form of leapfrog development, meaning the development of land that is disconnected from currently developed areas (Figure 82). Some of the leapfrog development is called "Kebbe" and "Gazra" and are associated with often illegal occupation of land. Many of these areas are characterized by informal housing, poor infrastructure and services (roads, access to water, and basic services) as well as poor integration into the urban environment (World Bank, 2019e). Such development increases the costs of providing future public services and connecting roads.

While partly attributable to local preference, inefficient land use is mostly a symptom of a dysfunctional land

management system. Clearly, local preferences for single family housing and larger plots prevail in the Mauritanian culture.³⁵ 92 percent of buildings in Nouakchott are composed of only 1 or 2 floors (Figure 83). Still, and despite attempts to improve current land administration in recent years, Mauritania's land administration system suffers from complex formalities to land registration, lack of capacity and financial resources, and dispersion of records and responsibilities across different institutions. As per a 2010 decree, the Directorate General of State Land and Property (DGDPE) at the Ministry of Finance has the responsibility of processing and formalization of land rights. However, this administration has only has 84 employees, or one agent per 30,000 inhabitants (World Bank, 2019e). In contrast, Namibia – whose geographical characteristics are similar to those of Mauritania – has a land administration staff of 455 agents (or one agent per 4,600 inhabitants).

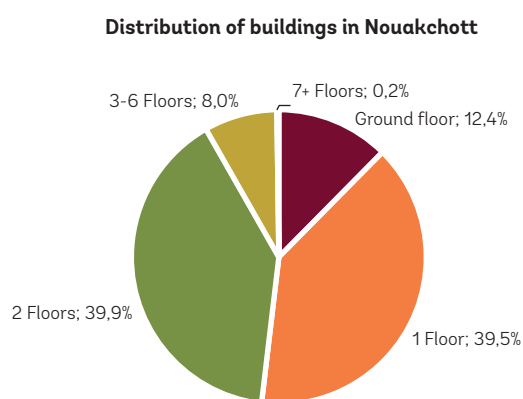
Emerging inconsistencies are the result of poor management, fraud and transactions being not recorded officially, undermining further the credibility and the functioning of land record systems (World Bank, 2019e). As of 2018, only 30 thousand deeds were officially issued by the DGDPE since the creation of Nouakchott. The absence of official deeds is confirmed by the household survey implemented by JICA in 2018: none

Figure 82: Leapfrogging in Nouakchott increased dramatically since 2000



Source: Lall and Venables (2017).

Figure 83: Low-rise buildings dominate the housing structure in Nouakchott



Source: JICA 2018 and authors' calculations.

35 A household survey conducted by JICA 2018 showed that 87 percent of the sampled population in Nouakchott preferred to live in a single house.

of the 10 thousand households interviewed in Nouakchott had a real title; 32 percent had an occupancy permit, which is sufficient to build a home on public land; 8 percent had a provisional occupancy right, and the vast majority of 60 percent had no document at all (JICA, 2018).

Nouakchott's experience in upgrading informal settlements has been mixed at best, thwarted by lack of strategy and political economy considerations. As highlighted above, Nouakchott experienced rapid growth since its inception, much of it was unplanned. This has increased pressure and competition for land, causing land prices to skyrocket. At the same time and in order to accommodate the growing population, the state has distributed free land, most of the time not considering the impact on urbanization and not taking into account existing plans. For instance, after 2008, the state conducted resettlement operations that aimed at reducing urban poverty and improve living conditions in poor neighborhoods of Dar Naïm, Arafat, and Toujounine. However, this objective was not met because the Government simultaneously distributed 20,000 plots of land in the southern peripheries for resettled households (named as Tarhil area) without preparing the necessary infrastructure (water, electricity, roads, etc.) that are needed to ensure decent living conditions. In addition to being unplanned, some of these resettlement initiatives were driven by political motives to guarantee stability of the political regime as many of the slums were home to opposition groups that were not in favor of the Government at that time (Choplin, 2014).

Lack of land registration also undermines planning and tax collection. The absence of land title leads to a shortfall in collected taxes and undermines the role of the state in controlling speculation and the proliferation of illegal occupations. The lack of well-documented studies and the scarcity of data make it difficult to establish a clear picture of the taxation system in Nouakchott. According to JICA (2018), there is an annual tax on constructed buildings and a residential tax, however there is no land tax and the official land price registration system has not been applied.

4.4.2. Low population densities, disconnected neighborhoods, and financing constraints make infrastructure and services costly

Inefficient land use leads to low population densities that are not conducive to agglomeration economies. Nouakchott's population density gradient is lower and flatter compared to neighboring Dakar for instance (Figure 84). The population density in Nouakchott's center measures about 50 persons per hectare, just around one sixth of that in central Dakar. Low density and urban sprawl carry economic consequences. First, they lengthen the average distance to jobs and services, leading to fragmented labor markets and more difficult access to hospitals and schools. Second, they increase the per capita cost to provide infrastructure such as roads, electricity, sewage, and drinking water.

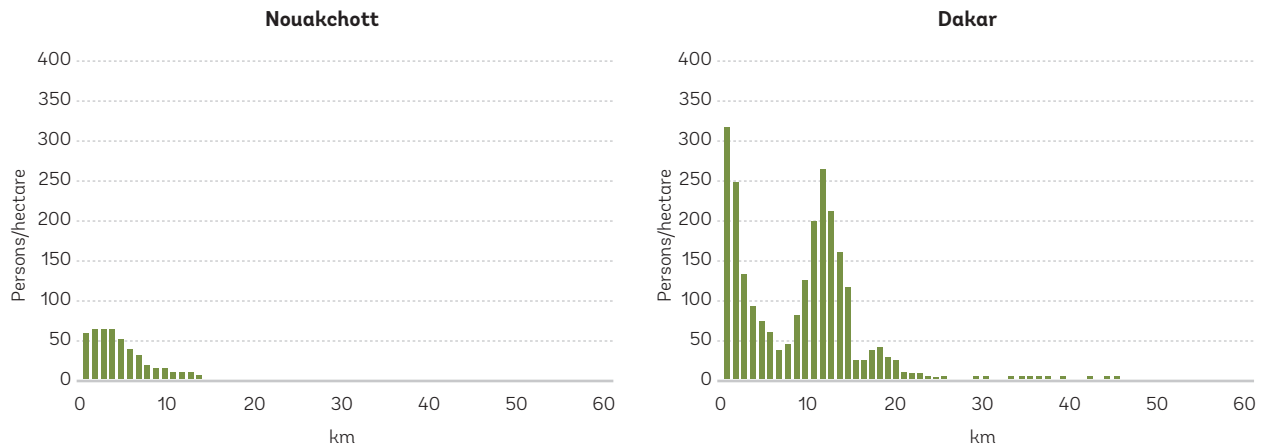
Low population density undermines access to various types of infrastructure and services in Nouakchott. In 2014 (latest available household survey), access to internet was insignificant in both Nouakchott (8 percent) and other urban areas (2 percent), averaging only 3 percent for the entire country (2014, EPCV). While access to electricity was far higher in Nouakchott (82 percent) compared to other urban areas (66 percent), the access to piped water was only 40 percent in Nouakchott, significantly lower than the 78 percent average reported across other urban areas.³⁶ Low access to services worsens further as households move away from the Center of Business District (CBD) assumed here to be the Presidential Palace (Figure 85 and Figure 86). The interaction of density and services has been analyzed by Gollin et al. (2017) who demonstrate how service outcomes improve with rising population densities.

Nouakchott is also under equipped in roads that have poor quality. Outside of the airport area,³⁷ paved roads represented only 3.4 percent of the territorial surface in 2017 (JICA, 2018). Putting this into the regional context, the coverage of paved roads was 386 meters per 1,000

³⁶ Authors' computation using EPCV2014. Although these figures need to be interpreted with the caveat that households reporting access to piped water may not be connected to formal utility water but have a makeshift connection to a well.

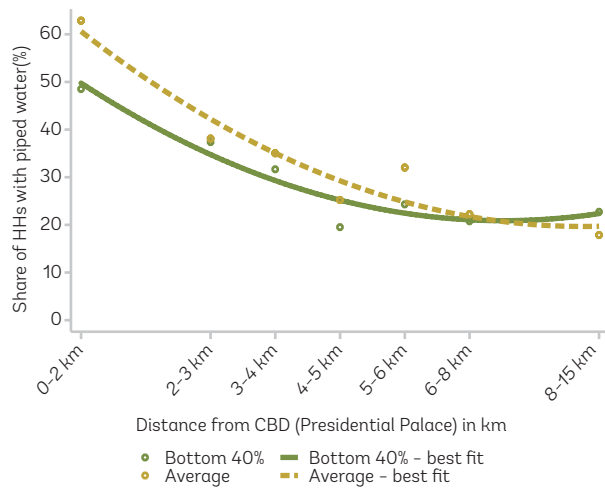
³⁷ The airport area accounted for 66 percent of the road network.

Figure 84: Nouakchott has a very low and flat population density gradient compared to Dakar



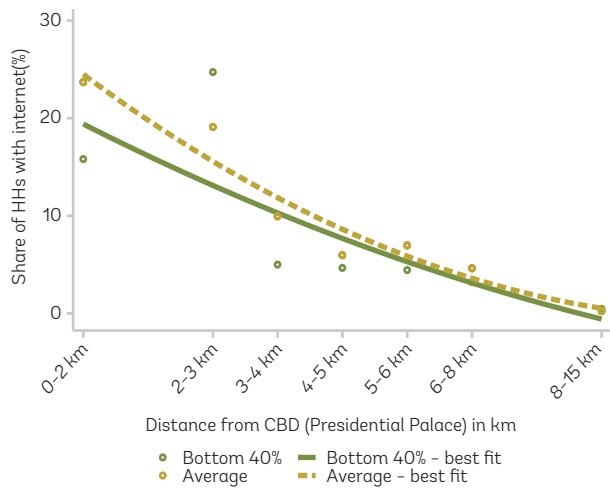
Source: Authors' computation based on Worldpop 2015 for Nouakchott and Landsat 2014 for Dakar.

Figure 85: Access to piped water is low declines with distance to the CBD ...



Source: ECPV 2014 and authors' calculations.

Figure 86: ... as does access to the internet within household



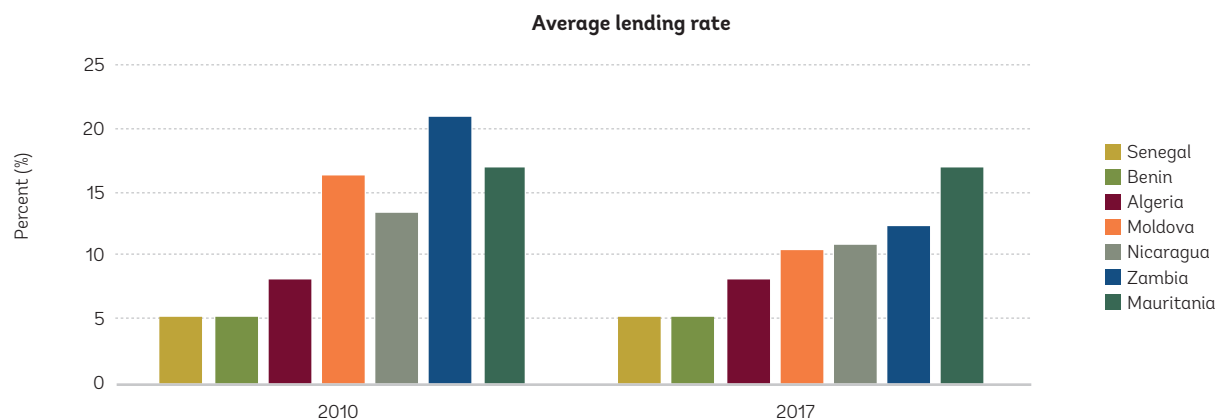
Source: ECPV 2014 and authors' calculations.

inhabitants in Nouakchott in 2017 compared to the 467 in neighboring Dakar (latest available data). The reliability of the road network is further impeded due to the absence of an appropriate drainage system which contributes to inundations during the rainy season.

Beside the dearth of and bad quality of roads, urban mobility is constrained by limited access to walkable space and an almost inexistent public transport system. Large distances between neighborhoods undermine

exchange of ideas and discourages workers to participate in labor markets that are beyond their reach. This is further exacerbated by the lack of affordable transportation system. Similar to other African cities, walking is the main mode of transportation in Nouakchott, accounting for 58 percent of all transportation. However, the absence of, or poorly maintained and crowded, sidewalks makes walking unsafe and inconvenient. And yet, walkability is assessed as being low: more than 70 percent of households expressed their discontent about walking conditions in the city (JICA,

Figure 87: The cost of financing in Mauritania is the highest compared to peer countries



Source: WDI.

2018). Taxis were the second mean of transport (27.3 percent) followed by cars (10.5 percent) and public buses (3.3 percent). The low usage of public transportation is associated with lack of reliable timetable and service (JICA, 2018).

High cost of borrowing and lack of collateral aggravate urbanization challenges in Nouakchott. As highlighted in section 3.4.1, limited access to finance is a major constraint to the development of the private sector and the overall growth of the country. This is due to unfavorable lending rates that are too high compared to those in peer countries (Figure 87), and a low-quality collateral system that is a serious obstacle for getting loans. While BCM is working on developing an eligible collateral framework and reducing the cost of financing,³⁸ the lack of affordable financing undermines urbanization patterns in Nouakchott because it precludes private sector developers from constructing higher-density, multifamily lodgings close to activity centers.

4.4.3. Inadequate institutional capacities also hamper other urban services

Poor waste management is another result of inadequate institutional capacity, posing serious health and hygiene problems for the population in Nouakchott. In

2007, the Urban Development Agency that was responsible for Urban Community of Nouakchott – reconfigured as the Urban Region of Nouakchott (RUN) in 2018 – signed a ten-year contract with a private company to clean the city and collect and dispose household waste from the city to a landfill site located 30 km south-east of the city center. While anecdotal evidence suggests that this has improved the quality of service, it significantly increased Government arrears since the authorities did not properly anticipate the associated cost owed to the private company. The resulting arrears coupled with a deterioration in relations with the company led the Government to abruptly terminate the contract in May 2014. Since then, waste management in the capital passed by several institutional changes, reflecting the lack of clear planning. Currently, the RUN is in charge of waste collection over all Nouakchott.

Two main challenges limit the ability of RUN to manage waste properly. The first is that of financing given that RUN resources are limited. The second is operational as RUN’s human resources are not enough and do not have the necessary skills to efficiently manage waste. In this context, there is a need to involve the private sector in specific activities (pre-collection, collection, and transport) that have high economic returns.

³⁸ In efforts to render the policy rate more effective in influencing commercial interest rates and encourage commercial banks to conduct refinancing operations, BCM reduced in November 2018, for the first time in a decade, its policy interest rate from 9 to 6.5 percent. The lower rate reflects better the market dynamics especially that of Treasury Bills (TBs). Moreover, BCM defined in March 2018 a new collateral framework so that banks participate in the new lending and deposit facilities. To date, however, this framework is not yet operational.

4.4.4. Nouakchott's low wage premium

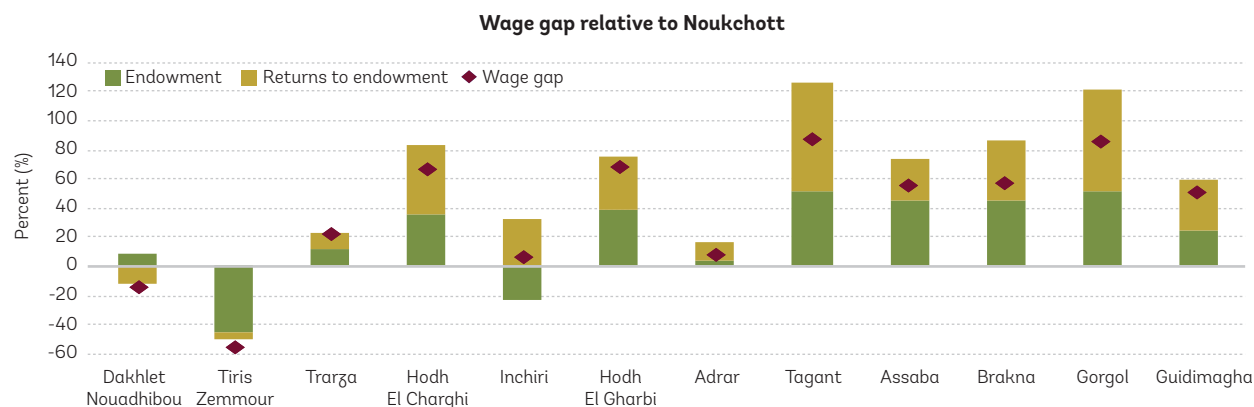
Inefficient land use, weak management, and low connectivity make urban living costly. All of the above suggests that connecting people to services and jobs is more expensive in Nouakchott due to its urban form. Apart from transportation cost, households in African cities are estimated to pay, on average, 77 percent more for housing and 26 percent more for food than households in other cities at comparable levels of economic development (Nakamura et al., 2016). In turn, this may result in higher urban wages that are not driven by productivity gains, but higher urban costs that are passed on to consumers and reduce firm level competitiveness. In the context of Mauritania, a wage regression analysis and an Oaxaca-Blinder decomposition are used to examine wage differentials across cities.

Nouakchott's nominal wage premium against other urban areas is eroded when considering real wages. Following Jones et al. (Jones et al., 2017) regression analyses show that nominal wages in Nouakchott are about 25-38 percent higher than in rural areas and 2-6 percent higher than in other urban areas (see appendix V for detailed regression results).³⁹ However, when considering real wages,⁴⁰ Nouakchott's advantage over other urban areas is eliminated. In fact, a reversed real wage premium

of 1-5 percent is observed between Nouakchott and the other urban areas, suggesting that higher nominal wages are necessary to offset the high living costs.

Wage disparities in the country are driven by higher wages paid by the mining sector that attracts better educated workers. The Oaxaca-Blinder Decomposition (OBD) is used to decompose the spatial wage difference – here between the various wilayas and Nouakchott – into differences attributed to (i) endowment levels such as educational attainment and labor market participation, and (ii) differences in the returns to endowments (see appendix VI for details about the methodology). As expected, higher wages are paid, on average and all things being equal, to workers in the mining sector (~50 percent), workers with higher education (~40-85 percent) and male workers (~60-80 percent). Decomposing the wage gap shows further that some spatial sorting may drive endowment levels in Tiris Zemmour and Inchiri to be higher than in Nouakchott (Figure 88). The opposite effect can be seen in Nouadhibou, which is home to SNIM's headquarters and includes the largest fishing port: wages (i.e. the return to endowment) are higher in Nouadhibou than in Nouakchott at given endowment, despite lower endowment (education, age, gender, marital status) compared to Nouakchott.

Figure 88: Nouakchott has an advantage in wage differentials over other Mauritanian regions, except with Tiris Zemmour, Inchiri, and Nouadhibou



Source: LFS 2017 and authors' calculations. Note: wage gap=endowment + return to endowment + interaction term, the latter is not shown here.

39 Nouakchott's wage premium ranges reflect results from depending regression specifications.

40 Conversion of nominal to real wages was carried out by applying the regional deflators used in the poverty analysis using ECPV2014.

4.4.5. Low education

Although educational infrastructure is well distributed spatially, access to education seems to be low in Nouakchott. The Government seemed to have ensured presence of primary schools and secondary schools across its vast territory (Figure 89). However, access to primary schools falls short in Nouakchott, which registered the lowest percentage of 42 percent in 2014. This highlights the problem of planning and service provision for urban growth.

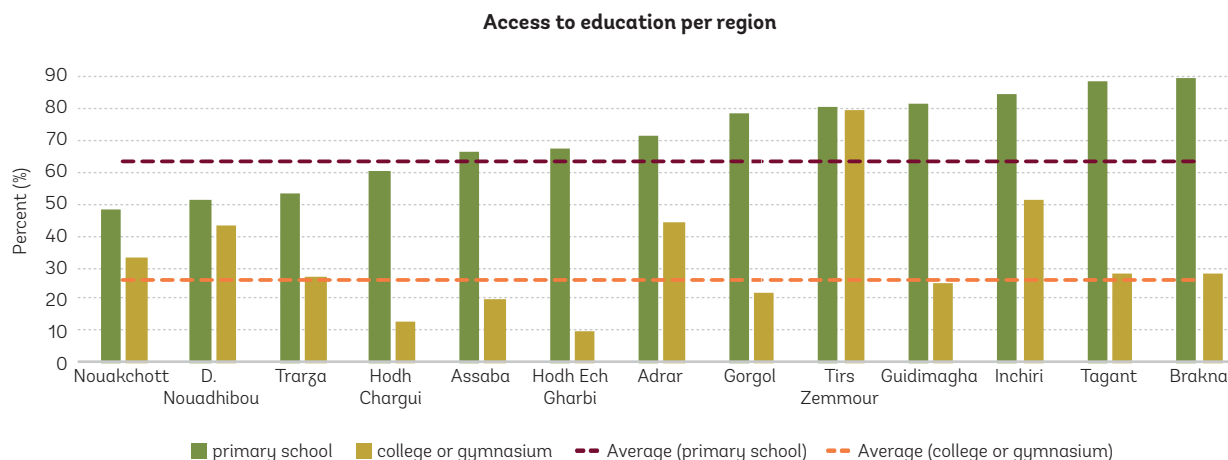
Younger migrants to Nouakchott are less educated than older cohorts. One of the hypotheses of the supportive role of urbanization for productivity growth and structural transformation is that the self-selecting nature of migration will ensure that the higher skilled or educated workers would seek a higher return in cities that offer a more diverse range of employment opportunities. Here, 'pull' factors would drive the decision on whether to migrate or not. In Nouakchott, however, younger migrants are less educated than earlier generations of arriving migrants, and more of the younger population born in the capital have no education compared to older cohorts (Table 8). Whether skilled labor is poached by the mining sector or not, the lowering levels of education in Nouakchott are of concern and necessitate more efforts to improve schooling and skill development to assure better integration into jobs.

Nouakchott suffers from a skill deterioration as it attracts low skilled immigrants and loses high skilled emigrants. When considering educational attainments of migrants into Nouakchott and defining migrant status as "having moved to the current location within the past 12 months", one can see that immigrants who arrive have on average a lower level of education than their peers in in the capital city (Figure 90). However, emigrants who leave, show a higher level of education compared to peers at the place of origin. These results have important policy implications. On one hand, providing better access to high quality education for immigrants to Nouakchott would turn immigrants into productive assets for productivity growth. On the other hand, investments in better education across all other regions of Mauritania ensures that emigrants (new arrivals) who are likely to move to the capital city contribute more to higher growth in the future.

4.4.6. Climate change challenges

Environmental degradation reduces a city's resilience to climate change, undermining the well-being and economic prospects of its residents. Climate change exacerbates resource scarcity (especially water) and places vulnerable communities at risk from sea-level rise, more frequent and intense flooding, and extreme weather events. SSA countries already tend to be less resilient to natural disasters because of fragile economies, poverty,

Figure 89: While access to schools seems spatially secured, it is low in Nouakchott



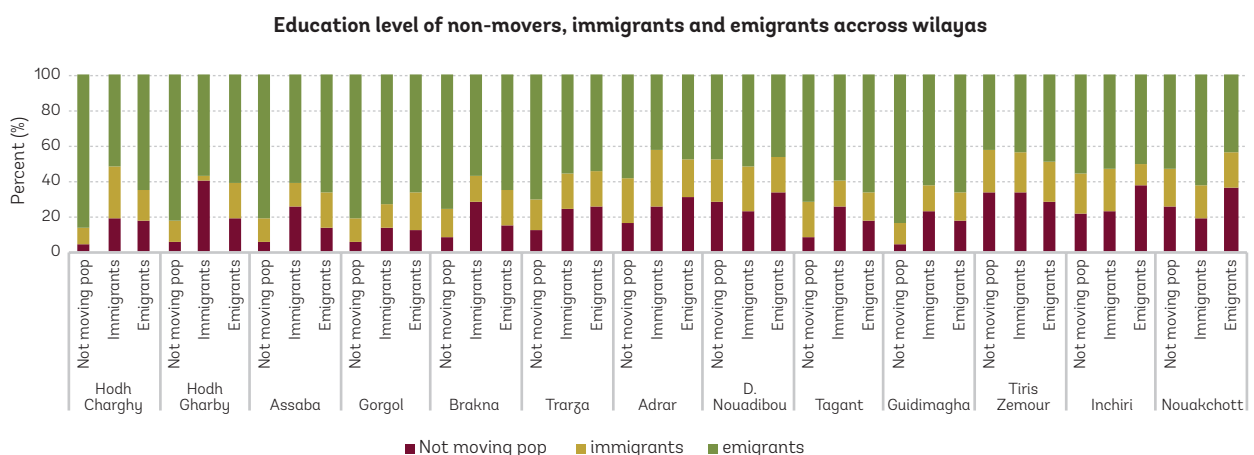
Source: EPCV 2014 and authors' calculations.

Table 8: Younger migrants to Nouakchott are less educated than older cohorts

Time of residence in Nouakchott	Cohort of 25-35 years old			Cohort of 45-55 years old		
	No education	Prim. Educ. or less	More than prim. Educ.	No education	Prim. Educ. or less	More than prim. Educ.
1 year	66	19	15	60	19	21
1-4 years	58	20	22	51	19	30
5-9 years	46	28	26	44	24	32
10+ years	42	26	32	45	18	38
Born in Nouakchott	68	17	15	52	23	25

Source: RGPB 2013 and authors' calculations.

Figure 90: In Nouakchott, emigrants are better educated than those that they leave behind, but immigrants seem less educated compared to the original population



Source: RGPB 2013 and authors' calculations.

lack of risk awareness, and a lack of coping capacity in urban communities (Hommann and Lall, 2019). The loss of wetlands and increasing desertification in urban areas can increase the risk of flooding.

Like other capitals on the West African coast, Nouakchott's geography and geology exposes the city to important climate risks that threaten its sustainability. In particular, a large part of Nouakchott (42.9 percent) is located below sea level (JICA, 2018). The urban blocks of the city that are largely underwater include the Airport Front East (26.9 percent), the Airport Zone (55.3 percent), and the Northern East (77 percent). In these areas, floods can cause

considerable damage. In fact, the main natural disasters in Nouakchott are flooding due to marine incursions and stagnation of inland waters. As a natural protection against marine incursion, the city is characterized by a 3 to 5-metre coastal dune. However, in recent years, there has been a significant reduction in the level of sand dunes due to the illegal and informal use of the sand for construction purposes and the increase of car traffic on the beach and on the dunes.

Uncontrolled infrastructure building and inadequate drainage systems aggravate the city's topographic challenges. The poorly planned port infrastructure has

dramatically altered the flow of sediments along the coast leading to substantial erosion in the city's south. This was coupled with unplanned expansion in coastal zones that are prone to floods and where the population density and poverty rates are the highest: Sebkha, El-Mina, and Tevragh Zeina. In addition to the unplanned expansion, the drainage system is not able to accommodate extreme weather events, particularly in urban slums.⁴¹ This is because the sewerage network only covers 38 km, or only 5 percent of the city area (JICA, 2018). Even this tiny network does not always function well because of lack of maintenance, aging, and the pollution of the groundwater stemming from wastewater that is not sanitized. As a result, wastewater appears on the ground surface during periods of high rain, causing public health problems, and disturbing the normal economic activity.

⁴¹ For in 2013, more than 500 houses were destroyed and 8 people died when heavy rain trigger massive flooding in Nouakchott.



The way forward for a more sustainable and resilient growth path

As shown above, Mauritania has failed to reap benefits from its rapid urbanization process and did not manage to diversify its economy. While some of the underlying reasons are beyond Mauritania's control – like the geographic conditions common to other countries in the Sahel region – other underpinning factors are home grown and could be tackled through critical decisions. Lessons learnt from Peru are but one example of potential ways for a small and resource-rich country like Mauritania to grow rapidly and become an upper-middle country (see Appendix VII for details about the Peru experience).

While there is no blue-print for accelerating growth, a package of policies could help Mauritania leverage the potential benefits of urbanization and foster economic diversification. This chapter proposes a policy agenda anchored in four interlinked dimensions that support the SCAPP's overall objective of boosting growth (Table 1 provides a summary of these policies):

- Promote a more-market oriented economy;
- Enhance production factors;

- Strengthen governance and improve urban planning;
- Better manage natural resources.

5.1. Promote a more market-oriented economy

5.1.1. Adopt an export-prone trade policy

Trade policy reforms should aim at reducing tariffs, eliminate non-transparent import taxes, and adhere to international standards on trade barriers. Mauritania needs to reduce its tariffs on intermediate and capital goods to improve access to cheap imported inputs and increase domestic firms' competitiveness. This is particularly important in the case of livestock and fishing, given the importance of these sectors for future growth. The elimination of non-transparent import taxes and NTMs that protect specific sectors will also help level the playing field and increase competition in the domestic market. Furthermore, it is important to notify the WTO about trade procedures and how they conform to (or differ from) international standards as per the TBT agreement. This

Box 4: One-stop shops facilitated trade in Laos and Zambia

Laos favored trade across borders by implementing a Trade Facilitation Strategy and launching the Trade Information Portal (LTIP) in 2012. The latter enabled firms to cut down the number of trips needed to get information on trade transactions and regulations. These measures improved the regulatory environment, increased transparency, and consequently helped ameliorate Lao's ranking on the World Bank's Doing Business Indicator from 171 (out of 183) in 2011 to 154 (out of 190) in 2019. Moreover, the LTIP has helped the country accede the WTO and fulfill the commitments of the Association of Southeast Asian Nations (ASEAN).

From its end, Zambia enacted the One-Stop Border Control Act in 2009 to reduce border costs and facilitate trade. This act enabled the country to sign bilateral agreements with other countries with which it wants to establish a One-Stop Border Posts (OSBP). One of the first agreements signed was with Zimbabwe, where the Chirundu Border Post was opened in 2009. The establishment of this border-post increased the efficiency and capacity to effectively handle larger volumes of traffic, thus facilitated trade and increased government revenues (OECD, 2011)⁴³.

should be accompanied by appointing a trade facilitation enquiry point that would deal with queries from other WTO Members and the public on trade facilitation issues.

The establishment and launch of an online trade and investment portal in November 2018 is a step in the right direction. In November 2018, the Government launched, in partnership with UNCTAD and the International Chamber of Commerce the "iGuide Mauritania", which is a one-stop shop that provides key information on trade and investment in Mauritania: tariffs, standards, technical requirements, tax system, investor rights, and costs.⁴² While it is still early to evaluate the impact of this policy, the experiences of Laos and Zambia indicate that one-stop shops facilitate trade (Box 4).

Given its cultural and economic history, Mauritania could strengthen its ties with West African countries without abandoning its existing links with the Maghreb countries. Until now, the differences in tariffs and trade rules between Mauritania and ECOWAS have incentivized informal trade, smuggling and corruption, which can be revenue sources for terrorists (Melly, 2019). Integration into

ECOWAS's economic space, through agreeing on a common external tariff as part of the association agreement signed in 2017, will harmonize Mauritania's tariff regime with West African countries, reducing the costs and delays entailed in formal cross-border trade. This could boost exports of livestock and fish, and strengthen the role of Nouakchott as a gateway port for landlocked Mali and even Burkina Faso.

Local authorities should carefully study and develop strategies to implement AfCFTA in the future. Although intra-Africa trade will be expanded thanks to AfCFTA, it is notable that there are no automatic country benefits and each country will be required to develop suitable strategies and policies to leverage on the benefits that will accrue from the expanded markets. In the short term, Mauritania will need to prepare an offer of tariff commitments (i.e. a timeline for eliminating tariffs for different products) and identify actual or potential export products for which to negotiate accelerated tariff reductions in other members' markets. In the medium term, there is a need to assess existing regulatory constraints to trade in services and investment to be negotiated in the AfCFTA.

⁴² <https://www.theiguide.org/public-docs/guides/mauritania>

⁴³ OECD (2011). Aid-for-Trade Case Story – Zambia. Full report is available at: <https://www.oecd.org/aidfortrade/47379298.pdf>

5.1.2. Improve the business environment and promote local entrepreneurship

For Mauritania to reap the benefits from urbanization and diversify its economy, it needs to make its business environment more conducive to private investors.

Investments into public services will be essential to enhance people's productivity, but higher growth in urban areas will ultimately also be a function of better jobs to absorb these new talents. This necessitates a vibrant private sector.

The Government is encouraged to continue implementing the 2019-2020 reform roadmap (World Bank, 2019f).

This roadmap is built around four pillars: (i) simplify and enhance the transparency of administrative procedures; (ii) simplify taxation and promote access to credit; (iii) modernize commercial justice and improve the resolution of commercial disputes; (iv) and improve consultation and communication.

Beyond the current reform agenda, the authorities need to strengthen competition through the adoption of pro-competitive policies.

To do so, the Government should encourage pro-competitive regulations in order to open markets and remove anti-competitive sectoral regulations, promote a level playing field and ensure competitive neutrality, and strengthen the effectiveness of competition policy by eliminating implicit cartels that increase input costs and reduce access to a wider variety of products

Mauritania could study the possibility of joining the Organisation for the Harmonisation of Business Law in Africa (OHADA).

Such membership would facilitate trade with other members of the organization as well as international investors operating in these countries. It would also enable Mauritania to benefit from modern regulations, inspired by international best practices. Finally, it would make it possible to call on OHADA's bodies to provide training for judges and judicial staff. Senegal and Mali are already members of OHADA while Morocco is evaluating the possibility of joining the organization.

Local authorities should also support and promote entrepreneurship.

The Government needs to move from policy promises to implement specific actions that will support entrepreneurship development. As a start, it would be important to establish a well-coordinated institutional architecture for startup and entrepreneurship related policies. This should be followed by setting a startup status that would have an appropriate legal and fiscal framework to encourage startups.

Legal barriers to women's participation in the economy must be removed.

In particular, Mauritania could adopt reforms guaranteeing equal pay for work and prohibit and punish sexual harassment (World Bank, 2019f).⁴⁴ While it is essential to ensure health and safety at work, protection must be guaranteed for all workers, regardless of their sex. In addition to guaranteeing equal pay, it is important to prohibit all forms of gender-based discrimination by granting women equal property rights and inheritance as men. The country could also equalize the mandatory retirement age for men and women.

5.2. Enhance production factors

5.2.1. Boost education and skills

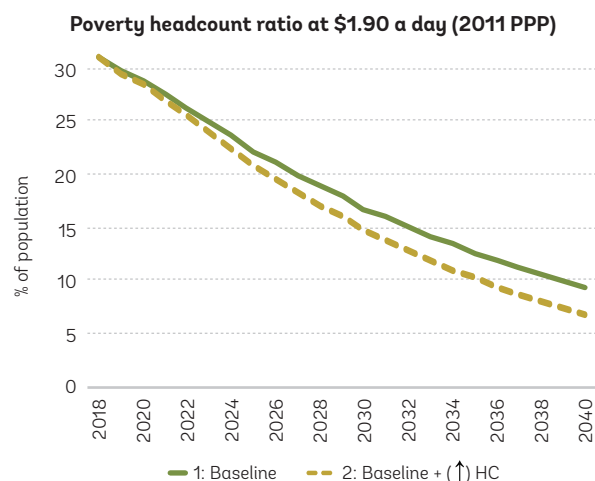
In addition to improving physical connectivity, it is also very important to improve human capital.

While the country statistics show a relatively high access to primary schools, the quality of education is poor, leaving pupils with low arithmetic, reading and writing capabilities. Moreover, and as discussed above, there is an increasing population with no finalized primary education. At the macro level, simulation results using the Long-Term Growth Model (LTGM) developed by Devadas and Pennings (2018) show that Mauritania could significantly boost economic activity and accelerate poverty reduction if it raises its human capital to the level of its aspirational peers (Figure 91 and Figure 92).⁴⁵

⁴⁴ Article 247 of the Law No. 2004-017 of the labor code prohibits women from performing work exceeding their strength or work likely to harm their health, physical integrity or morals. Section 166 of the same law prohibits women from working in the same sectors as men, including factories, mines and construction sites.

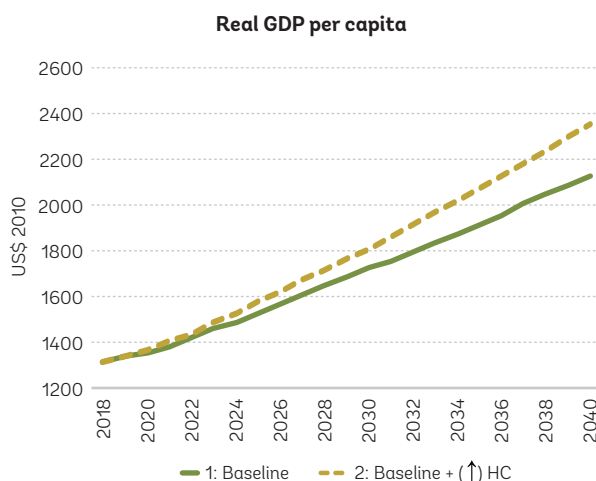
⁴⁵ The Long-Term Growth Model developed by Devadas and Pennings (2018) is used to simulate the effects of an improvement in human capital levels

Figure 91: Boosting human capital would yield economic gains ...



Source: Authors' calculations.

Figure 92: ... and reduce the percentage of Mauritians living under 1.9\$ per day



Source: Authors' calculations.

To ameliorate educational outcomes, the quality of teaching should be improved. It is important to gradually improve the quality of teaching and learning at both primary and secondary levels. This can be attained through strengthening teacher management and professional development to improve the quality of the stock of teachers, instituting a strategic staffing mechanism to keep bad teachers out of the classrooms, and reviewing critical learning content of primary school curricula and deliver teaching and learning materials to schools (World Bank, 2019b).

There is also a need to strengthen the governance and management of the education sector. Authorities should improve the delivery of education services through better allocation of resources and enhanced school-based management which is found to help increase school participation and reduce students and teachers' absenteeism (Burns et al., 2011). In particular, it addresses a fundamental failure of service delivery by providing better information and a stronger voice to the client (pupils, parents, and communities) so that she can hold

the provider (teachers, school directors, school governance structures) more accountable. As in other sectors of the Mauritanian economy, the Government should also instill a culture of monitoring and evaluation that would allow to track progress and evaluate the efficiency of its policies.

The education of girls should be encouraged. Girls educational outcomes are solid determinants for fertility and participation in the workforce. Mauritania's urban fertility rate is with 4.3 higher than the SSA country average (Bouquier and Shoemaker, 2018) and a key determinant, in addition to migration, of urban population growth. Integrating young women into the workforce postpones their child bearing, reduces urban pressures, and allows the country to reap its demographic dividend from a young work force. It is thus of utmost importance to bring girls to school and understand their lack of attendance -- whether cultural, due to absence of sanitation services, co-ed or other.

Given the importance of agriculture in the Mauritanian economy, efforts should be made to strengthen the

on the paths of GDP growth per capita and the poverty ratio. The baseline (or Scenario 1) is based on the following assumptions: in 2019-2021 the economy is assumed to maintain the steady recovery, driven by strong activity in the primary sector, reforms in the financial sector and better management of investment; in 2022-2023 growth would accelerate further thanks to the onset of gas and oil production; post-2023 growth will benefit by the numerous reforms in the business environment and investment management. In addition to the baseline, we consider a second scenario in which human capital in Mauritania growth similarly to the path of its aspirational peers.

research environment and upskill the agricultural workforce. In support of economic diversification, research should be focused on raising the quality of fishing and livestock-related products, thus supporting poverty reduction and economic diversification. Investment in developing, attracting and retaining human capacity will need to be prioritized to fill the current gaps in the workforce. This should be complemented by mechanisms to deploy staff regionally, instead of nationally. It would be also important to strengthen relationships and affiliation with regional and international centers.

5.2.2. Improve infrastructure and connect cities

Mauritania cannot change the vast geographical distances between its towns and cities, but it can reduce the time it takes to overcome these distances. Reducing physical divisions within its territory could spur more economic opportunities especially in the more populous and poorer Southern communes. In that spirit, the rehabilitation of the 200-km Nouakchott-Rosso road started in early 2010s would reduce transport costs, generate market activity, and strengthen the links between farmers in the agricultural South to local consumption markets, such as Nouakchott, hence support diversification. However, as of August 2019, the construction works were not completed due to issues with one of the contractors that delayed the finalization of this project. Therefore, it is critical to rapidly finish the ongoing rehabilitation work, and in a later stage enlarge the road to allow for more traffic circulation. This road is also an integral part of the Tangier-Nouakchott-Rosso-Dakar corridor linking Tangier (in Morocco) to Dakar (in Senegal). Thus, its completion would help Mauritania play its natural role as a link between North African and West African countries and facilitate trade with its neighboring countries. The planned bridge over the Senegalese river in Rosso would also increase connectivity and foster trade.

Apart from reducing distance and division between cities, infrastructure improvements need to be prioritized based on a population factor. Countries frequently adopt a strategy to ensure equality in their

territorial development, and Mauritania's case is no different, partly driven by security needs especially in its less populated regions. However, investment needs in more populous areas, especially in the urban communes in the South, are needed to modernize these small-town economies, connect them better to their surrounding villages, and provide better access to electricity to enable commercial agriculture and spur the economic growth. Investments outside Nouakchott will reduce pressure for further migration, which already today leads to significant congestion in the capital city, while not realizing the gains from agglomeration.

While all urban communes need better infrastructure, the cost of not improving and organizing Nouakchott's infrastructure is even higher. As outlined above, Nouakchott is by far the largest city, but is delivering below expectations. One reason is that road infrastructures are scarce and limited, restraining mobility. Infrastructure investments were not able to keep pace with its rapid urban population growth, leaving some peripheral and poor regions largely disconnected from the center that accounts for most jobs. Thus, it is important to continue expanding the paved road network to increase accessibility of the population to transport services and opportunities. These expansions also provide opportunities for labor intensive jobs suited for low-skilled local workforce as experienced in other SSA countries. In the Democratic Republic of Congo, Gabon or Côte d'Ivoire, employment of low-skilled people is highly encouraged in urban slum upgrading projects to foster community participation, and enhance and social and economic inclusion (World Bank, 2019g). Tasks usually consist of tertiary road upgrading which rely on labor-intensive construction techniques (fabrication of interlocking pavers). Expanding sidewalks would increase walkability and improve pedestrian safety in a metropolitan area where walking remains the first mean of transport for the population and notably the poor.

Improving physical infrastructure in Nouakchott should be accompanied by a well-studied transport plan that is connected to other plans. In addition to ameliorating the road network, improving the city's connectivity, should be based on an urban mobility plan that is a pre-requisite to identify the actual transportation needs and capabilities.

This should be followed by efforts to better organize the public transport system and support pilot operations to identify routes that could be profitable enough to attract private sector operators. Effective coordination among different plans is fundamental to ensure the effectiveness of planning and the efficiency of investments.

5.2.3. Make land use more efficient

Securing land rights in rural areas is key to bolster agriculture productivity. This can be achieved in two ways. First, through the restructuring of institutions responsible for land tenure and the use of modern tools and simplified

Box 5: Successful experiences of land management in SSA countries

Improving land registries

- Rwanda's comprehensive land-tenure reform has shown successes. Over 2005-12 it implemented a program to issue land titles based on photomapping technology at a cost of less than \$10 per parcel.
- Tanzania surveyed all communal land and registered 60 percent of them at a cost of \$500 per village. Ghana and Mozambique have begun to follow Tanzania's example.
- Ethiopia issued certificates for 20 million parcels of land at less than \$1 per parcel and mapped them onto a cadastral index map at less than \$5 per parcel in 2003-05.

Streamlining registration procedures

- In 2009, Kenya adopted a new land policy that strives to streamline land administration processes by reducing the stamp duty from 25 to 5 percent of the principal amount; by providing VAT exemptions for developments with more than 20 low cost units; and by reducing the tax on mortgages from 0.2 to 0.1 percent.
- The introduction of Lesotho's Land Administration Authority in 2012 has significantly improved land registration in the country by reducing wait times and improving application turnaround. It also has gained general support from land-holding communities.
- Computerizing land records and registration systems helped significantly cut the number of days to transfer property for Ghana (169 to 34) and Uganda (227 to 48).

Improving tenure security

- In 2012, Namibia passed the Flexible Land Tenure Act, which allowed communities to obtain blocks of multiple plots and a "starter title" that grants perpetual occupancy and transfer rights. This Act is aimed at the 30 percent of Namibian residents that live in informal settlements (CAHF, 2013). Residents were able to also apply for full, "mortgageable" land titles. Upon receipt of title, the communities were responsible for upgrading the site infrastructure. The legislation has been regarded as innovative in its methodology of recognition of incremental tenure and building.
- In 2011, Senegal passed a new Land Tenure Act under which those with temporary occupancy permits in urban areas can convert the permits into permanent title deeds at no cost. Improved tenure security further helps increase housing investment and improvement, access to housing finance, and the activity of the land market.
- Kenya, Lesotho, and Tanzania were utilizing bulk surveying and land use planning approaches to regularize tenure in slums.

Source: World Bank (2019g).

procedures to ensure the accuracy of land information. Second, through the formal recognition of existing rights through low-cost, easily accessible, and participatory processes implemented by local land commissions and a local land service. Third, and more importantly, there is a need to clarify the distribution of State land and private land, which can only be developed within the framework of consultation between different stakeholders based on actual circumstances on the ground.

Strengthening land management is a pre-requisite to sound urban planning. As outlined comprehensively in the Mauritania Land Sector Review (2019), various steps – from simplified land registration procedures and aligning responsibilities to fewer institutional actors, including eventual decentralization to municipalities, to implementing and recording electronically existing registration instruments – need to be implemented to improve current land administration. Without these steps, land transactions will remain unmonitored and uncontrolled, leading to land use that is illegal or in non-adherence to master plans or building standards. Successful and simple experiences in land management from other African countries are presented in Box 5.

5.3. Strengthen governance and improve urban planning

Agriculture will not drive the development and diversification agenda in Mauritania unless the governance of the sector is improved. This includes increasing and re-orienting Government spending in agriculture toward productive factors. After winding down the current subsidy system, there is a need to increase public spending on agriculture, particularly on irrigated infrastructure. Priority should also be given to investing in agricultural technologies and agricultural research centers. The reallocation of public funds to R&D, technology promotion and adoption, and education could also significantly help increase yields and production efficiency. In 2012, for instance, Moldova moved away from a focus on machinery to smart subsidies that promote new technologies in the agricultural value-chain. This has helped increase yields and production efficiency (World Bank, 2015).

It is important to develop a National Quality Infrastructure (NQI) system to provide quality assurances in accordance with the country's current and near-future needs. The lack of a laboratory for the control and certification of animal products (besides fish) and the outdated sanitary legislation since 1960 are a big handicap for exports of meat, hides, skins and leather, where Mauritania has definite comparative advantages. The National Livestock and Veterinary Research Centre (CNERV) could include such a laboratory but lacks the human and financial resources for doing so (WTO 2018). Hence, the authorities could design a legal framework to support the establishment of NQI system.

Ameliorating agriculture, particularly livestock, related statistics is critical for a better understanding of agricultural performance and its connection to the rest of the economy. It is very important to strengthen human skills and design plans with concrete targets and defined monitoring mechanisms to track the progress in the sector. Improvements in agricultural data collection and processing can be done using ICT technologies along with adequate estimation methodologies. It is also imperative to conduct, as a matter of urgency, a General Livestock Census (GCE) to accurately measure the size of the livestock sector and its integration with the rest of the economy.

Mauritania should improve urban planning by developing and implementing city master plans. Master plans play a key role as they lay out the city's spatial structure along with definitions of land uses and city expansion. In particular, they help local authorities in (i) examining the current stage of the city's development, (ii) setting out the directions of change for the future, and (iii) identifying the priority areas to focus on. A critical next step would be to implement the Master Plan for Nouakchott that was developed with support from JICA. Simultaneously, other Mauritanian cities and towns need to start preparation of master plans, so they too can lead rather than follow the development of infrastructure and housing. These plans also constitute a formidable opportunity to engage with citizens and understand the constraints that they face. This is paramount to ensuring that plans are effective and can be enforced.

Climate change mitigation measures should be at the heart of future urban planning. Mitigating climate risks requires innovative, open, and dynamic data collection and mapping processes that support management of urban growth and disaster risk. In addition, the authorities should study the possibility of prohibiting construction in areas at high risk of flooding and rising groundwater. This should be accompanied by intensified efforts to (i) build large-scale drainage facilities and (ii) strengthen the coastal dune and protect it from illegal activities.

Moving from a low density and sprawling city to one that is compact and connected requires however more than effective urban planning. Incentive-based regulation, including penalty taxation for vacant land as to encourage compactness and discourage speculation, would entail defining building standards – including minimum heights and land to building ratios – that will increase housing supply. However, multi-family units are usually beyond the means of single owners and typically built by developers, who need to access long-term finance from commercial banks which remains limited as highlighted above.

Coordination among different stakeholders is paramount. Coordination between the central Government and local communities is critical for urban development. If transport investment decisions are not taken in close coordination with land planning, Mauritanian cities will continue to grow into forms that inhibit their development and livability for decades. Coordinated land use and infrastructure planning involves bringing together decisions of infrastructure investments with the development of productive and other logistical infrastructure, as well as accompanying investments in connectivity with flood protection investments and efforts to enhance structural drainage to increase resilience. By bringing together the different pieces of the puzzle, coordination has the potential for enhancing the efficiency of urban cities.

5.4. Better manage natural resources and adopt a more market-based exchange rate

Given previous failures, Mauritania needs to effectively manage natural resource revenues to support diversification. International experience shows that in commodity-exporting countries a sound fiscal framework is designed based on a simple and clear fiscal rule that has an appropriate target and some degree of flexibility when unexpected economic shocks occur (Richaud et al., 2019). A key challenge in developing such a framework is to reconcile long-term strategic development objectives with the need to manage the short-term volatility and uncertainty of resource revenues. A recent World Bank (2019c) study assesses different approaches to the management of resource revenues in Mauritania in general, and the expected gas resources starting 2022 in particular. Given that Mauritania has infrastructure and human capital shortages, the paper argues that adopting a capital front-loading rule (an MPIH or FSF),⁴⁶ with a clear visibility of the share of the resources to be invested upfront, could be important to ground the management of resource revenues into a sustainable and equitable inter-generational framework.

The introduction of a rule-based fiscal framework will require strengthening fiscal institutions. Strong institutions are necessary to withstand the political pressure to consume resource wealth either for short-term political gains, or worse for misappropriation by special groups. Their role is to guarantee that natural resource wealth is reinvested into productive assets. Indeed, international experience indicates that countries experience more productive investment and higher growth when institutions reaffirm the rule of law, ensure government accountability, and help control corruption (Lange et al., 2018).

Specifically, the Government needs to implement various institutional reforms to design and implement an effective fiscal framework. It should lay the basis for an effective medium-term economic and fiscal framework by investing in capacity building in the Ministry of Finance

46 MPIH stands for Modified Permanent Income Hypothesis and FSF refers to Fiscal Sustainability Framework.

(MoF) in the areas of medium-term budget planning, revenue forecasting, and fiscal risk analysis. Key actions also include ensuring political, administrative, and financial support to execute the recently adopted organic budget law (LOLF 2018), which introduced a medium-term expenditure framework (MTEF). It could be also relevant to consider the creation of a fiscal council that can validate the fiscal projections feeding into future fiscal rules and fiscal frameworks. Such entity will have to be truly independent and have technical capacity staff for it to succeed in its mandate.

Building on existing mechanisms, it would be important to transform the National Fund for Hydrocarbon Resources (NFHR) to an institution that caters for the development needs of current and future generations. The NFHR National was originally set-up to be an intergenerational equity fund. However, because of weak public financial management and a cautious asset management strategy the NFHR was used instead as a macro stability instrument to close the budget financing gap (World Bank, 2019c). Moreover, yearly audits were not undertaken despite adequate provisions in the law. Given these bottlenecks, there is a need to clarify operational rules in the law to reduce policy discretion, strengthen the governance framework by conducting and publishing yearly audits, and embrace a more active investment strategy with the objective of diversifying the external investment portfolio and increasing the returns on those assets.

In addition to better managing its natural resources, the exchange rate policy should be more market oriented. In that context, it is important to reform the official foreign exchange market to achieve a market-determined exchange rate as this would help the authorities respond to exogenous shocks and improve competitiveness of the domestic economy. In the short-run, BCM is encouraged to review the calculation of the daily published reference exchange rate to reflect the weighted average of transactions on the official market. Later, a monthly FX auction budget and interbank market should be established (IMF, 2019). In the longer run, there is a need to introduce auctions in a competitive official market and discontinue daily FX interventions.

Appendices

Appendix I: Data limitations

Data gaps prevented the team from conducting several empirical analyses, including:

- **Firm-level analysis:** Currently, the Mauritanian authorities do not gather complete information about firms and SMEs. Nouakchott's One-Stop Shop for Business Creation and Nouadhibou Free Zone One-Stop Shop provide some statistics on firms' creation; however, they do not include details on firms' performance. Moreover, companies do not respect their legal obligation to file their financial statements in the commercial register. The World Bank conducted an Enterprise Survey (ES) in 2014 which provides useful data on the constraints that affect businesses. Unfortunately, the ES only includes 150 firms with at least five employees covering only Nouakchott and Nouadhibou. In addition, it does not provide granular and enough data on firm-level dynamics (firm survival, productivity, production factors, etc.), which limit its usefulness to conduct rigorous firm-level analyses.
- **Detailed migration analysis:** This report suggests that migration had a profound impact on population dynamics and shaped the process of urbanization, especially in Nouakchott. However, the 2013 census only reports the location of birth by Wilaya and the length of residence in that locality in different temporal intervals. Without clear understanding of arrivals and exits by locality, it is difficult to ascertain whether population growth is driven by migration or by natural population growth. Unless there is a change to the census questionnaire, this will remain a topic of uncertainty.
- **Transportation costs:** The report argues that the weak link between urbanization and economic growth in Mauritania, is partly explained by high transportation cost within and across urban centers. There is suggestive evidence on high cost of transportation arising from large distances and limited density (in urban areas), but more granular statistics on quality of roads, use of different modes of transportation and cost of transport would be needed to inform policies focused on improving transportation. Apart from cost, transportation modes are not asked in the household survey, which means one cannot estimate demand for transportation services or constraints to their affordability from existing data.
- **Land values and implications for housing development projects:** The scarcity of statistical land data accentuate the difficulties of establishing an exhaustive, up-to-date and objective overview of the sector. For instance, this lack of data makes it impossible to empirically explore changing land values in the process of rapid urbanization in Nouakchott and its implications for urban land management and administration in the city. In the future, a comprehensive land registry would make it possible to centralize information within the same land information system to ensure the management data. This should be associated by surveys to quantify land and house prices in different regions of Nouakchott.
- **Analysis of livestock potential:** Livestock production statistics are obsolete. Estimates of livestock trends, are not very accurate because animal population is calculated (not empirically estimated) by applying a constant growth rate to some historical guesstimate base. Mauritania has never carried a livestock census, and instead reports animal populations on the basis of colonial tax records on herders, vaccination drives, and ad-hoc animal biometrics calibration surveys that lack statistical validity.
- **Road inventory.** Distance and accessibility have been estimated using Open Street Map, which is assuming full navigable roads with speeds at permissible levels. If road quality is however uneven or roads are closed during flooding, these disruptions to trade and connectivity are not captured without a better road inventory.
- **Public spending.** There is no data on transfers or public spending on localized services and education that would allow an assessment of the efficiency of such spending.

Appendix II: Growth accounting: production function

Growth accounting analysis decomposes the growth in GDP as the weighted average of the growth of factors of production (labor and capital) and Total Factor Productivity (TFP) growth. The latter is usually interpreted as a measure of technological change. However, in resource rich countries, the contribution of TFP growth might be over-estimated since this measure is effectively a “residual” that incorporates the contribution of natural resources, among other things. Hence, in the case of Mauritania, it is important to disentangle the contribution of natural resources from TFP growth to avoid misleading conclusions.

Production function: standard

The standard Cobb-Douglas production function (known also as the Solow decomposition) that illustrates the relationship between output (or real GDP) and the various factors of production is (Hall and Jones, 1999):

$$(PF.1) \quad Y_t = A_t K_t^\alpha (hL)_t^{1-\alpha}$$

where Y_t is the country’s real GDP, K_t is the aggregate capital stock, and hL represents the “quality adjusted” labor force—that is, the total workforce (L) multiplied by the quality of human capital (h). Furthermore, α represents the share capital in the economy, and A represents the Solow residual which is interpreted as TFP or the efficiency with which factors of production are used.

To estimate TFP growth, the production function in equation (PF.1) is expressed in per-worker terms as

$$(PF.2) \quad y_t = A_t k_t^\alpha h_t^{1-\alpha}$$

Considering that $\hat{x} = \log(x_t) - \log(x_{t-1})$ and re-arranging equation (PF.2), TFP growth can be calculated as:

$$(PF.3) \quad \hat{A}_t = \hat{y}_t - \alpha \hat{k}_t - (1 - \alpha) \hat{h}_t$$

Production function: accounting for natural resources

To account for natural capital, we use the following augmented production function recently introduced by Monge-Naranjo et al. (2019):

$$(PF.4) \quad Y_t = A_t (K_t^\gamma T_t^{1-\gamma})^\alpha (h_t L_t)^{1-\alpha}$$

In equation (PF.4) T_t represents the non-produced capital (natural resources), and $\alpha(1-\gamma)$ is the natural resource share in GDP. This can be proxied as the ratio of natural resource rents to GDP from the World Bank’s WDI. In this context, TFP growth becomes:

$$(PF.5) \quad \hat{A}_t = \hat{y}_t - \alpha \gamma \hat{k}_t - (1 - \gamma) \alpha \hat{h}_t - (1 - \alpha) \hat{h}_t$$

Appendix III: The diversification-growth nexus: evidence from the literature

Economic diversification brings economic benefits.

First, by increasing the complexity of the production base, diversification boosts domestic and per-capita income. According to structural models, (Chenery, 1979; Syrquin, 1988), as countries grow richer their production structure becomes more complex and the share of industrial output increases. At the empirical level, studies show a U-shaped relationship between economic concentration and per-capita income: countries tend to initially diversify economic activity and at later stages in the development process they start specializing again (Imbs and Wacziarg, 2003).

Diversification also strengthens resilience to external shocks and improves macro-stability.

This is particularly true for commodity producers which tend to have a highly concentrated export base. In countries at early stages of development, like Mauritania, export concentration in primary commodities increases external vulnerability and may confine them into low-growth sectors (Prebisch, 1959). Ghosh and Ostry (1994) and Jansen (2004) argue that diversification makes countries less vulnerable to terms of trade shocks, which in turn stabilizes export earnings and supports economic growth in the long term. This was reflected in the growth downturn in many resource-rich countries following the end of the recent commodity cycle. In fact, 60 percent of SSA's commodity exporters experienced a drop in growth above 2 percentage points in the three years following the end of the commodity cycle (2015-2017).⁴⁷

The positive impact of diversification on growth is linked to the composition of a country's export base.

Studies have shown that economic growth is not only driven by a country's comparative advantage, but also by diversifying the product base into high-value products (Hausmann and Klinger, 2006; Hausmann and Rodrik, 2003). Hausmann et al. (2007) further identify a positive relationship between

growth and the income of countries to which they export, suggesting that countries could increase growth by tapping into rich export markets.

Another area relates to the role of innovation in export diversification.

Endogenous growth models emphasize the role of "learning by doing" in the manufacturing sector as a driver of growth. In this context, a higher export diversification can bring knowledge spillovers to other sectors or industries (Gutierrez de Pineres and Ferrantino, 2000). At a theoretical level, countries can produce "inside-the-frontier" (or goods that are already produced) or "on-the-frontier" (innovations, or products not produced elsewhere). Klinger and Lederman (2006) examine the relationship between innovation and export diversification. They find that developing countries that are in the diversifying stage are characterized by a larger number of "inside-the-frontier" discoveries. On the contrary, along the line of the U-shape pattern finding of advanced countries that are concentrating their exports (Imbs and Wacziarg, 2003) show a higher level of "on-the-frontier" innovations.

⁴⁷ GDP growth rates calculated between 2015 and 2017 and compared to growth rates between 2012 and 2014.

Appendix IV: Definitions of export/trade concepts

Concept	Definition and Use Cases
Revealed Comparative Advantage (RCA)	Revealed Comparative Advantage calculates the relative advantage or disadvantage of a country in a certain class of goods or services as evidenced by trade flows (Balassa 1963).
Economic Complexity Index (ECI)	Economic Complexity Index is an extension of the sophistication measure and suggests that the large income gaps between rich and poor nations are an expression of the vast differences in productive knowledge amassed by different nations. The ECI, developed by Hausmann et al (2011), approximates the productive knowledge in a country and helps explain differences in the level of income of countries.
Export Quality (EQ)	Export Quality measures the export quality by using unit value adjusted for differences in production costs and for the selection bias stemming from relative distance (Spatafora et al. 2014).
Export Density (ED)	Export Density measures the relatedness of a potential new industry to the goods that a country already exports competitively. It varies from 0 to 1, with higher values indicating that the country has achieved comparative advantage in many nearby products, and therefore should be more likely to export that good in the future. Hausmann and Klinger (2006) show that this measure of density is indeed highly significant in predicting how a country's productive structure will shift over time: countries are much more likely to move to products that have a higher density, meaning they are closer to their current production capabilities.
Product Space (PS)	<p>The Product Space approach presents a variety of statistical measures that facilitate an understanding why a country that exports a certain set of products was able to diversify in another set of new exports. The changes in the RCA are governed by the pattern of relatedness of products at the global level (Hidalgo et al. 2007). As countries change their export mix, there is a strong tendency to move towards goods that are more closely related to ones already being produced rather than to goods that are less closely related.</p> <p>The initial step in building a network representation of product relatedness (proximities) involved first generating a network framework using the maximum spanning trees (MST) algorithm for all the product nodes. The network exhibits heterogeneity and a core-periphery structure: the core of the network consists of metal products, machinery, and chemicals, whereas the periphery is formed by fishing, tropical, and cereal agriculture. On the left side of the network, there is a strong outlying cluster formed by garments and another belonging to textiles. At the bottom of the network, there exists a large electronics cluster, and at its right mining, forest, and paper products (Hidalgo et al. 2014). Generally, the core (or center) of the product space indicates a higher path or link to variety of other products, hence higher likelihood of broad-based diversification.</p>

Source: World Bank (2017a, 2018a)

Appendix V: Wage premium analysis

Table 9 below represents the estimation results of the wage gap analysis between Nouakchott and other urban areas (relative to rural areas) when accounting for nominal (orange columns) and real (green columns).

Table 9: Wage gap estimation between Nouakchott and other urban areas.

	log of nominal wages		log of real wages	
	(1)	(2)	(1)	(2)
urban_type = 1, Urban outside Nouakchott	0.353***	0.188**	0.350***	0.186**
urban_type = 2, Nouakchott	0.375***	0.250***	0.297***	0.172**
isic_cat = 2, Mining & quarrying		0.531***		0.524***
isic_cat = 7, Wholesale & retail trade		0.346***		0.345***
isic_cat = 8, Transportation & storage		0.430***		0.430***
isic_cat = 9, Accomodation & food services		0.470**		0.468**
isic_cat = 10, Information & communication		0.376*		0.377*
isic_cat = 12, Real estate activities		0.439*		0.436*
Professional category = 3, Employi ou ouvrier qualifi		-0.376***		-0.376***
Professional category = 4, Manoeuvre		-0.597***		-0.593***
Professional category = 5, Employi de maison ou domestiques		-0.446***		-0.443***
Professional category = 6, Patron,Employeur(utilisant une maison d'oeuvre payante)		0.494**		0.501**
Professional category = 7, Travailleur pour compte propre (sans employis salariis)		-0.520***		-0.513***
Professional category = 10, Aide familial		-1.672***		-1.668***
Type of organization = 2, Etablissement public ` caracthre administratif		0.336**		0.336**
Type of organization = 3, Entreprise non financihre sous contrtltle publique		0.319*		0.314*
Type of organization = 7, Coopirative, association ou ONG cherchant un binifice		-1.182**		-1.177**
Sexe	0.660***	0.607***	0.659***	0.608***
Age	0.074***	0.056***	0.074***	0.056***
age#c.age	-0.001***	-0.001***	-0.001***	-0.001***
Etat Matrimonial = 2, Marii(e)	0,0101	0,0208	0,0114	0,0216
Etat Matrimonial = 3, Divorsi(e)	-0,0339	0,002	-0,033	0,00251
Etat Matrimonial = 4, Veuf(ve)	-0,25	-0,142	-0,251	-0,143
Educational attainment = 2, Secondaire	0.317***	0.136*	0.316***	0.135*
Educational attainment = 3, Supirieur	0.869***	0.410***	0.867***	0.408***
Educational attainment = 4, Coranique	-0.257***	-0.181**	-0.254***	-0.179**
Niveau d'etude = 5, Mahadra	0,195	0,0902	0,194	0,0883
Niveau d'etude = 6, Technique et professionnel	0.804***	0.411***	0.794***	0.406***
log_hours_worked	0.117*	0,105	0.117*	0,106
Constant	7.682***	8.649***	7.710***	8.674***
Observations	3.155	3.153	3.155	3.153
R-squared	0,239	0,319	0,232	0,312

Source: LFS 2017 and authors' calculations. Notes: Robust standard errors were used, for clarity, they were omitted but are available upon request. ***, **, and * denote statistical significance at the 10, 5 and 1 percent level, respectively. Reporting only significant coefficients for ISIC categories, professional category and type of organization.

Appendix VI: Oaxaca Decomposition Analysis

The Oaxaca-Blinder Decomposition referred to as BOD (Blinder, 1973; Oaxaca, 1973) is used to examine spatial differences in wages across Mauritanian regions. Apart from estimating the wage gap, it decomposes spatial differences of wage levels into (i) differences attributed to endowment, such as educational attainment, gender, marital status and age and (ii) the returns to a given endowment in that particular location. Moreover, and similar to a wage regression, controls for type of employer and industry of occupation have been applied. The BOD reveals whether wage differences across regions are driven by differences in endowment versus differences in returns (to endowment). It suggests that for an individual with given endowment, it could be beneficial to move to another location, provided this endowment is higher remunerated there, hence explaining potential ex-ante reasons for migration decisions.

The decomposition is obtained by estimating equation (BOD.1) for both the country's metropolitan leading region and all other regions:

$$(BOD.1) \quad y_i = X_i\beta_i + \varepsilon_{it}$$

where y_i is the log of the nominal wage ratio in region i , the main city (indexed by A) or else (indexed by B), and x_i is a set of characteristics mentioned above. After estimating equation BOD.1 using OLS, the average wage gap can be expressed follows:

$$(BOD.2) \quad \bar{y}_A - \bar{y}_B = \bar{X}_A\beta_A - \bar{X}_B\beta_B$$

Mathematically, equation BOD.2 can be rewritten as:

$$\bar{y}_A - \bar{y}_B = (\bar{X}_A - \bar{X}_B)\beta_A + \bar{X}_A(\beta_A - \beta_B) + (\bar{X}_A - \bar{X}_B)(\beta_A - \beta_B)$$

If the locally inclined people are the worse-off and we consider the normal returns to be, the last term of equation BOD.3 can be dropped⁴⁸ and we end-up with:

$$(BOD.4) \quad \bar{y}_A - \bar{y}_B = (\bar{X}_A - \bar{X}_B)\beta_A + \bar{X}_B(\beta_A - \beta_B)$$

In equation BOD.4, the first part $(\bar{X}_A - \bar{X}_B)\beta_A$ measures the effect of the differential in endowments while the second $\bar{X}_B(\beta_A - \beta_B)$ captures the differential in returns to endowments.

The estimation of welfare gaps based on the OLS version of the Blinder-Oaxaca decomposition focuses on mean effects. The effect of the covariates is limited to an average effect that remains constant across the wage distribution. However, the effect of each covariate might in fact vary across the welfare distribution. While it is beyond the focus of this study, one can use quantile regression to extend the decomposition of characteristics and returns effects across the wage distribution.

48 See Blinder (1973), Oaxaca (1973), and Jann (Jann, 2008).

Appendix VII: Lessons from Peru's successful growth experience

Peru and Mauritania had similar economic structures in the late eighties, but Peru became an upper-middle income country. In 1988-1990, both countries were close to the low-income threshold and were heavily dependent on natural resources (particularly mining). During this period, natural resources rents accounted for about 10 percent of GDP, with mining exports accounting more than 40 percent of merchandise exports. Despite a similar economic structure, Peru transitioned to an upper-middle income country with a GNI per capita that was almost six times bigger than that of Mauritania in 2017.

To mitigate its dependency on mining products, Peru successfully diversified its exports structure by upgrading its agriculture sector. Between 1998 and 2017, the share of agricultural exports surged as a percentage of both non-traditional exports⁴⁹ and total exports. In addition, Peru diversified its agriculture exports which were in 2017 dominated by 6 crops (grapes, asparagus, avocado, mango, blueberries and coffee), compared to only 2 crops (coffee and asparagus) in 2000. As non-traditional exports surged, Peru's agricultural productivity increased steadily. The development of the agriculture sector was driven by several policies since the early nineties, including:

- **Land markets and irrigation policies:** In early 1990s, the Government introduced a series of changes to the constitution to develop the private sector. In particular, it removed restrictions to private ownership of lands, liberalized land markets, and incentivized private land acquisition in the Costa region. In 1994, the Government created the Commission for the Promotion of Private Investments to promote the privatization of public firms and assets. The Government also used PPPs to finance several irrigation projects.⁵⁰
- **Tax policy:** The Agriculture Sector Promotion Law granted a series of tax incentives and tax reductions for agro-exporters. Firms in this sector benefitted from a corporate tax rate of 15 percent, compared to 29.5 percent for other sectors; VAT exemptions; and VAT drawback mechanism for exported products. Investment related to irrigation also benefitted from additional tax exemptions.
- **Trade policy:** Peru signed several bilateral and trade liberalization agreements in the 2000s, leading to significant tariff reductions on agricultural products. As a result, the weighted average tariffs for vegetables was significantly reduced from 17 percent in 2000 to only 0.1 percent in 2017. This is particularly relevant as Peru implemented its free trade agreement with USA (2008) and China (2010).
- **Sanitary and phytosanitary compliance agency:** In 1992, the Government of Peru created the SENASA, a public/private agency responsible for the compliance with sanitary and phytosanitary requirements. SENASA certifies shipment and supports the private sector to enter into new markets, such as North America and Europe
- **Logistics:** As a result of the liberalization process launched in early 1990s, the Government removed restrictions and procedures constraining the aviation sector, allowing free pricing for passengers and freight transport. It also eliminated the monopoly of CORPAC in the provision of services related to air transport, such as merchandise storage and cargo handling. Although port infrastructures remain broadly underused and inefficient, maritime transport accelerated in mid 2000s thanks to bilateral and multilateral free-trade

49 Non-traditional agriculture exports exclude coffee, sugar and cotton

50 Olmos (2004), Majes-Siguas (2010) and Chavimochic (2013).

agreements. Indeed, the liner shipping connectivity index surged from 14.8 in 2004 to 37.8 in 2016, suggesting higher integration to international trade.

In addition to developing its exports structure Peru used mining revenues to build fiscal buffers and foment investment at the sub-national level. During the commodity boom cycle, Peru took advantage of increasing mining fiscal revenues to finance its stabilization fund, which aims at mitigating fiscal instability and enhancing investment in infrastructure at the subnational level.

As fiscal revenues are dependent on commodity prices, Peru's stabilization fund heavily benefitted from the boom of commodity prices in 2000s. Over the past 20 years, revenues from mining and hydrocarbons accounted on average for 15 percent of total tax revenues. Peru established a fiscal stabilization fund (FSF) in 1999 to accumulate funds during boom periods with the aim of using them in recessions or natural disasters. The FSF is financed by tax resources, 10 percent of the sales of public assets for privatization, and 10 percent of concessional fees. As tax mining revenues surged in the mid-2000s due to higher commodity prices, the stabilization fund climbed from USD100 million (0.2 percent of GDP) in 2000 to 6.4 billion (3.3 percent of GDP) 2016.

The FSF helped Peru to cope with decreasing mining revenue and natural disasters. As per the Law of Fiscal Prudence and Transparency,⁵¹ the FSF should be used: (i) in case of national emergency or international crisis that could seriously affect the economy; (ii) when there is evidence that real GDP is declining or could decline next fiscal year; and (iii) when current revenues financed by tax collection are expected to decline in the current fiscal year by more than 0.3 percent of GDP, compared to the average of the last 3 years. In addition, if the FSF is more than 4 percent of GDP, the government can use additional savings to reduce public debt. In 2015, the Government withdrew USD 1.2 billion (0.6 percent of GDP) from the FSF in a context of decreasing fiscal revenues and economic deceleration caused by declining commodity prices. The funds were used as a countercyclical fiscal policy to ensure the financing of

budgeted public spending, in a context of decreasing fiscal revenues. Similarly, the Government used USD 1.7 billion (0.8 percent of GDP) in 2017 to finance public spending related to the reconstruction of damaged infrastructure in the regions affected by the floods created by el Niño.

Mining revenues are earmarked to investment projects at the sub-national levels, resulting into a significant increase of investment over the past 20 years. 80 percent of mining-revenue transfers are earmarked to investment projects while the rest should be used to cover maintenance spending for infrastructure. Resource-revenue sharing transfers are distributed according to their point of origin. For example, over 75 percent of canon mining-revenue transfers go to local governments while regional governments and universities receive 25 percent. Moreover, district municipalities receive more than 50 percent of resource-revenue transfers in each region where an extractive industry is located. Investment from sub-national governments in education and culture and health & sanitation steadily surged from 0.1 to 1.3 percent of GDP between 2005 and 2017. Similarly, investment in transport expanded from 0.1 to 0.6 percent of GDP.

51 Law 27245, 1999

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