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SOCIAL INEQUALITY IN MOZAMBIQUE

Authors
Moisés Siúta • Felix Mambo • Ivan Manhique
Muna Shifa • Bento Munkuka
Coordination
Anda David

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Social inequality in Mozambique

Moisés Siúta
ACEIR, SALDRU – University of Cape Town

Felix Mambo
London School of Economics and Political Science

Ivan Manhique
London School of Economics and Political Science

Muna Shifa
ACEIR, SALDRU – University of Cape Town

Bento Munkuka
Center of Development Economics

Coordination
Anda David – AFD

Abstract
This study presents the profile of social inequality in Mozambique from 1997 to 2017. Despite progress in reducing poverty within the government's efforts to achieve Sustainable Development Goals, the country still faces persistent challenges in reducing inequality and policy effectiveness, particularly in employment and access to basic services such as education, electricity, water, and sanitation.

The study indicates that inequality in access to basic services tended to decrease until 2017. Gender inequality shows a trend of reduction, but households headed by women represent the most disadvantaged group with lower access to basic services. At the spatial level, rural areas, especially districts located far from the provincial capital cities, exhibit lower access to basic services.

Keywords
Social inequality, access to basic services, unemployment, Mozambique

Classification JEL
D31, C10, H10, H11, R20, R22

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Introduction

Following the end of the civil war in 1992, Mozambique saw rapid economic growth. Between 2001 and 2018, the country's real Gross Domestic Product (GDP) per capita witnessed sustained growth. Figure 1 shows that the average annual GDP per capita growth rate was 6.3% from 1996 to 2000 and 5.8% between 2001 and 2005. After 2015, the country's economic growth slowed, coinciding with a series of adverse shocks associated with man-made shocks such as illegal debts (Hanlon, 2017; Siúta, 2018) and terrorism in northern Mozambique (ACAPS & OCHA, 2020; Feijó, 2020), climate change events, such as the cyclones IDAI and Kenneth (Manuel et al., 2020; UNICEF, 2019), and the COVID-19 pandemic (Betho et al., 2022; Sengo, Magaia & Dique, 2020). The sustained economic growth rate was linked to a decline in income and consumption poverty. For example, based on the World Bank's $2.15 per day poverty line, income poverty in Mozambique fell from 83% in 1996 to 65% in 2014 (World Bank, 2023b). Consumption poverty reduced from around 70% in 1996 to about 48.4% in 2014/15. However, the downward trend of the poverty rates seems to have reversed, as recent poverty estimates suggest that consumption poverty has increased to 62.8% from 2015 to 2020. According to these figures, despite development, a sizable proportion of the population, estimated at around 18.9 million in 2020, remains impoverished (World Bank, 2023a)[1].

Progress towards enhancing non-income elements of well-being remains a severe challenge in Mozambique, as the country continues to rank among the lowest in terms of human development metrics. For example, according to the most recent UNDP Human Development Index, the country ranks 181 out of the world's 187 countries (UNDP,2022). Based on households' consumption and income data, the official assessment suggests a decline in the multidimensional poverty index from approximately 39% in 2008/09 to 31% in 2014/15 (MEF, 2016: pp.45–56, 85).

Income and non-income domain well-being inequality is high. For example, income inequality, as measured by the Gini coefficient, has been around 0.5 in recent years (Arndt et al., 2012; Gradín, 2020; Gradín & Tarp, 2019; Salvucci & Tarp, 2021). Estimates from the World Bank suggest that consumption inequality is also high. The Gini coefficient rose from 0.47 to 0.56

[1] According to the official forth poverty assessment report, produced by the Ministry of Finance, the incidence of poverty was around 70% in 1996 and dropped to 46.1% in 2014. As of the time of this study, the Mozambican government had not yet published the official results of the national poverty assessment based on IOF2019/20.

between 2008/09 and 2014/15 but dropped with the pandemic in 2020 to 0.5. However, despite this drop, the inequality rate remains high as the Gini coefficient in Mozambique is among the highest in Sub-Saharan Africa (World Bank, 2023a). Similarly, other studies also corroborate this finding. When examining regional disparities, Shifa and Leibbrandt (2022) show that Mozambique has a relatively high Gini coefficient of 0.40. It's followed by Ethiopia at 0.38 and Kenya and the Democratic Republic of the Congo at 0.32. On the other hand, countries such as Burundi (0.14), Burkina Faso (0.16), and the Comoros (0.18) have comparatively lower Gini coefficients.

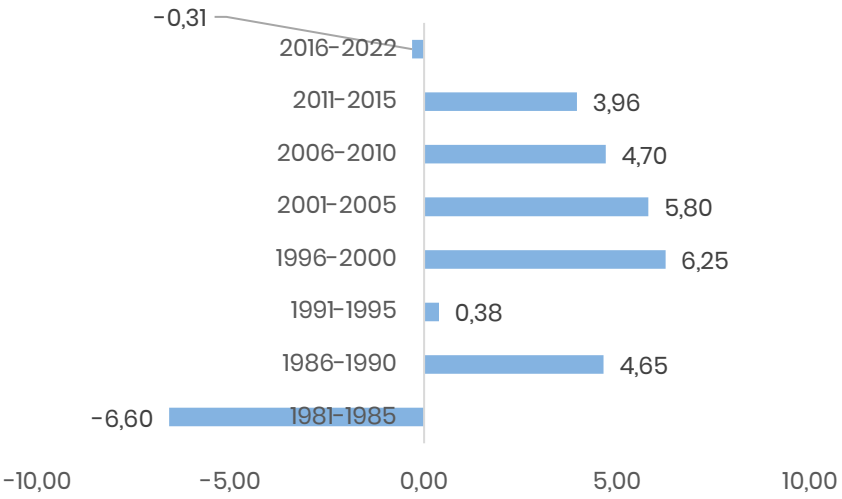
The rising inequality is generally associated with the fact that the pattern of economic growth after the 2000s has mainly been pro-rich, limiting Mozambique's progress towards shared prosperity and reducing inequality (Anon, 2010; Wuyts, 2011). For instance, Barletta et al. (2022) show that until 2014/15, consumption levels rose across all households' classes. However, the rise in consumption was higher for the wealthiest households. On the other hand, from 2014/15 to 2019/20, real consumption decreased for both the poor and the rich, with the decline being steeper among the more impoverished population, thereby intensifying the gap between the rich and poor. Thus, despite the notable economic growth since 2000 that led to a slight reduction in poverty rates, social inequality remains a challenge in Mozambique (Ramirez et al., 2018).

In this paper, we use population censuses of 1997, 2007, and 2017 to provide an analysis of social inequality in Mozambique in various dimensions such as education, access to basic services, and unemployment. We compare these inequalities based on location, gender, and religious status as key inequality indicators. The paper aims to provide valuable insights into the broader context of development challenges and inequality faced in many African nations (Shifa & Leibbrandt, 2022).

The contribution of this article is twofold. On the one hand, it updates analyses on inequality in Mozambique. On the other, it employs the uncentred principal component analysis (UC-PCA) as proposed by Wittenberg and Leibbrandt (2017) to obtain a multidimensional asset index that is internally coherent.

We start by providing an overview of the social policy context in Mozambique in Section 2. In Section 3, we present the results of the inequality analysis of the different dimensions. Section 4 provides summary conclusion.

Figure 1. Average GDP per capita growth (annual %)



Source: Authors' elaborations using data from the World Bank.

1. Review of the social policy context in Mozambique

In this section, we provide a short overview of the policy context in Mozambique. In Mozambique, social policies operate within a framework of governmental regulatory instruments. These policies involve a range of stakeholders, including individuals, national and international public organizations, non-governmental organizations, and private citizens. They work collaboratively within this framework to undertake initiatives that address the fundamental needs of the population, involving providing essential services such as healthcare, education, and access to clean water and sanitation.

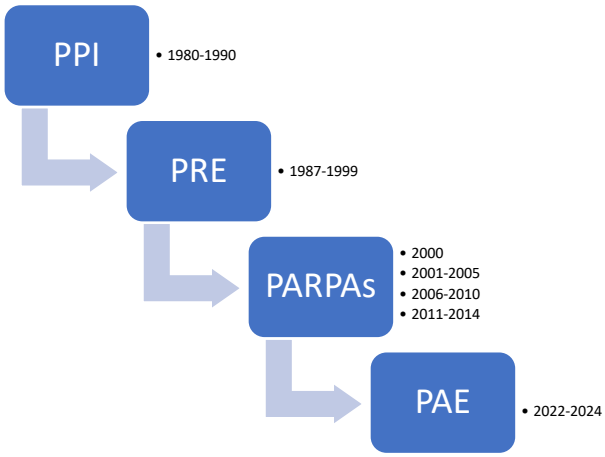
At the national level, these policies are aligned with the core objectives outlined in the Constitution of the Republic, which include fostering the well-being of citizens, upholding human rights, and promoting economic and social development (A.R, 1990, 2018). In line with the constitution, various other instruments have been formulated to guide these social policies.

1.1 Poverty and inequality reduction policies

Mozambique's social policies relate to several other national strategies and policies. The link between these policies, poverty, and economic inequality can be traced back to the country's independence in 1975. Figure 2 shows various policy instruments adopted by the Mozambican government to improve the economy's performance, address poverty, and enhance citizens' living standards. The Indicative Prospective Plan (PPI), from 1980 to 1990, was one of the earliest strategies developed by the Mozambican government. It aimed to mobilize state resources towards enhancing agrarian and industrial capacities and uplift post-colonial living conditions. However, due to the prevailing political dynamics, many developmental projects became unsustainable, causing the state to fall short of its targets, as Francisco (2022) and Chichava (2022) noted. Consequently, the government pursued economic reforms, inaugurating the Structural Rehabilitation Program (PRE) in 1987, later renamed the Economic and Social Rehabilitation Program (PRES), implemented with support from international entities such as the World Bank and International Monetary Fund (World Bank, 1985). Around 1989, poverty alleviation became a prominent objective in economic policy instruments. This shift occurred when the World Bank and other stakeholders launched the Social Dimensions of Adjustment (SDA) initiative, addressing concerns about the adverse effects of structural adjustments on impoverished and vulnerable groups, particularly in sub-Saharan Africa (Baloi & Chacha, 2018; Taube, 1993).

During the implementation of PRES, various reforms were introduced. This included a revision of the Constitution in 1990, endorsing economic liberalization and a shift towards a multiparty system. Additionally, Mozambique reviewed its foreign policy, establishing stronger connections with Western nations and collaborating closely with global organizations such as the World Bank, the International Monetary Fund, and the United Nations. The move towards economic liberalization and related initiatives has mitigated the economic downturn observed shortly after independence and during the early stages of the PPI, as shown in Figure 1.

Figure 2. Selected key poverty reduction instruments in Mozambique, 1980-2014



Source: Authors' elaborations.

Following the implementation of structural adjustments by the World Bank and PRES in Mozambique in 1999, the World Bank and the International Monetary Fund (IMF) introduced a new framework for lending to some of the world's poorest nations (IMF, 2023; Levinsohn, 2003). In this context, the Mozambican government began to develop and adopt a set of instruments that fit the World Bank's new approach that considered financing social projects to reduce poverty and inequality. Globally, these documents were designated Poverty Reduction Strategy Papers (PRSP), and nationally, the Mozambican government conceived them as a Poverty Reduction Action Plan (PARPA). The first instrument was called the Interim Poverty Reduction Strategy Paper and only came into effect in 2000 (Diogo & Maleiane, 2000; IMF, 2023). Later, it was followed by three instruments of a similar nature with a five-year lifespan, called the Poverty Reduction Action Plan 2001-2005, 2006-2010, and 2011-2014 (GdM, 2001, 2006, 2011b). The last PARP's goal was to reduce the incidence of food poverty from 54.7% in 2010 to 42% in 2014. However, the government's goals went beyond this,

including the reduction of economic inequality, in particular, the disparities between urban and rural areas where social tensions, generally linked to inequality, resulted in widespread protests with destructive effects on the economy (Brito et al., 2014; Buur & Salimo, 2018).

Lastly, since 2014, Mozambique has yet to implement a specific strategy to eradicate poverty completely. Instead, the government has focused on alleviating poverty using short-term development instruments such as the annual plan and yearly budget within the framework of a five-year plan that changes with each new election. However, amid the crisis associated with COVID-19 (in 2020) and illegal debts (in 2015), the current government found itself compelled to introduce economic recovery measures in response to increasing living costs, poverty rate, and social inequality. These measures were designated the Economic Acceleration Package (PAE) and were introduced in 2022, with actions designed to boost the economy's production, particularly in social sectors such as agriculture and transport, and provide incentives to improve private sector performance (GdM, 2022; Siúta, 2021, 2022)

1.2 Social Sector Policies

Various instruments have been formulated to guide social policies in line with the constitution. These instruments can be categorized into two levels: the first comprises national strategies, such as the National Development Strategy 2015-2035 (GdM, 2014), Financial Sector Development Plan 2013-2022 (BdM, 2013), Basic Social Security Strategy 2016-2024 (GdM, 2015a), and Climate Change Adaptation and Mitigation Strategy 2013-2025 (GdM, 2012). The second level encompasses the five-year government programs (see GdM, 2015b, 2020), annual economic and social planning, government budgets (MEF, 2023; GdM, 2021c; A.R, 2021), and other short-term regulatory measures as the economic stimulus package (GdM, 2022).

Table 1 provides an overview of Mozambique's development goals for the social sectors until 2035. The specific objectives at the sectoral level are achieving a Gini index of 0.4 or lower to decrease income inequality and ensuring universal access to safe drinking water and electricity.

Table 1. National Strategic Goals by 2035

Access to basic services	Government goals in 2035
Primary education completion rate	90-95%
Net enrolment rate in primary education	75%
Illiteracy rate	27-30%
Electricity	100%
Improved sanitation	70%
Safe drinking water	100%
Unemployment rate	10-11%
Income inequality (Gini index)	40%

Source: National Development Strategy, GoM (2014).

Aligned with national strategy, in the energy sector, the primary aim is to attain universal access, signifying the provision of electricity to all households throughout the country by 2035. The Mozambican government has undertaken initiatives to achieve this, including the recent revocation of Electricity Law 21/97 through Law 12/2022 (A.R, 2022). This step is geared towards enhancing sectoral performance by encouraging private sector involvement, expediting energy export initiatives, and granting concessions for electrical power supply. In pursuing an energy transition, the government has directed investments towards the construction of photovoltaic plants. At the same time, ongoing commitments are maintained in thermal (natural gas) and hydroelectric projects (MEF, 2021, 2023). The execution of electrification and network expansion projects falls under the coordination of the state-owned enterprise called Electricidade de Moçambique (EDM) (EDM, 2023; Nhamire, Mapisse & Fael, 2019).

The Mozambican government has channelled significant investments into substantial energy projects, notably liquefied natural gas (LNG) extraction initiatives located in the northern region, particularly in Cabo Delgado province, which is one of the provinces with the highest share of poor households (Guambe, Castelo & Sibia, 2022; MEF, 2016; World Bank, 2023a). The government expects that the revenues generated from the exploitation of these resources can play a pivotal role in funding public investments to enhance its people's well-being and mitigate social disparities (Silva, 2019; Standard Bank, 2014, 2019). Nonetheless, it is crucial to acknowledge that the Mozambican energy sector confronts substantial challenges despite the commendable intentions articulated in policy documents. On one hand, issues of corruption and a lack of transparency in revenue management and investment decisions pose threats to achieving these objectives. For example, Mozambique generates sufficient electricity for domestic consumption through the Cahora Bassa

hydroelectric plant (HCB). However, HCB exports 75% of this electricity to neighbouring countries, including South Africa and Zimbabwe, leaving the domestic market with insufficient energy. Due to this, and considering the limited coverage of the electric power distribution network, EDM is compelled to turn to independent energy producers. For instance, those resorting to thermal or solar energy sources. In these cases, the cost of electricity is 3 to 4 times higher, which adversely affects end consumers, especially the goal of ensuring access to electricity for the poorest households. From 2014 to 2017, EDM spent approximately 21 billion meticais on purchasing electricity from Independent Producers (Nhamire, Mapisse & Fael, 2019).

Regarding water and sanitation, the government aims to ensure that 100% of the population has access to clean drinking water and that 70% benefits from improved sanitation by 2035. The National Water Policy received government approval in August 1995 (A.R, 1995a), stemming from the 1991 Water Law (A.R, 1991). In 1995, the government's primary focus lay in revitalizing essential water services, particularly in providing water to urban, peri-urban, and rural areas. Broadly, the water sector embarked on decentralization and deconcentrating as strategies for extending water access to the population. In this context, the government authorized private companies to participate in the market and supply water to the public, aiming to introduce novel approaches to delivering water services. Oversighting this sector is the Ministry of Public Works, Housing, and Water Resources (DPOPHR).

Within the universal water access framework, the government, in 2010, established the National Water Supply and Rural Sanitation Program (PRONASAR) as a collaborative effort involving another actor such as development partners, non-governmental organizations, the private sector and community members at various administrative levels—central, provincial, district, and local. PRONASAR's mission is to improve water and sanitation coverage expansion in rural areas, ultimately aligning national interest with the Sustainable Development Goals, which aim for universal access by 2030 (Ducrot & Bourblanc, 2017; SDC, 2015; USAID, 2023). The regulatory framework includes vital documents such as the Water Sector Action Plan for Implementing Sustainable Development Objectives 2015–2030 and the National Urban Water and Sanitation Strategy 2011–2025 (GdM, 2011a, 2021b).

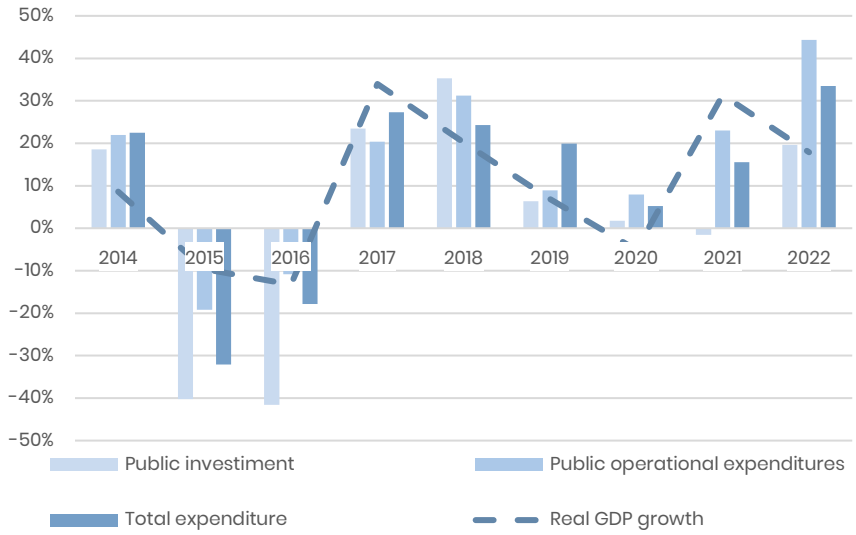
Regarding the education sector, the government's goals include improving the net enrolment rate to more than 90% in primary education and reducing the illiteracy rate to less than 30% by 2030. The constitution of Mozambique (A.R, 1990, 2018a: art.88) establishes that "education is a right and a duty of all Mozambican citizens" and "The State will promote the extension of education to professional and continuous training, as well as equal access to the fulfilment of this right by all citizens." In this regard, Mozambique has been adopting

several measures aiming at ensuring greater and better alignment with regional and international conventions on education, namely the SADC Protocol on Education and Training (1997), the Sustainable Development Goal 4 – quality education, the 2030 Agenda on Sustainable Development which advocates improving access to quality education; the African Union Vision 2063 “The Africa We Want” (UNESCO, 2018). At the national level, the regulatory framework includes legal measures such as: (i) the establishment of compulsory primary education for the first nine years of schooling in 2018, (ii) free primary education in public schools, (iii) the reorganization of primary education with seven grades subdivided into two degrees (A.R, 2018b; UNESCO, 2019)

From a regulatory perspective, the National Education Policy, approved in 1995, establishes the primary lines of action for the state. The main objective of this policy is to "ensure access to education for a growing number of users and to improve the quality of services provided at all levels and types of education" (A.R., 1995b). In combating economic and social inequality, expanding access, promoting girls' involvement, and adopting a gender-sensitive approach are among the government's policy priorities. Implementing this policy is supported by actions outlined in various strategic plans for the education sector adopted by the government (MEDH, 2020).

Basic social protection programs are another mechanism through which the Mozambican government seeks to minimize economic inequality and its impact. The Social Protection Act of 04/2007 (AR, 2007) establishes the legal framework for social protection in Mozambique in two categories: a) social security – aimed at people whose income is discounted with a view to their retirement or income guarantee, in the event of situations that make it impossible for them to work; b) social assistance consisting of cash or in-kind transfers to support vulnerable families/people. However, as suggested by Francisco (2011) and Francisco et al. (2011), in real terms, Mozambican social protection can be recategorized in two types, namely, i) financial and ii) demographic social protection. Financial social protection follows the legal framework in which exists a) the contributory scheme, aimed at citizens earning income who, during their working life, must contribute to the system to guarantee their social security in the future, and b) the non-contributory scheme, which covers all Mozambicans, particularly those in absolute poverty for various reasons (lack of employment due to economic conditions in the country, disability, old age, etc.). By 2020, social assistance programs covered around 600 thousand households, suggesting a per capita ratio of around USD 101 per year, or around USD 8.00 per month, per person.

Figure 3. Trend in real government expenditure and GDP growth rate, Mozambique, 2014-2022

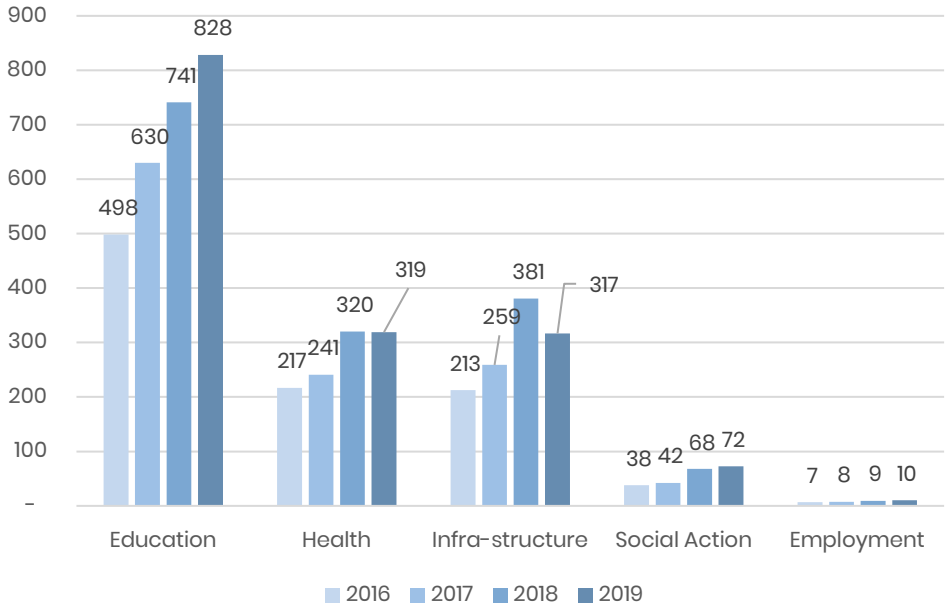


Source: Authors' estimations based on GdM (2017, 2018, 2021a; 2023).

Despite the various economic and social policy strategies outlined above, Figure 3 shows that during the period from 2015 to 2022, there is a noticeable reduction in the growth rate of the economy and significant fluctuation in the growth rate of public expenditure. It is worth noting that 2015 started with a negative growth rate in public expenditure. This downturn can be traced to the revelation of previously undisclosed and illegal public debts (Hanlon, 2017; Massingue, 2019), resulting in diminished donor support for the state budget. Consequently, the government had to curtail public spending, impacting the funding allocated to critical social sectors such as social protection and healthcare.

Figure 4 presents government funding for selected social sectors, including education, infrastructure (incorporating water and electricity), social assistance, and employment promotion. It shows that despite the economic challenges illustrated in Figure 3, the education sector experienced incremental public expenditure, eventually reaching USD 828 million. However, the remaining sectors grapple with financing constraints. For instance, social action and employment sectors received less than USD 100 million in real expenditure.

Figure 4. Public expenditure in selected social sectors (in million USD), 2016-2019



Source: Authors estimations based on GdM (2017, 2018, 2021a; 2023).

2. Inequality in the social domain

The main data sources utilised in the paper are the population censuses of 1997, 2007, and 2017, which covered all residents inside the national area. The National Institute of Statistics (INE) performed all censuses in Mozambique. These censuses were held in the first half of August of each year. Throughout this time, Mozambique remained divided into 11 provinces. However, the number of districts has fluctuated over time, with 146 districts in 1997, 144 in 2007, and 152 in 2017. Mozambique had a population of roughly 15.3 million in 2007, which expanded to approximately 20.6 million in 2007 and further increased to 27.9 million in 2017, exhibiting tremendous population growth over a two-decade span.

To examine social inequalities, we consider wellbeing indicators such as household assets (e.g.: TV, radio, computer, car, etc.) and access to basic services as education, electricity, and water & sanitation. Using censuses data is important for studying social disparity in these dimensions since it provides us with representative samples for measuring intersectional inequalities by various socioeconomic and spatial groups. One of the major disadvantages of the census data is that there is no information on income or consumption, making it impossible to analyse money metric measures of inequality.

2.1 Inequalities in the distribution of household assets

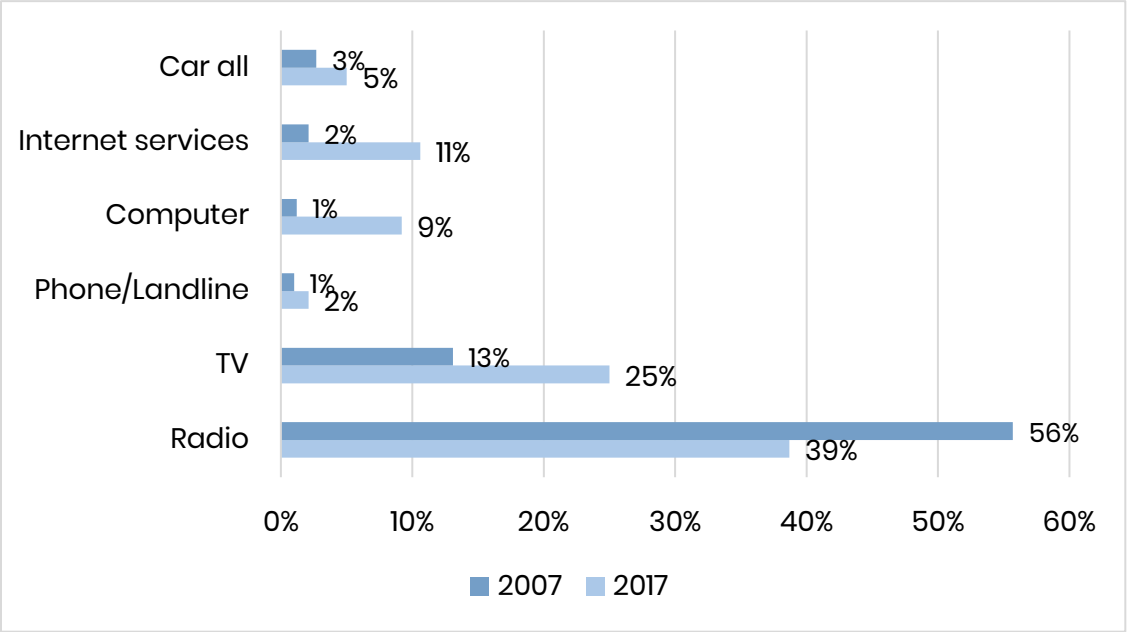
We begin by investigating social inequities based on household asset ownership, with an emphasis on household durables. Although household assets include many other variables, such as land and livestock, many of these indicators are not available in all census years. The number of asset variables included changes between the three censuses, with more detailed asset information obtained in the 2017 censuses. As a result, we can only make comparison over time based on asset types available in at least two censuses (2007 and 2017).

To analyse multidimensional inequalities in assets across social groups, we constructed an asset index measure based on the asset indicators shown in Figure 6. The asset index is constructed using the Uncentered Principal Component Analysis (UC-PCA) approach that was proposed by Wittenberg and Leibbrandt (2017). The approach overcomes some of the limitations of other methodologies for estimating multidimensional inequality using asset indices, such as Factor Analysis (FA), Principal Component Analysis (PCA), and Multiple Correspondence Analysis (MCA) (see Shifa & Ranchhod, 2019). The weights from the UC-PCA analysis are shown in Table 2A in the Appendix. Cars and gas stoves have relatively larger weights while Bicycle and Radio have relatively lower weights.

2.2 The Distribution of Assets Ownership

Figure 5 compares the proportion of the population living in a household having access to assets in 2007 and 2017. Radio was the most frequent asset in both years, followed by television. In 2017, over 39% of the population lived in a household with a radio, while approximately 25% had access to television. The fact that radio ownership is declining while TV ownership is increasing implies that the two are alternatives, and TVs are becoming more accessible and affordable over time. Access to the internet and computers has also improved. The proportion of the population with internet connection climbed from 2% in 2007 to 11% in 2017. Access to car is limited, with only 5% of the population having access to private automobile in 2017.

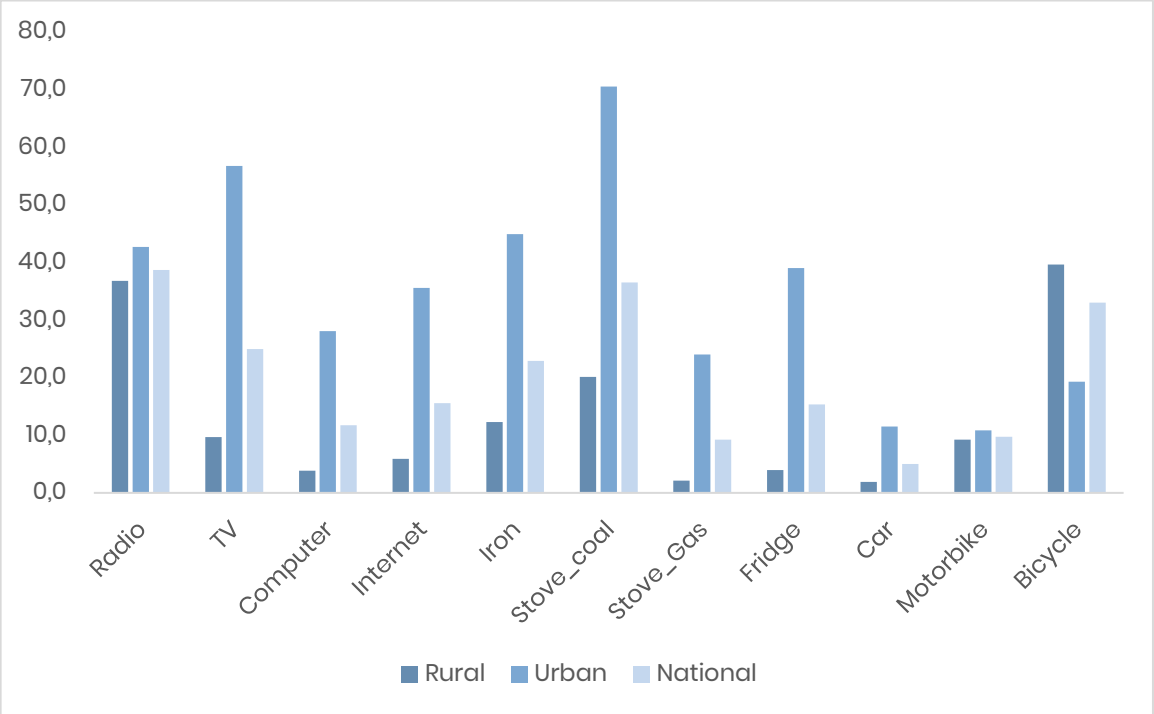
Figure 5. The distribution of the population with access to assets, 2007 & 2017



Source: Authors' estimates using data from the 2007 & 2017 census.

Using the 2017 census, we find there are large disparities between rural and urban areas (Figure 6). For example, whereas over 60% of urban residents have access to television, barely 10% of rural dwellers do. Similarly, just approximately 4% of the rural population has internet connection, compared to 28% in urban areas. With the exception of Motorbike and Bicycle, we find similar gaps based on the remaining asset types. For instance, while 24% of the urban population had access to Gas stove, the figure is only 2% in rural areas.

Figure 6. The distribution of the population with access to assets, 2017



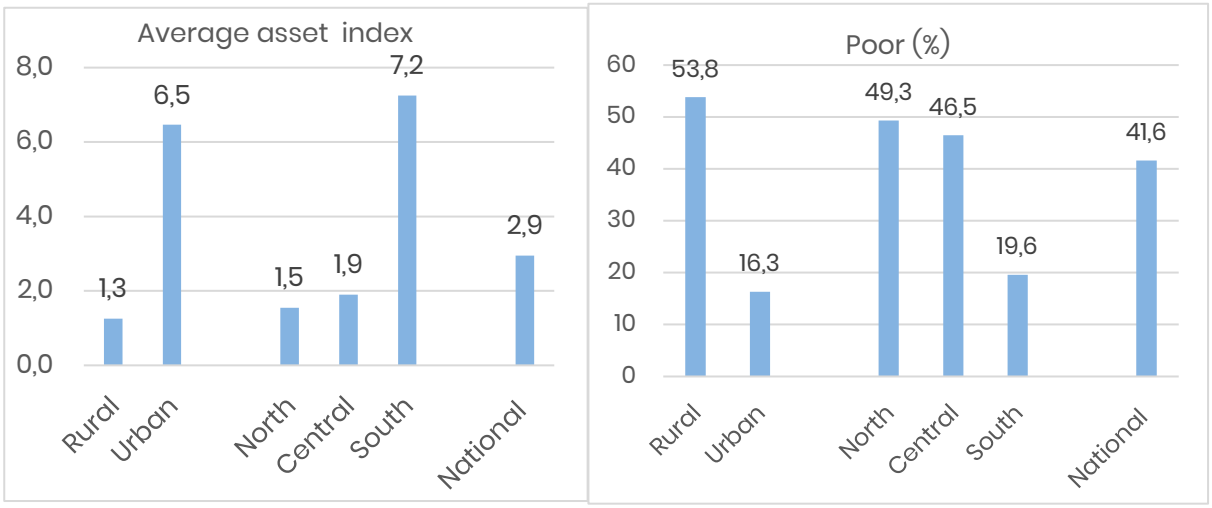
Source: Authors' estimates using data from the 2017 census.

2.3 Asset inequality

Given that the 2017 census has more comprehensive information on household durables, we use this data to create an assent index that can be used to compare inequities between social groups and locations.

Figure 7 depicts the average asset index values by region and rural/urban areas, as well as the percentage of the population classified as poor based on asset index measurements. Individuals are considered asset poor based on the asset index if their household asset index score is in the second or first quintile. When comparing rural and urban locations, the average asset index in metropolitan areas is almost five times higher than in rural areas. The South has the highest average asset score among the three areas. According to these figures, the percentage of the population classified as asset poor is substantially higher in rural areas, as well as in the central and northern regions. While the percentage of the population considered asset poor fluctuates between 46-50% in the North and Central areas, the estimate in South Region is around 20%.

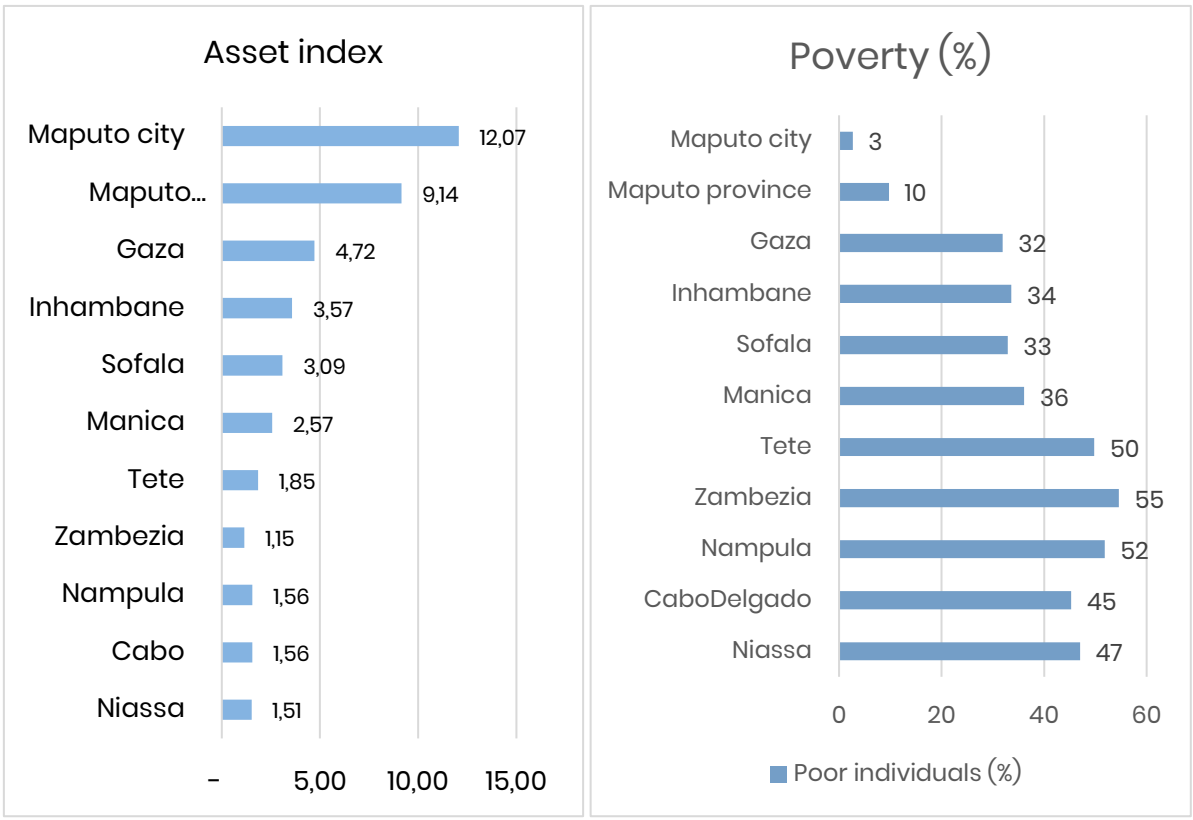
Figure 7. Average asset index and asset poverty by location, 2017



Source: Authors' estimates using data from the 2017 census.

Figure 8 shows a similar large disparity in assets across provinces. Maputo City and Maputo Province had the highest average asset index scores, with 12.7 and 9.1 points, respectively. The remaining provinces have an asset index value that is less than 5. While the proportion of asset poor persons is 3% in Maputo City and 10% in Maputo Province, 50-55% of the population is classed as asset poor in Zambezia, Nampula, and Tete Provinces.

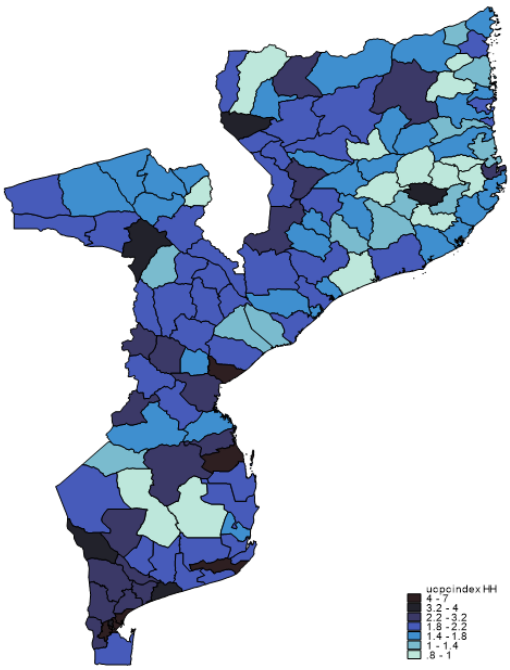
Figure 8. Average asset index and asset poverty by provinces, 2017



Source: Authors' estimates using data from the 2017 census.

Map 1 shows the distribution of the asset index by districts in Mozambique. Overall, districts that align with capital cities have a higher asset index. Regionally, districts in the southern provinces, especially in the city of Maputo and the provinces of Maputo and Gaza, show a higher asset index compared to the rest of the country.

Map 1. Asset index by district in 2017



Source: Authors' illustration using data from the census 2017 census.

Figure 9 depicts the average asset index value and asset poverty status by gender of the household head and highest level of education in the household. Male-headed households have higher average assets scores than female-headed households. This results in a higher proportion of asset poor individual among female-headed households than among male-headed households. We find large disparities in asset holdings based on household education status. Overall, the higher the education level, the higher the asset index score, with poverty increasing among less educated households. The percentage of the population classified as poor ranges from 7% among those living in a household with at least one person who has completed university studies to 54% and 69% among those living in a family with just a primary education or no education. This suggests education is highly correlated with access to assets.

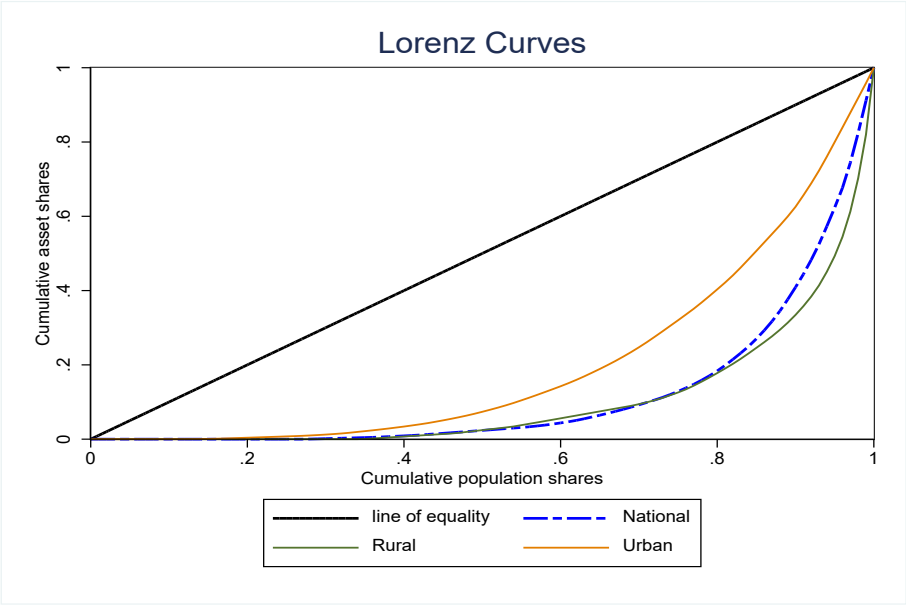
Figure 9. Average asset index value and asset poverty by household education and gender of household head (2017)

Source: Authors' estimates using data from the 2017 census.

The analysis so far indicates that location and education level are among the key markers of asset inequality in Mozambique. Given that there is large disparity in access to education by location (see below), next, we use inequality indices to compare disparities within and between locations. Meanwhile, Figure 10 depicts Lorenz Corves based on the asset index score comparing rural and urban areas, whereas Figure 11 depicts Gini coefficient

estimations of the asset index by location. Based on the Lorenz curves, we may conclude that the level of asset disparity in urban areas is unambiguously lower than that in rural areas. Consistent with this, the Gini coefficient for rural areas is 0.79, whereas the corresponding estimate for urban areas is 0.6.

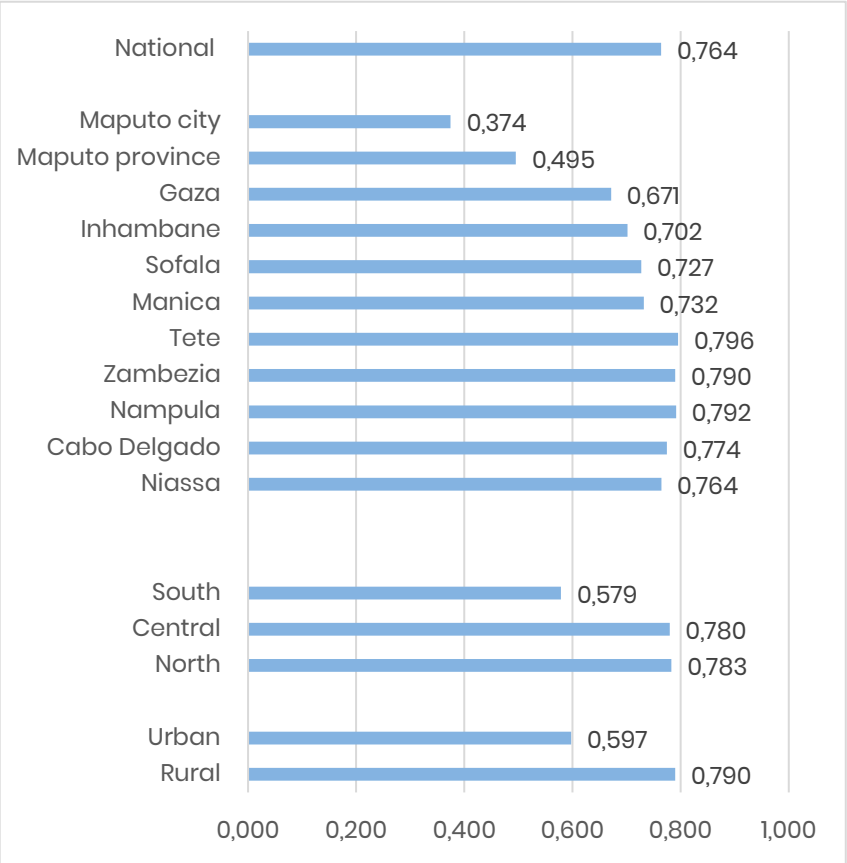
Figure 10. Lorenz Corves based on the asset index score by rural/urban areas, 2017



Source: Authors' estimates using data from the 2017 census.

Inequality is lower in the South compared to the North and Central regions, with the Gini coefficient for the South being 0.58, while the estimates for both the North and Central regions are 0.78 (Figure 11). The level of asset inequality is lower in the city of Maputo and Maputo provinces, with the Gini coefficient ranging between 0.38 and 0.5, compared to the rest of the provinces. However, asset inequality is much larger in the northern provinces, with the Gini index hovering around 0.8. Nampula has the highest degree of inequality in the northern area, while Tete has the highest level of inequality in the central region, with Gini indices of 0.792 and 0.796, respectively.

Figure 11. Gini Index based on the average asset index score by location and provinces, 2017



Source: Authors' estimates using data from the 2017 census.

Using the Generalised Entropy Index with an alpha parameter of one (GE (1)), we decompose the overall inequality into the between and within location components. Table 2 shows the estimated asset inequality based on the GE (1) by location. Decomposing the overall inequalities into between and within location components reveals that the within location component accounts for 73-79% of total inequality. The patterns of inequality based on the GE (1) estimates are comparable to what we find using the Gini coefficient, demonstrating that asset inequality is lower in urban than in rural areas, and in the South than in the North and Central regions.

Table 2. Decomposition of asset inequality estimates based on (GE(1) by geographic regions and, rural and urban areas

Group	Entropy index	Population	(mu_k/mu)^theta	Absolute contribution	Relative contribution
RURAL/URBAN					
Rural	1.354	0.675	0.425	0.388	0.338
Urban	0.624	0.325	2.194	0.445	0.388
Within				**0.834**	**0.726**
Between				**0.315**	**0.274**
Population	1.148	1.000		1.148	1.000
REGION					
North	1.294	0.349	0.526	0.238	0.207
Central	1.254	0.432	0.644	0.349	0.304
South	0.590	0.219	2.460	0.318	0.277
Within				**0.905**	**0.788**
Between				**0.244**	**0.212**
Population	1.148	1.000		1.148	1.000

Source: Authors' estimates using data from the 2017 census.

When we decompose the overall inequality by provinces (in Table 3), we get similar results. While the within-province inequality accounts for approximately 72% of overall inequality, the between-province inequality accounts for approximately 28%. The province's ranking based on the GE (1) index is identical to the one based on the Gini index. The findings of the decomposition show that, while the within component explains the large share of the inequality, the contribution of the between groups component is significant.

Table 3. Decomposition of asset inequality estimates based on GE(1) by provinces

Group	Entropy index	Population	(mu_k/mu)^theta	Absolute contribution	Relative contribution
Niassa	1.229	0.063	0.514	0.040	0.035
Cabo Delgado	1.264	0.084	0.528	0.056	0.049
Nampula	1.327	0.202	0.529	0.141	0.123
Zambezia	1.361	0.186	0.392	0.099	0.086
Tete	1.327	0.095	0.626	0.079	0.069
Manica	1.040	0.069	0.873	0.063	0.055
Sofala	1.008	0.082	1.047	0.086	0.075
Inhambane	0.918	0.054	1.213	0.061	0.053
Gaza	0.821	0.052	1.602	0.068	0.059
Maputo province	0.426	0.072	3.104	0.095	0.083
Maputo city	0.240	0.041	4.096	0.040	0.035
Within				**0.829**	**0.722**
Between				**0.320**	**0.278**
Population	1.148	1.000		1.148	1.000

Source: Authors' estimates using data from the 2017 census.

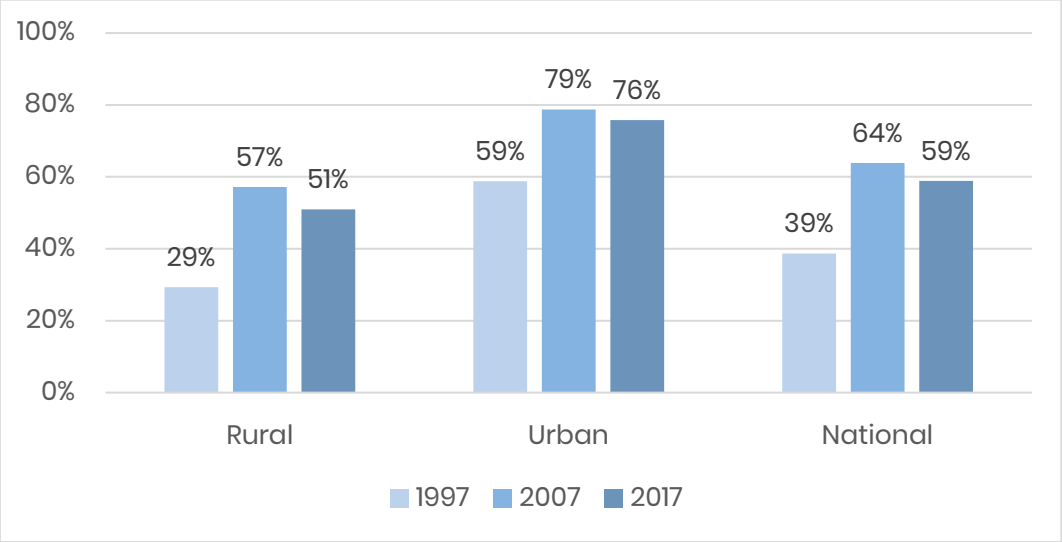
2.4 Education

In this part, we examined social inequality using education as a measure of well-being. We compare the distribution of school enrolment for children aged 6 to 18 years old, primary education completion rates for the working age population (aged 15-65), and secondary education completion rates for those aged 20-65.

2.4.1 School attendance among children aged 6 to 18 years old

Figure 12 depicts the distribution of children aged 6 to 18 attending school in urban and rural locations between 1997 and 2017. Over time, there has been a significant improvement in increasing school enrolment, particularly in rural areas. The nationwide attendance rate was around 39% in 1997 and grew to 59% in 2017, while the rural figure increased from 29% to 51%. Despite these gains, disparities in school enrolment rates exist between urban and rural areas. In 2017, the proportion of children attending school was 51% in rural areas and 76% in urban areas. The school enrolment seems slightly declined in 2017 compared to 2007 in both rural and urban areas.

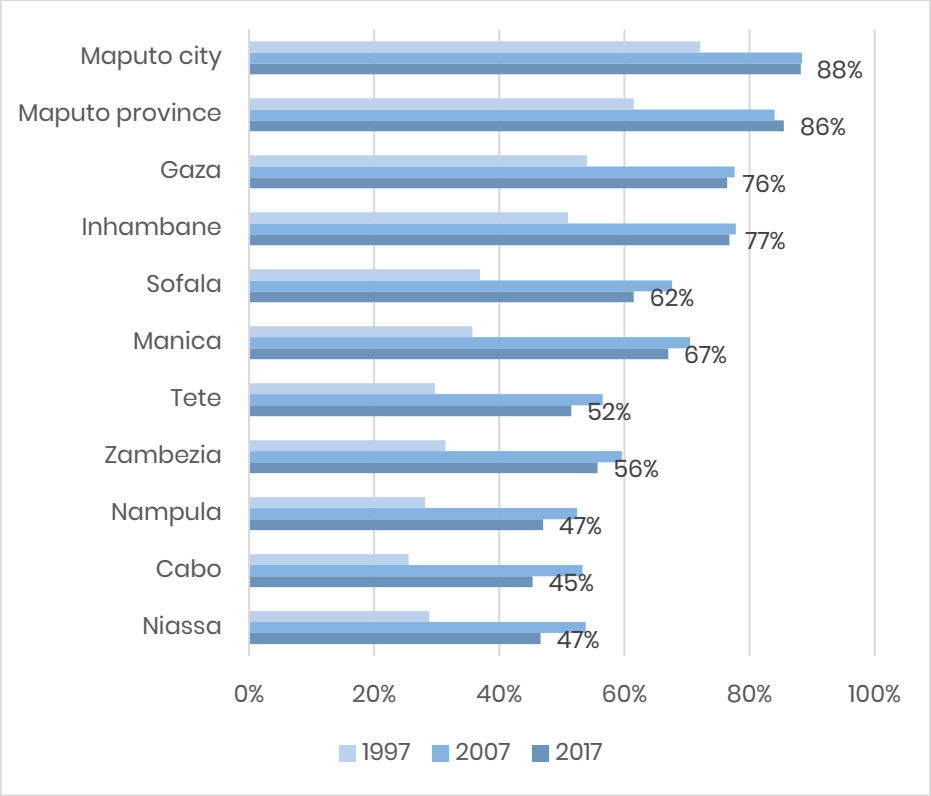
Figure 12. Proportion of children aged 6 to 18 attending school in rural and urban areas



Source: Authors' estimates using data from the 1997, 2007 and 2017 census.

Figure 13 displays the proportion of children aged 6 to 18 who attended an educational institution in each province between 1997 and 2017. Maputo City, Maputo Province, Gaza, and Inhambane had the highest enrolment rates in 2017, with attendance rates over 76%. Between 1997 and 2007, all provinces showed a considerable increase in the number of children aged 6 to 18 years old attending schools. However, with the exception of Maputo city and Maputo province, other provinces showed a minor reduction in enrolment rates between 2007 and 2017, with Niassa, Cabo, Nampula, Zambezia, and Tete provinces experiencing relatively large decline.

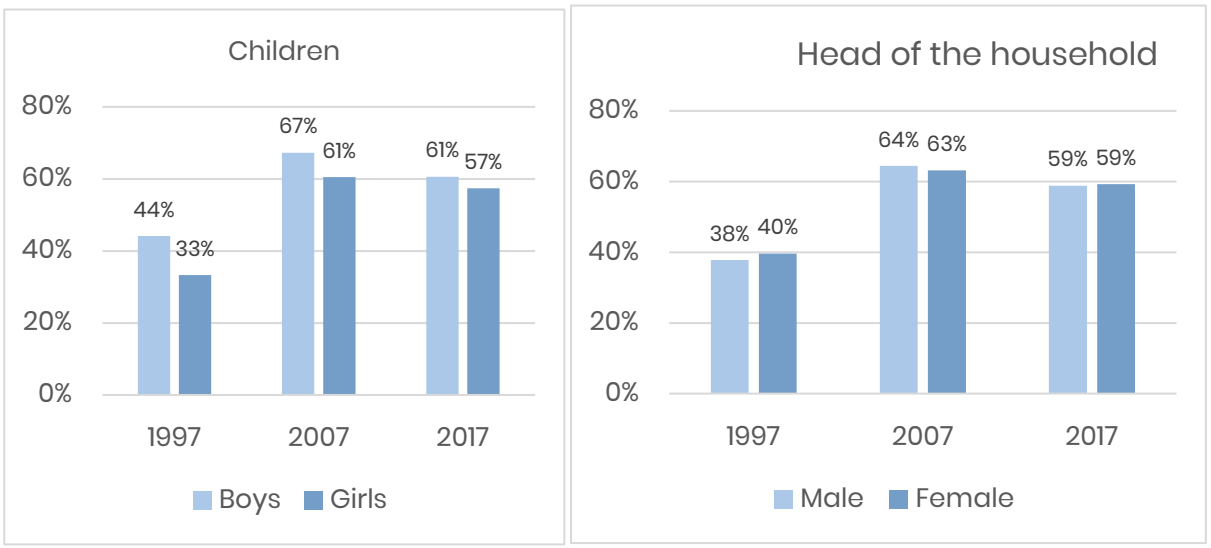
Figure 13. Proportion of children aged 6 to 18 attending school by province



Source: Authors' estimates using data from the 1997, 2007 and 2017 census.

The proportion of school enrolment for boys and girls aged 6 to 18 years old is shown in Figure 14. In general, more boys attended school than girls; however, the gender gap appears to be reducing over the 20 years between the censuses. For example, in 1997, boys' attendance rate was 10 percentage points higher than girls', but the gap reduced to 4 percentage points in 2017. We also find no large gap in school enrolment when we compare enrolment rates by rates by gender of the household.

Figure 14. Proportion of children (aged 6 to 18 years) attending school

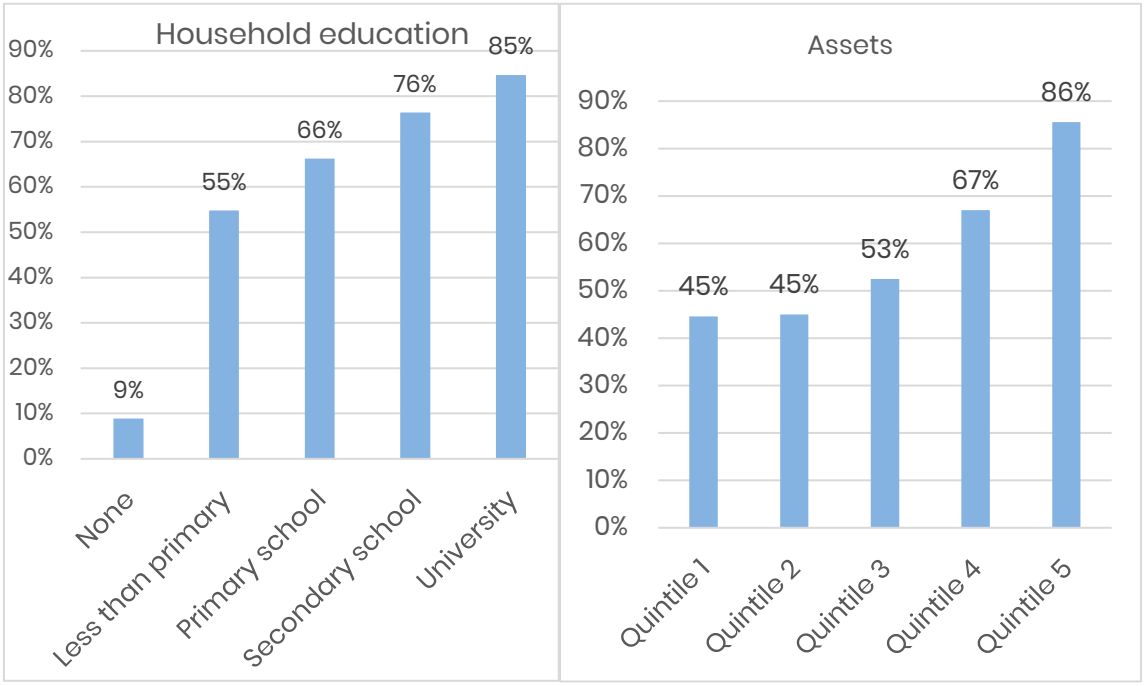


Source: Authors' estimates using data from the 1997, 2007 and 2017 census.

Figure 15 displays the proportion of children aged 6 to 18 who attend school according on the highest level of education achieved within the household and asset status. In general, the higher the level of education within the household, the higher the proportion of children attending school. For example, more than 85% of children attended school in households where at least one member held a university degree. This contrasts, the proportion of children aged 6 to 18 years old enrolled in schools was 9% for children living in households where no other member had completed any educational level, and the figure was 55% for children living in households where the highest level of education was less than primary school.

There are significant disparities in school attendance between the poor and the rich. In 2017, only 45% of children in the poorest two quintiles attended school. This proportion rises as we approach the richest quintile, with 86% of children living in the richest asset quintile attending school.

Figure 15. Proportion of children aged 6 to 18 years attending school by highest education level in the household and asset, 2017



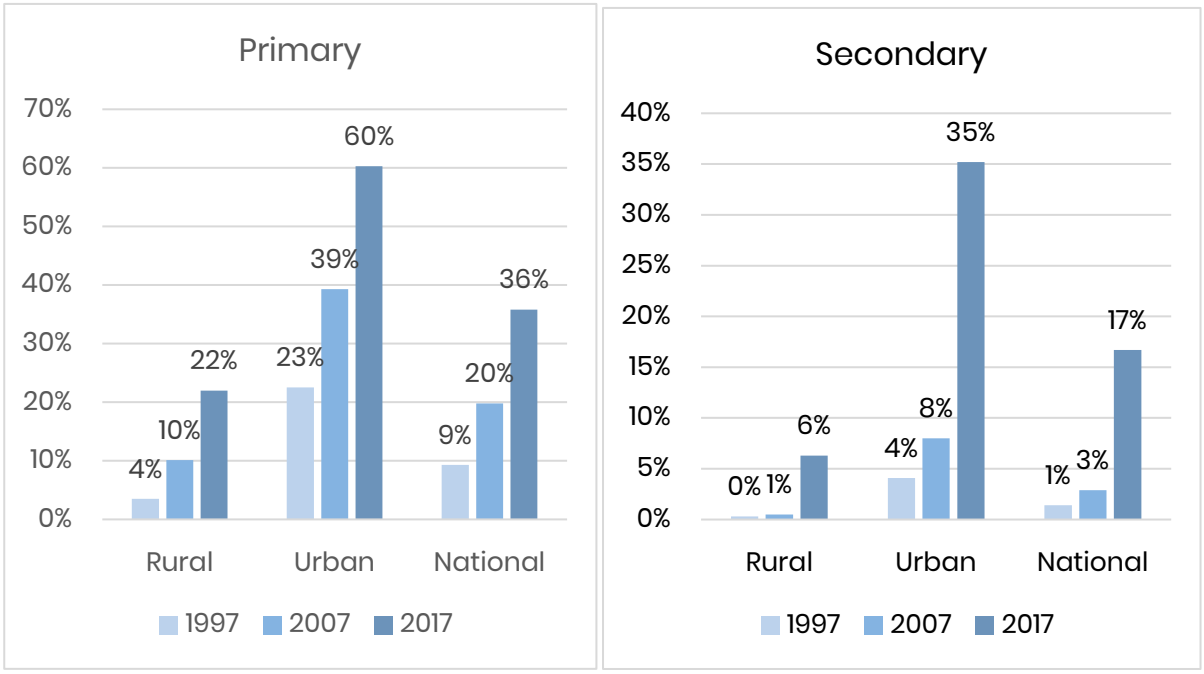
Source: Authors' estimates using data from the 2017 census.

2.4.2 Primary and secondary education among adults

Figure 16 depicts the evolution of educational attainment among people aged 15 to 65 between 1997 and 2017. Nationally, the share of the population having a primary education increased from 9% in 1997 to 36% in 2017. We find large gaps in education levels between rural and urban areas. In 1997, approximately 4% of the rural population had completed primary school, while 23% of the urban population had done so. Over the years, the proportion of working age population with at least primary education has steadily climbed, reaching 60% in urban areas and 22% in rural areas by 2017.

The secondary school completion rate at the national level is quite low, with less than 20% of persons aged 25 to 65 having completed secondary school in 2017. The corresponding estimate for urban areas was 35%, it is only 6% in rural areas. Although there is improvement in secondary education completion rates in both rural and urban areas over time, the increase in secondary education completion rate in urban regions was relatively higher than in rural ones.

Figure 16. Proportion of adults with primary and secondary education, 1997-2017

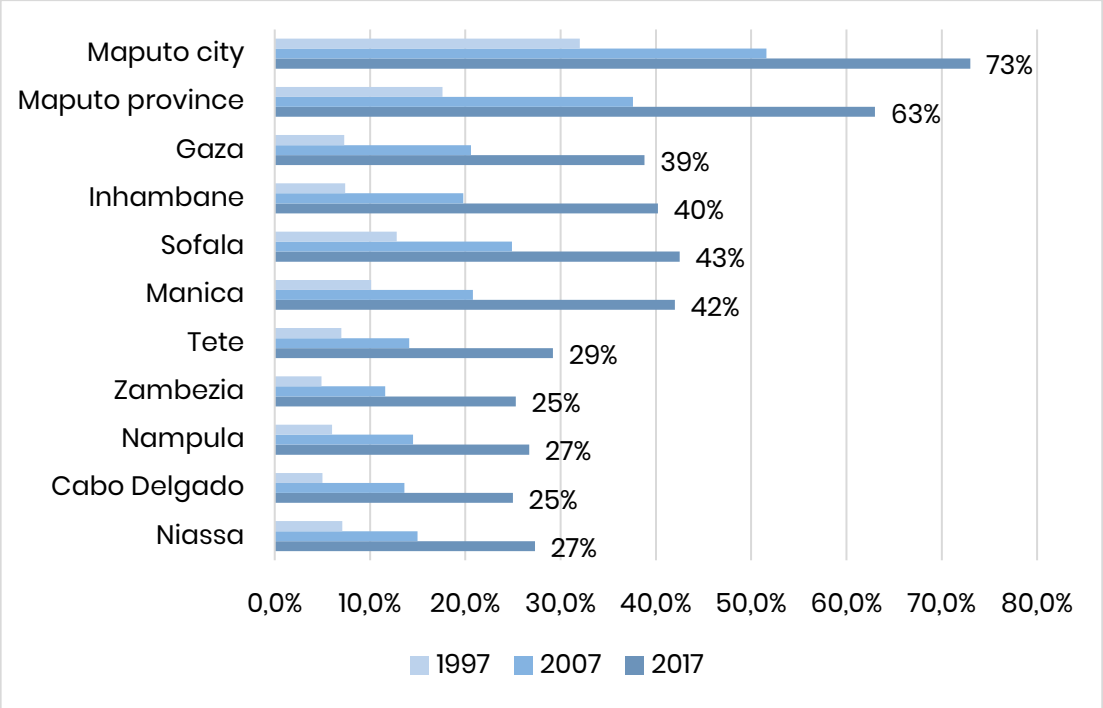


Source: Authors' estimates using data from the 1997-2017 census.

Figure 17 shows the proportion of adults (15-65 years old) with at least primary education s by province. For all provinces, there was an increase in the proportion of adults who completed primary education. For example, in Maputo province in 1997 around 32% of the adult population (aged 15 to 65) had completed at least primary education level, but in 2017 this proportion reached around 73%. Provinces such as Zambezia and Cabo Delgado have the lowest primary education completion rates among the adult population. However, the proportion of the population who completed at least primary education in Zambezia Cabo Delgado increased from 5% in 1997 to 25% in 2017.

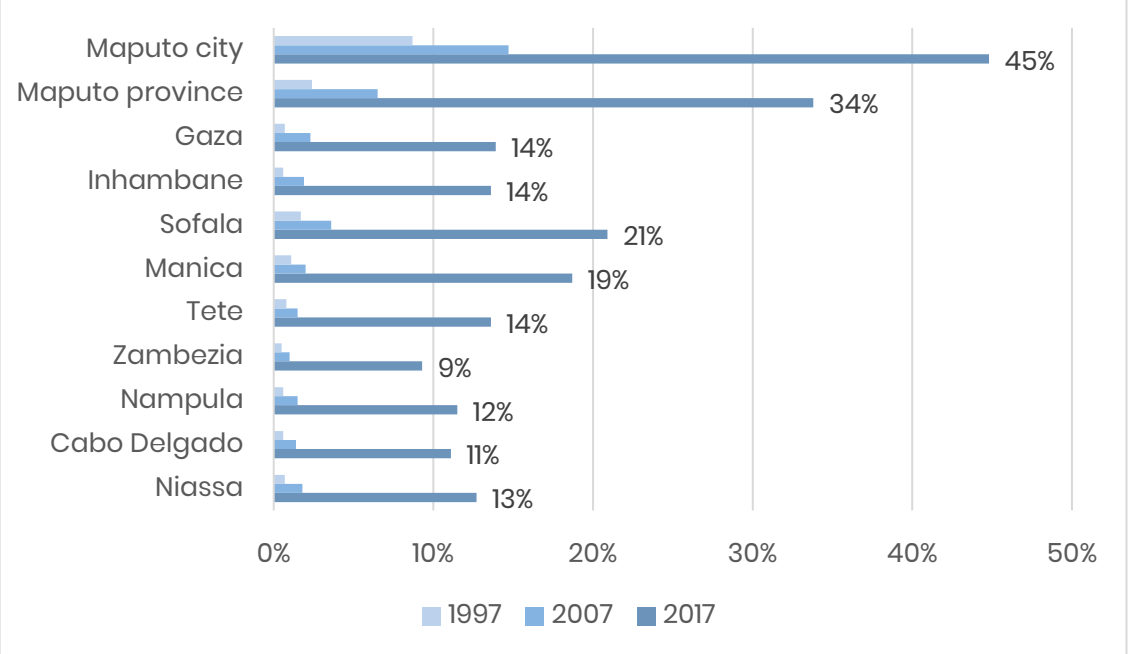
Figure 18 illustrates the variation in secondary education completion rates among provinces. Maputo city is the province with the highest percentage of individuals aged between 25 and 65 completed secondary education levels with the estimate being 45% in 2017. In contrast, the province of Zambezia has the lowest completion rate, which is nearly 9% in the same year. It is worth noting that all provinces experienced an increase in secondary education completion rates between 1997 and 2017. In most provinces, the completion rates remain below the 21% mark reached by Manica in 2017, with Maputo provinces and city being the notable exceptions to this trend.

Figure 17. Proportion of adults (15-65 years old) with at least primary education, by province, 1997-2017



Source: Authors' estimates using data from the 1997-2017 census.

Figure 18. Proportion of adults (25+ years old) with at least secondary education by province, 1997-2017

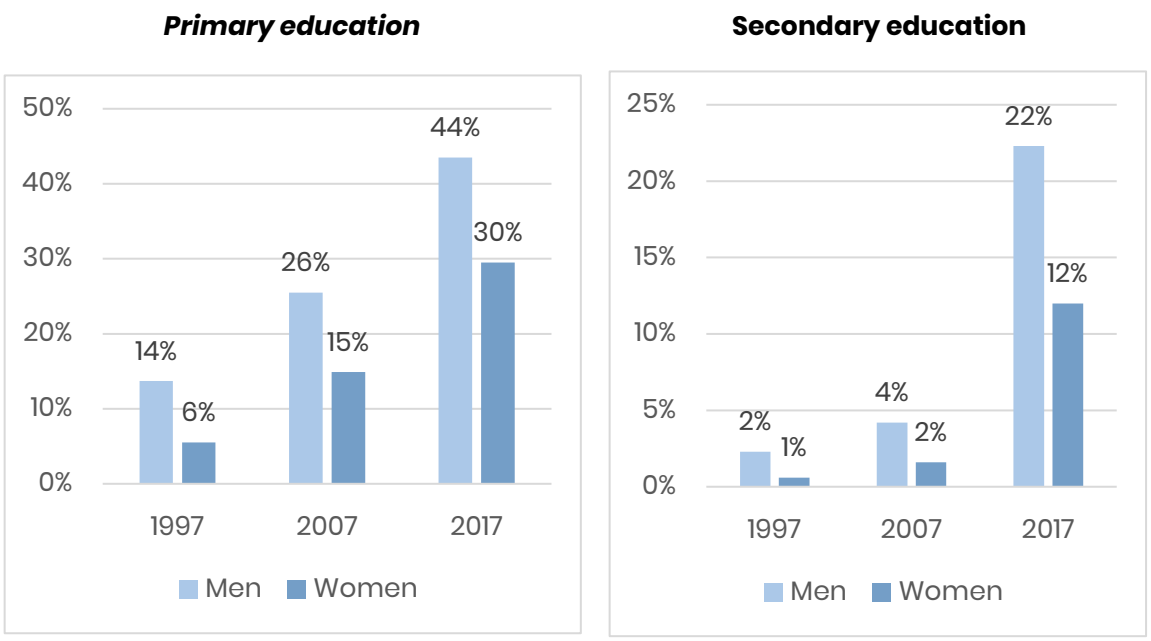


Source: Authors' estimates using data from the 1997-2017 census.

Figure 19 compares primary and secondary education completion rates by gender of individuals. We find inequality in primary education rate by gender during all the time periods. The proposition of male population with at least primary education nearly tripled between 1997 and 2017 while the figure increased fivefold for women, with the estimate for women increasing from 6% in 1997 to 30% in 2017. The difference in 1997 between men and women was 8 percentage points, but in 2017, it increased to 14 percentage points.

Comparing secondary education completion rates, among men, the proportion of individuals who completed secondary education increased from about 2% in 1997 to 4% in 2007. There was a significant increase from 2007 to 2017, where the figure increasing from 4% to 22%. Among women, the growth was almost 12 percentage points over the three years, rising from 1% of women with at least a secondary education in 1997 to around 12% in 2017. Consider the year 2017, we can see large gender gap in secondary education completion rates compared to primary education completion rates.

Figure 19. Proportion of adults completed primary and secondary education by sex

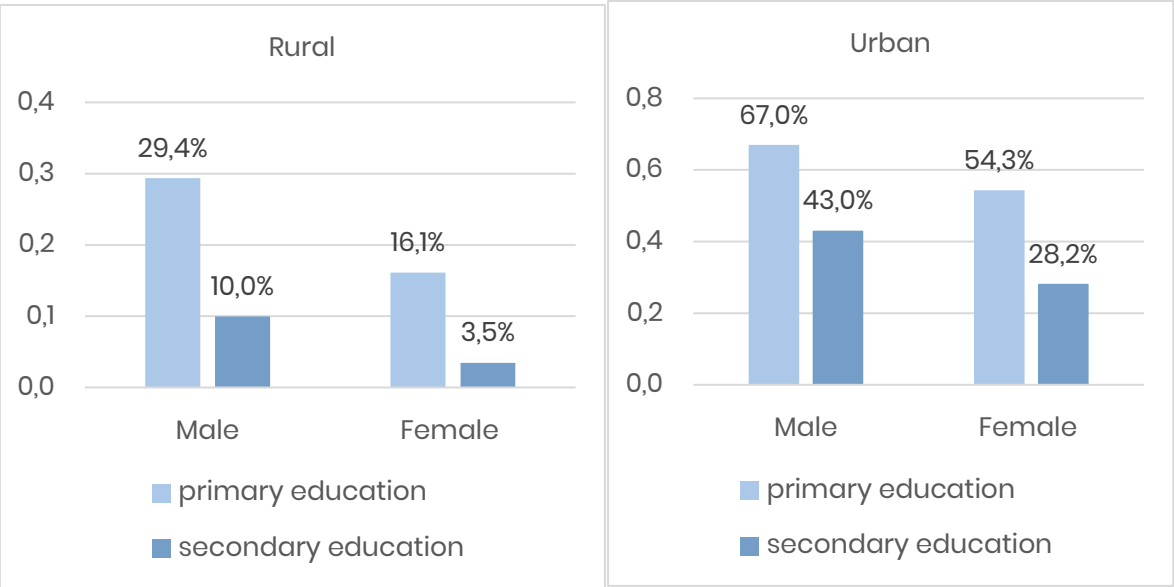


Source: Authors' estimates using data from the 1997-2017 census.

Based on data from the 2017 census, we find relatively large gender disparities in rural areas compared to urban areas in both primary and secondary school completion rates (Figure 20). In addition, the rural urban gap is greater for women than for men. For example, while in rural areas the primary school completion rate for men is 29%, the corresponding

figure for women is 16%. The corresponding figures in urban areas for primary school completion rates are 67% for men and 54% for women.

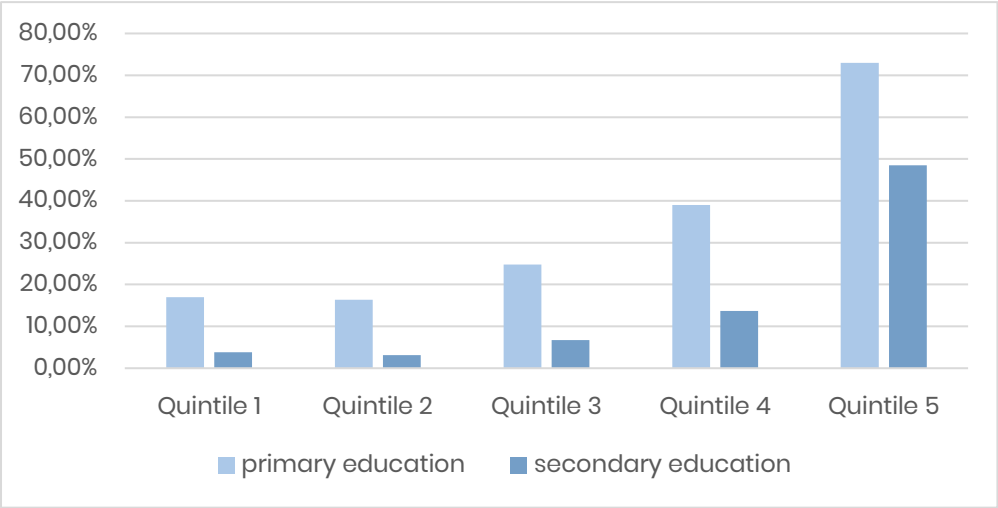
Figure 20. Primary and Secondary education completion by gender in rural and urban areas, 2017



Source: Authors' estimates using data from the 1997-2017 census.

Figure 21 compares primary and secondary education completion rates by asset quintiles. Among the poorest two asset quintiles, only 16% of the population aged 15 to 65 completed at least primary education with the figure in the richest two asset quintiles being 39% and 73% respectively. We find similar patterns of inequality in secondary education completion rate by asset quintiles. In the poorest two quintiles, secondary education completion rate was approximately 3-4% and the figure increased to 7% and 14% in the third and fourth quintiles. A significant increase is observed when moving to the richest quintile, where approximately 49% of the population aged between 25 and 65 years old in this age group has completed secondary education. Overall, among the non-poor group, about 25% of the population has completed secondary education; however, in the poor group, only 4% have completed secondary education.

Figure 21. Primary and Secondary education completion by assets quintile, 2017



Source: Authors' estimates using data from the 1997-2017 census.

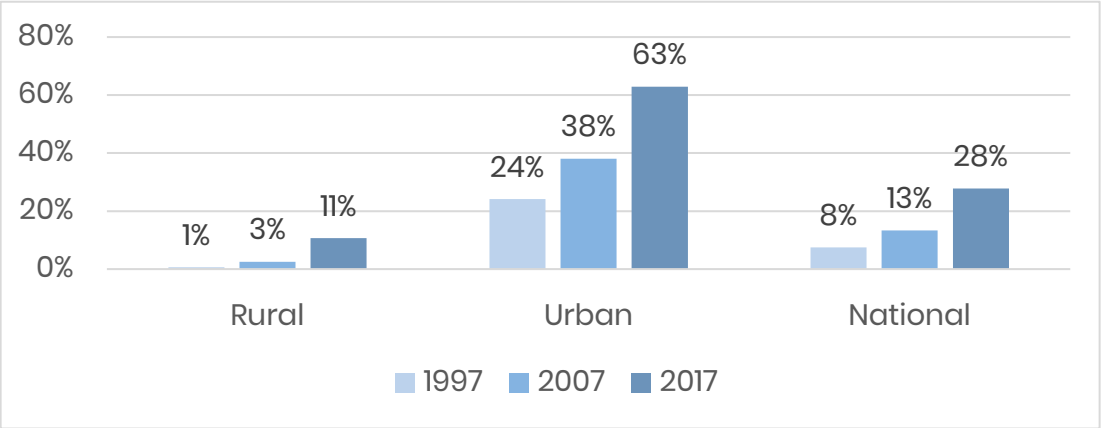
2.5 Basic services

In this section, we analyse social inequalities in access to basic services. We consider basic services such as access to electricity, safe drinking water, and sanitation. Access to electricity indicates access to electricity from the national grid. Access to safe drinking water indicates access to piped water, while access to sanitation indicates access to any type of sanitation.

2.5.1 Electricity

Figure 22 depicts the distribution of the population that had access to electricity in rural and urban areas. There has been progress in increasing access to electricity in both urban and rural areas. However, there are significant disparities between urban and rural locations. For example, in rural areas, only 1% of the population had access to electricity in 1997, which climbed to 11% in 20 years, whereas in urban areas, the figure increased from 24% in 1997 to 63% in 2017.

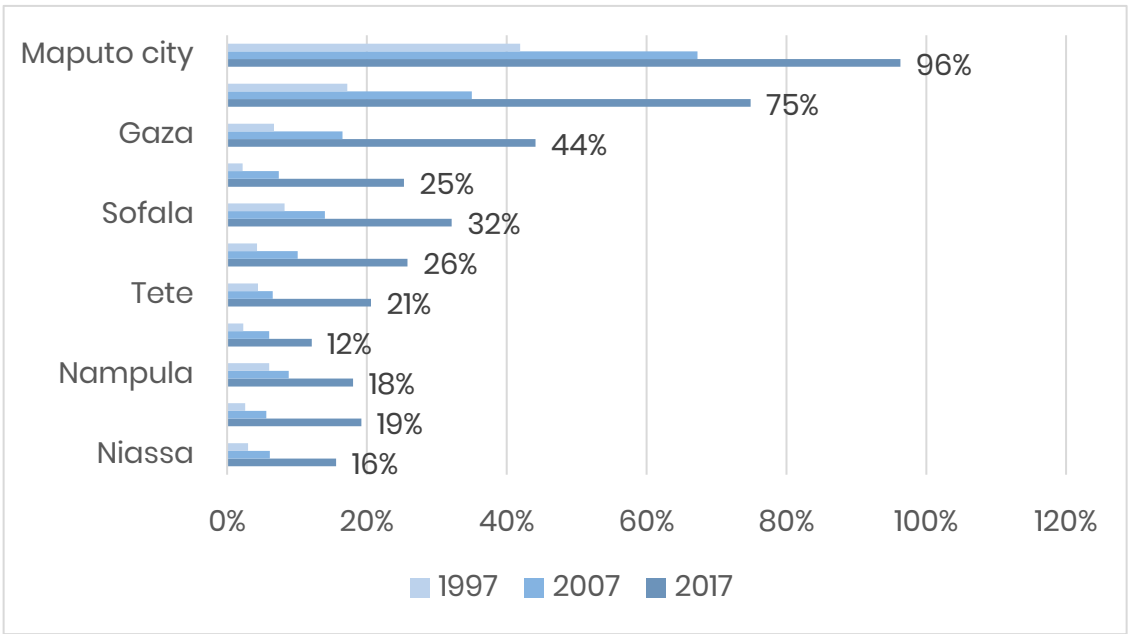
Figure 22. Access to electricity in rural and urban areas, 1997-2017



Source: Authors' estimates using data from the 1997-2017 census.

We find a significant disparity among provinces (Figure 23). The city of Maputo and the province of Maputo have the highest level of access to electricity. Access to electricity increased in all the provinces between 1997 and 2017. For example, in Maputo city, access to electricity went from 40% of the population in 1997 to around 96% in 2017, whereas in the province of Maputo, access increased from 17% to 75% of the population. In the remaining provinces, access to electricity was less than 50% in 2017, with figure reaching 16% and 12% in Niassa and Zambezia, respectively.

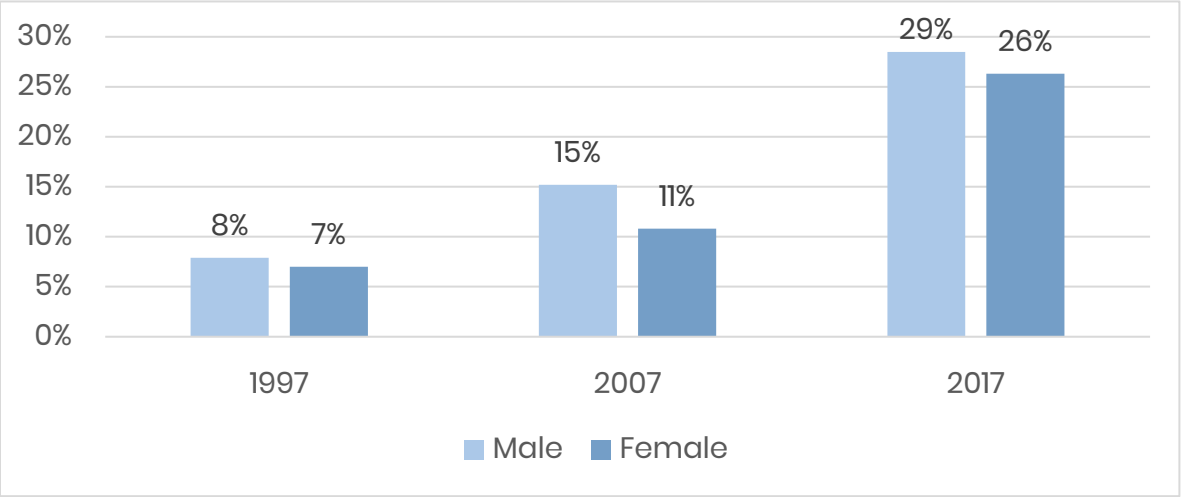
Figure 23. Access to electricity by provinces, 1997-2017



Source: Authors' estimates using data from the 1997-2017 census.

Figure 24 compares the distribution of access to electricity based on the gender of the household head. It is noted that access to electricity is greater in households headed by men. For example, in 2007, around 15% of households headed by men had access to electricity compared to 11% of households headed by women. This trend continued in 2017 where around 29% of the population living in male-headed households had access to electricity compared to around 26% of the population living in female-headed households.

Figure 24. Proportion of households with access to electricity by household's head gender, 1997-2017

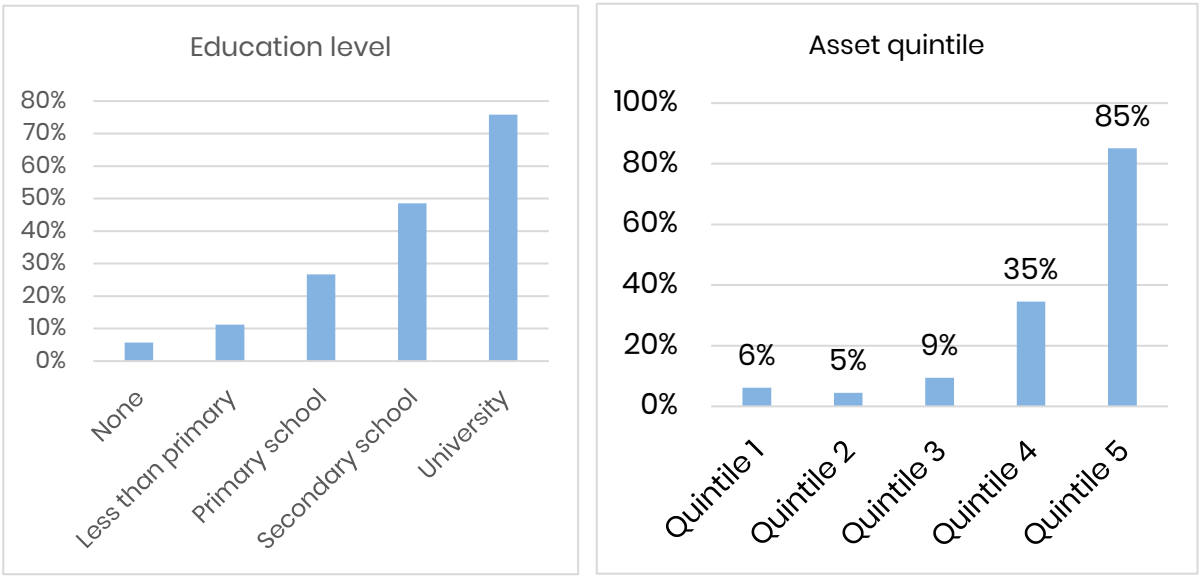


Source: Authors' estimates using data from the 1997-2017 census.

Figure 25 compares access to electricity based on the highest level of education in the household. In general, the higher the level of education, the more likely individuals will have access to electricity. Almost 90% of the population has access to electricity if they live in a household with at least one member who has earned a university education while only 6% had access to electricity for those who were living in a household with no one had education.

Access to electricity varies greatly depending on household asset position. Approximately 85% of the population in the richest quintile had access to electricity, compared to 35% in the second richest quintile. In contrast, the figure for the remaining quintiles is less than 10%. Only 6% of the poor, those in the first and second quintiles, had access to electricity, whereas the average for the non-poor category is around 44%.

Figure 25. Proportion of households with access to electricity by household education and asset quintiles in 2017



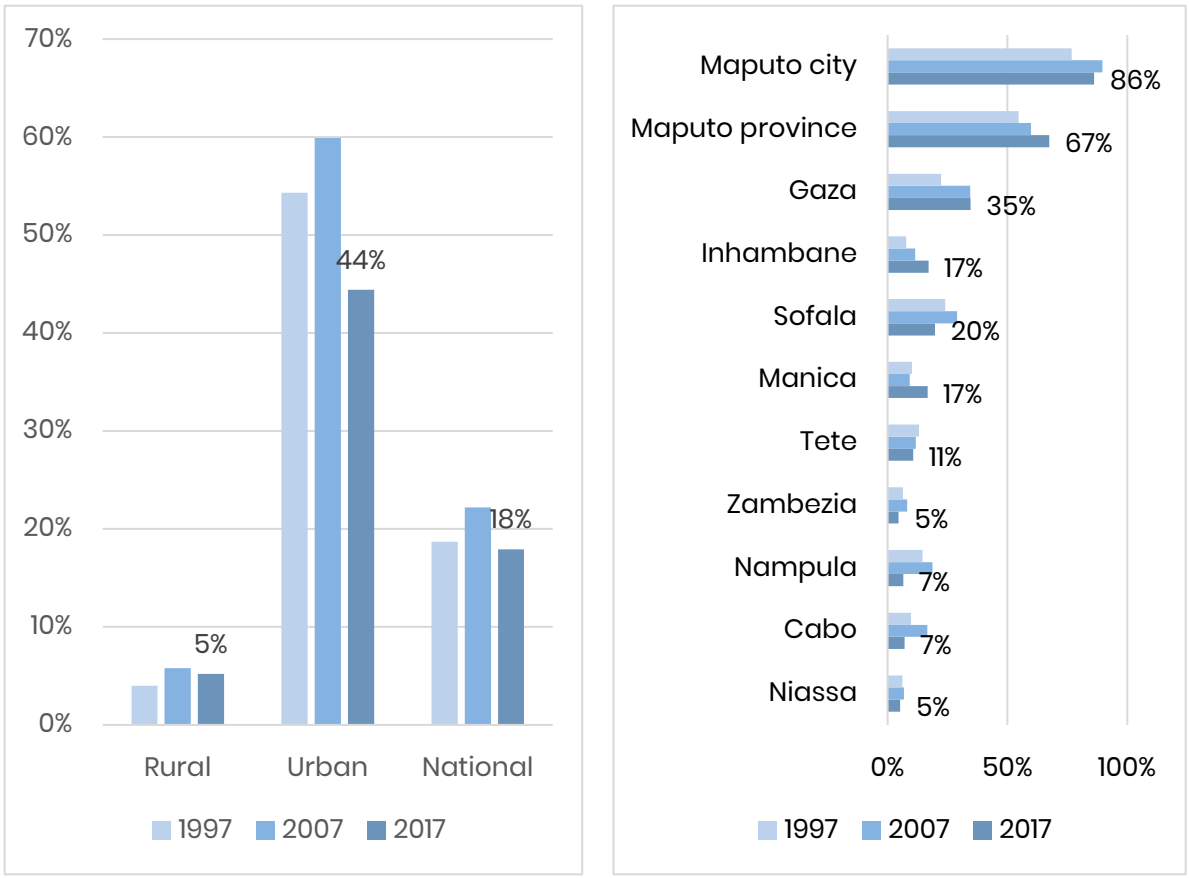
Source: Authors' estimates using data from the 2017 census.

2.5.2 Piped water access

Figure 26 depicts the proportion of the population who had access to piped water in rural and urban areas, and by provinces. Nationally, the proportion of the population with access to piped water increased from 19% in 1997 to 22% in 2007, but then fell to 18% in 2017. There are significant disparities between urban and rural communities, with less than 7% the rural population having access to piped water. In urban areas, however, more than half of the population had access to piped water, with the figure increasing from 54% in 1997 to 60% in 2007. However, it decreased to around 44% in 2017.

The provinces of Niassa, Cabo Delgado, and Nampula have the poorest access. In these three provinces, only 7% of the population in 2017 had access to piped water and saw a decline between 2007 and 2017. Between 2007 and 2017, more than 80% of the population in Maputo city and more than 60% of the people in Maputo province had access to piped water. Access to piped water in the remaining provinces does not equal the 35% attained in the province of Gaza in 2017.

Figure 26. Population with access to pipped water in rural and urban areas, and by provinces, 1997-2017

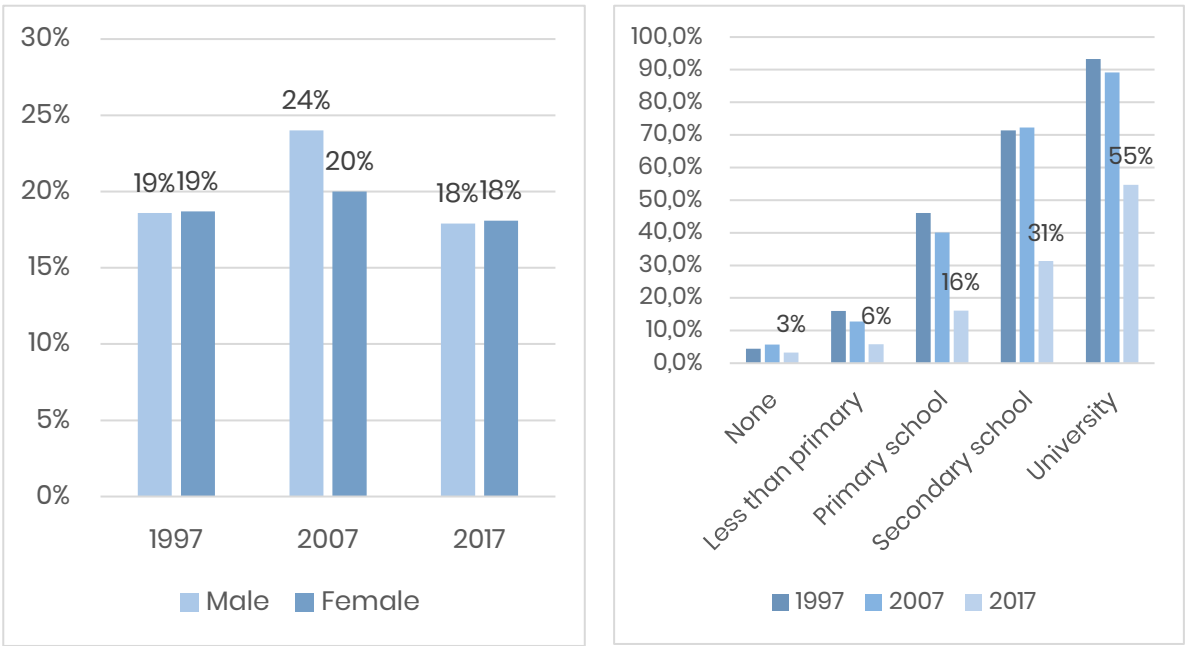


Source: Authors' estimates using data from the 1997-2017 census.

Figure 27 depicts access to piped water based on the gender of the household's head and by maximum education level completed in the household. There are no significant differences in access to piped water between female and male headed families over a 20-year period. In 2007, the disparity was barely 4 percentage points, with roughly 24% of the population having access to piped water in male-headed households against 20% in female-headed households. This disparity narrowed in 2017, with access to piped water falling to 18% for both male and female-headed households.

Overall, the higher the education level, the greater the proportion of the population with access to piped water. Nearly 90% of the population living in households where at least one member had attended a university degree had access to piped drinking water. However, in households where none of the members had completed any level of education, access to piped water was 3.3%.

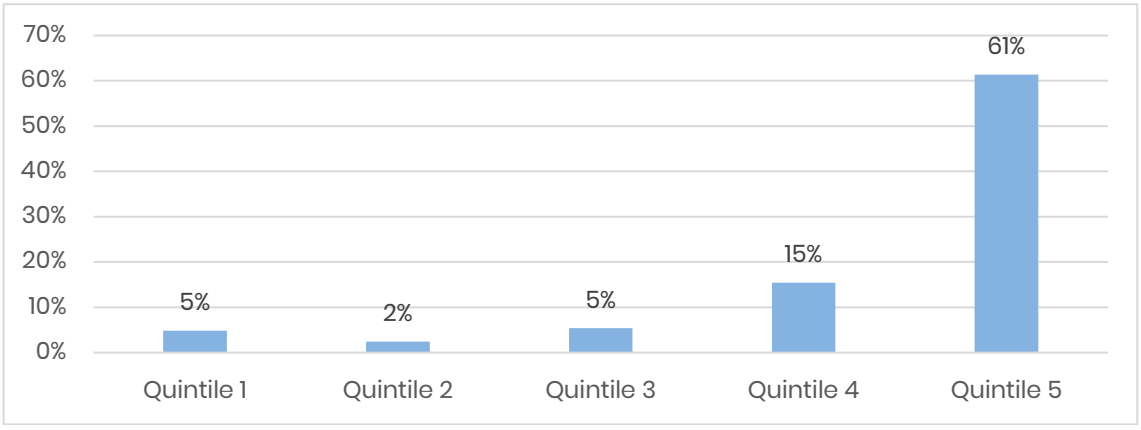
Figure 27. Access to piped water by sex of the household head and education level, 1997-2017



Source: Authors' estimates using data from the 1997-2017 census.

In Figure 28 access to piped water is presented by asset quintiles using data from the 2017 population census. The figure shows that in the wealthiest 20%, 61% of the people had access to piped water while figure for those in the fourth quintile, only 15% of the population had access to piped water. For those in the first quintile, only 5% of the population had access to piped water, indicating that estimate for those in the fifth quintile is twelve times higher than the one in the poorest 20%.

Figure 28. Proportion of households with access to piped water by assets-based wealth quintiles in 2017

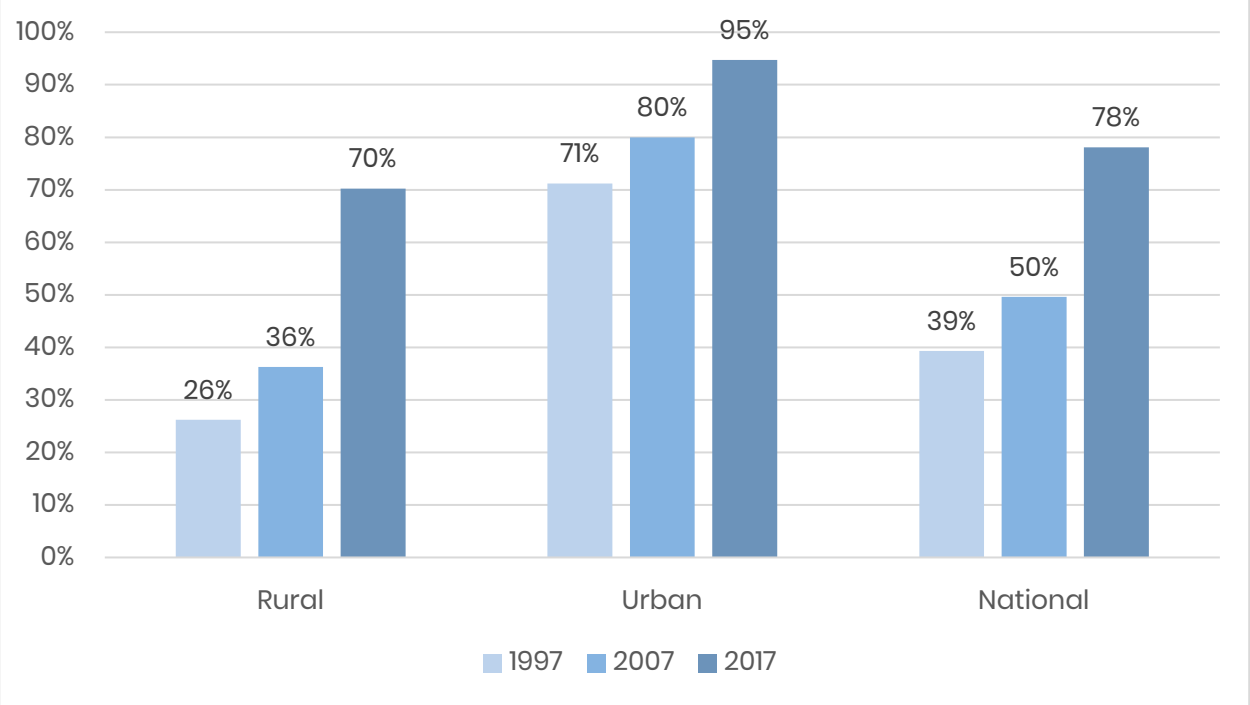


Source Authors' estimates using data from the 2017 census.

2.5.3 Access to sanitation

Figure 29 shows access to any type of improved sanitation (i.e. improved latrines and flush toilets) between 1997 and 2017 for the population residing in rural and urban areas. In 1997, around 26% of the population living in rural areas had access to sanitation, which increased to around 70% in 2017. On the other hand, the population in urban areas with access to sanitation increased from 71% to 95% in same period. In other words, access to sanitation grew faster in rural areas than in urban areas as the figure was almost tripled in rural areas while in urban areas it rose by 24 percentage points.

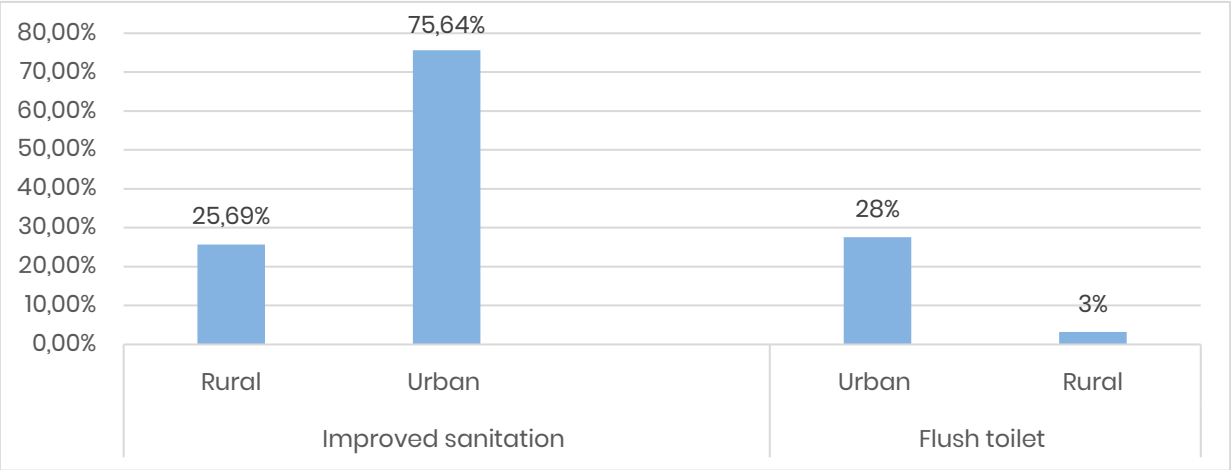
Figure 29. Population with access to sanitation in urban and rural areas, 1997-2017



Source: Authors' estimates using data from the 1997-2017 census.

A particular aspect of improved sanitation is the use of flush toilets. The data indicate that most of the people with access to flush toilets are in urban areas with only 3% the population in rural areas having access to flush toilets in 2017 (Figure 30). Considering access to improved toilet, we find large gaps between urban and rural areas, with only 26% of the population having access to improved sanitation while the figure is 76% for those in urban areas.

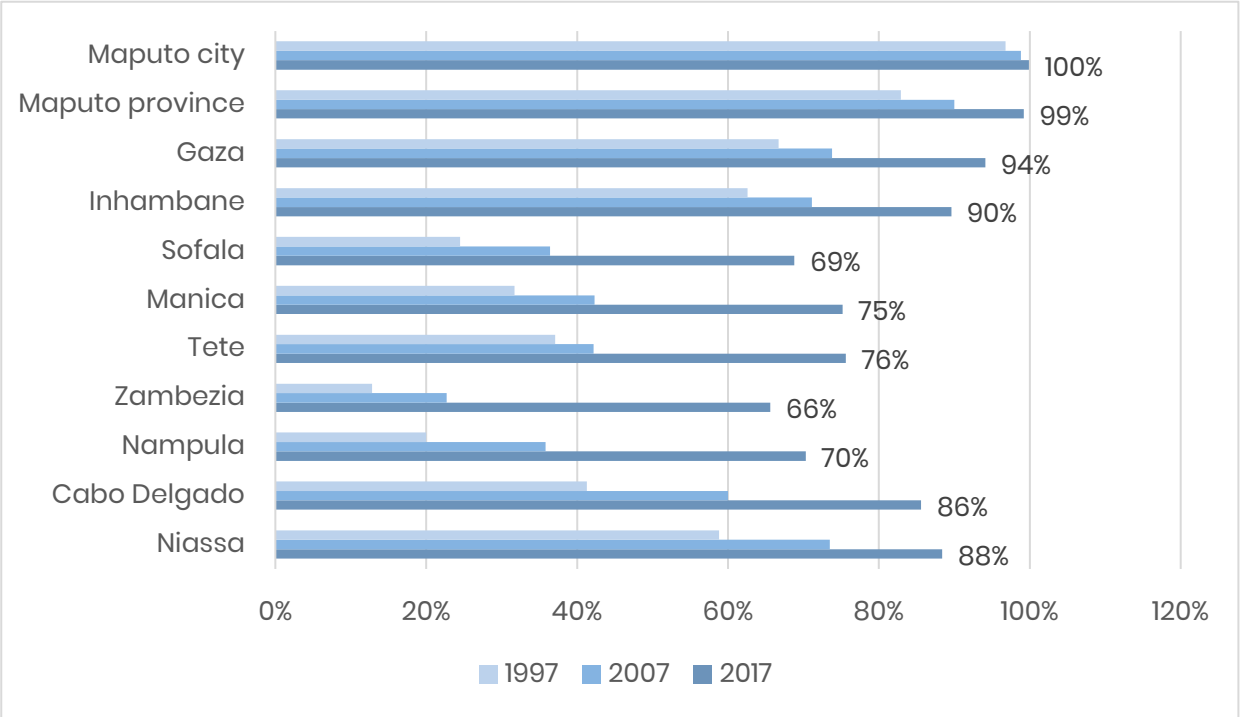
Figure 30. Population with access to improved or flush toilets, 2017



Source: Authors' estimates using data from the 2017 census.

Figure 31 shows access to sanitation by provinces between 1997 and 2017. During this period, there was an increase in the population with access to sanitation in almost all provinces. The province of Maputo has the highest level of access in the entire country, with nearly 100% of the population having access to sanitation. The province of Zambezia has the lowest levels of access to sanitation, around 66% in 2017. However, despite having the lowest access, Zambezia is one of the provinces with rapid growth in terms of access to sanitation. Over the studied period, the population with access to sanitation increased fivefold, from about 13% in 1997 to 66% in 2017.

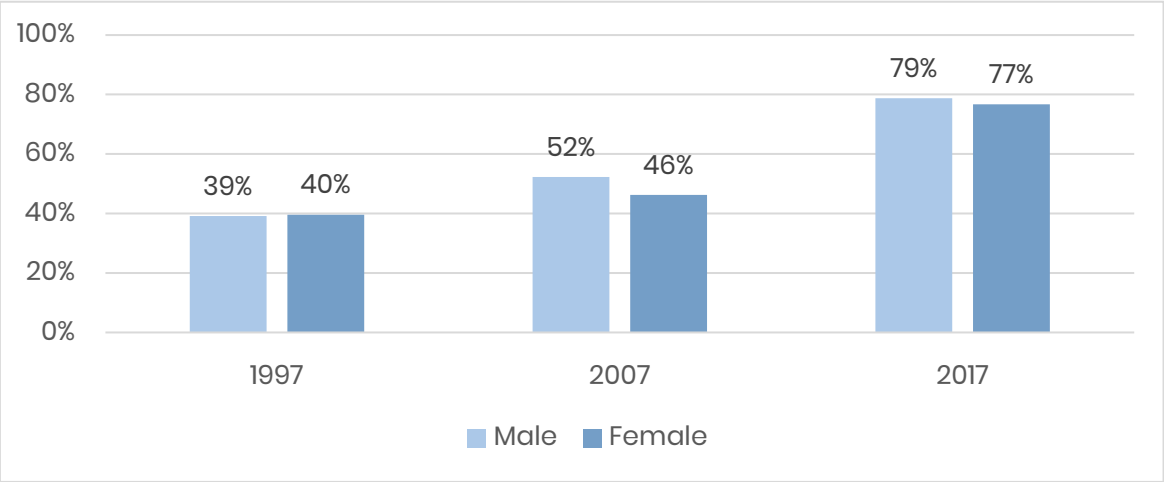
Figure 31. Population with access to sanitation by province, 1997-2017



Source: Authors' estimates using data from the 1997-2017 census.

In terms of the gender of the head of the household at the national level, there are no major differences. As shown in Figure 32, in 1997, almost 40% of the population living in households headed by both men and women had access to sanitation. However, slight differences emerge between 2007 and 2017 when approximately 52% of individuals living in male headed households' access to sanitation compared to 46% of those living in households headed by women. In 2017, the proportion of the population in male-headed households with access to sanitation increased to 79%, while for those in the female-headed households, it increased to 77%. The gender gap in 2017 was also small when we compare access to improved sanitation services.

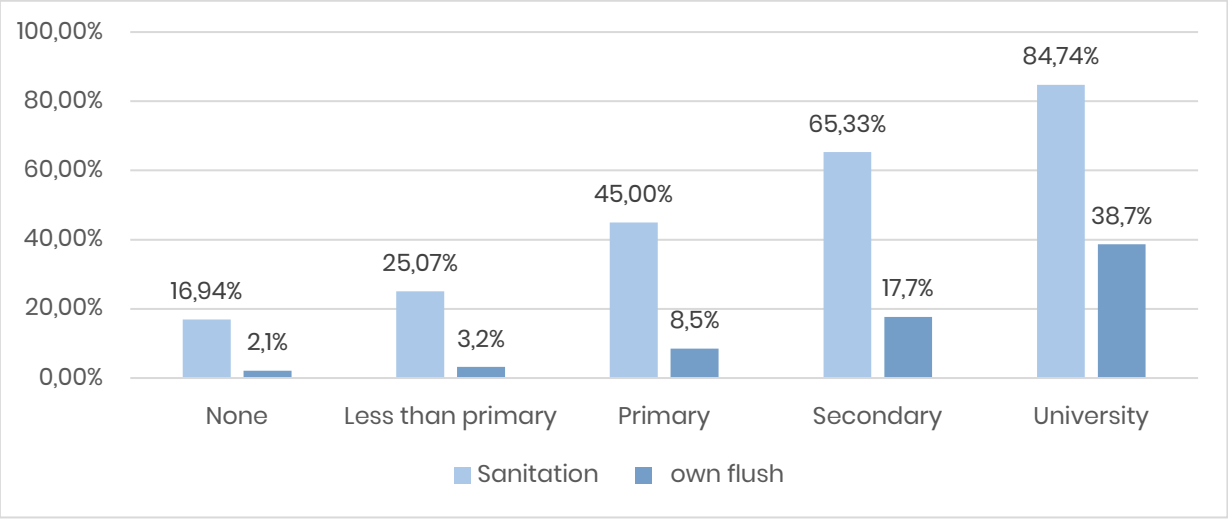
Figure 32. Population with access to sanitation by gender of household head, 1997-2017



Source: Authors' estimates using data from the census 1997-2017

Regarding inequalities by the level of education in the household, Figure 33 shows that the higher the level of education, the greater is the population with access to sanitation. Access to improved sanitation varies from 17-25% for those living in households with no education or completed primary education levels while the corresponding figure for those with secondary and university education levels is 65% and 85%, respectively. We find similar pattern when we consider access to flush toilet.

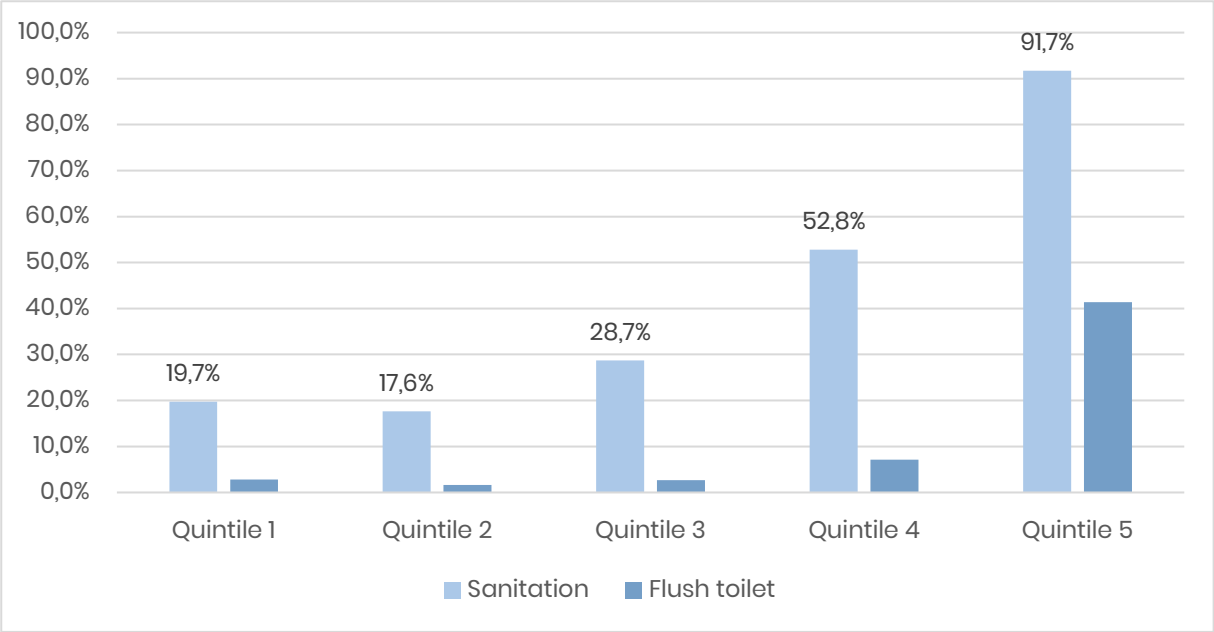
Figure 33. Population with access to improved sanitation by household education level, 2017



Source: Authors' estimates using data from the 2017 census.

In Figure 34, the population with access to improved sanitation is presented by asset quintiles in 2017. Among the poorest 20%, approximately 20% of the population had access to improved sanitation. The proportion continues to increase steadily up to the quintile of the wealthiest 20%. In this last quintile, about 92% of the population had access to improved sanitation.

Figure 34. Proportion of households with access to improved sanitation by assets-based wealth quintiles in 2017



Source: Authors' estimates using data from the 2017 census.

Overall, the analysis is this section indicate that the distribution of access to basic services in Mozambique between 1997 and 2017 have improved at the national level access to electricity among the population has increased from around 8% in 1997 to 28% in 2017. Likewise, access to any type of sanitation was 39% in 1997 and increased to around 78% in 2017. Access to safe drinking water through taps appears to have increased slightly between 1997 and 2007, from 19% to around 22%, however in 2017 it dropped to 18% suggesting not progress has been made in increasing access to piped water in recent years. Although there is overall increase in access to basic services, there are large disparities in access based on urban rural locations, provinces, household level of education, and household wealth status.

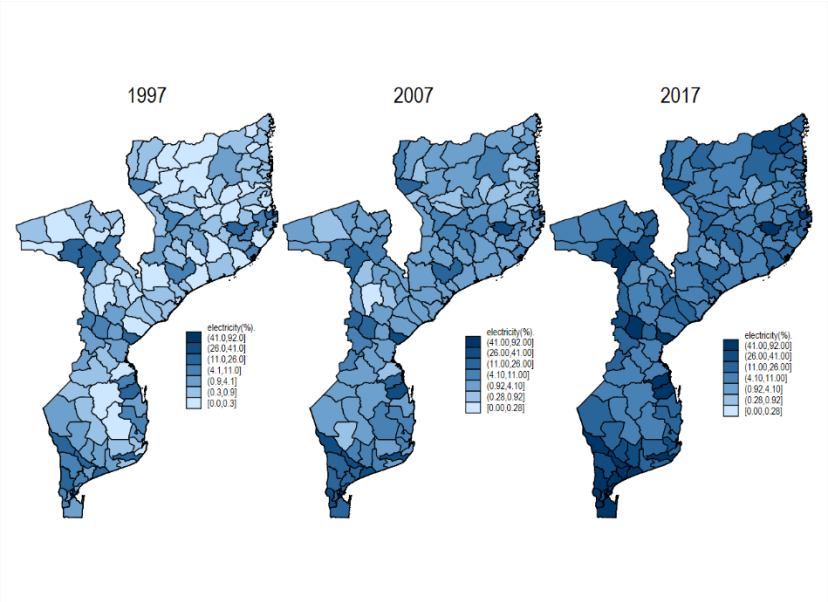
2.6 Spatial inequality

In the previous section, we find that location is one of the key dimensions of inequality in Mozambique. In this section, we further analyse the spatial inequality using districts as a unit of analysis.

2.6.1 Access to electricity

Map 2 shows the distribution of the population with access to electricity across Mozambique, by district, provinces, and the main regions (north, central, and south). The colour in the map illustrates the disparities in electricity access throughout the country. Maputo city and Maputo province in the southern region are the provinces with the highest level of electricity access, as highlighted in Figure 23. Districts that overlap with the capital cities have better electricity access levels. For example, in the central provinces, districts that are part of the capital cities such as Beira (in Sofala), Chimoio (in Manica), and Tete (Tete) show a higher level of electricity access, above 30%. The same pattern is observed in the northern region, in districts that are part of the cities of Pemba (Cabo Delgado), Lichinga (Niassa), and Nampula (Nampula).

Map 2. Mapping access to electricity at district level

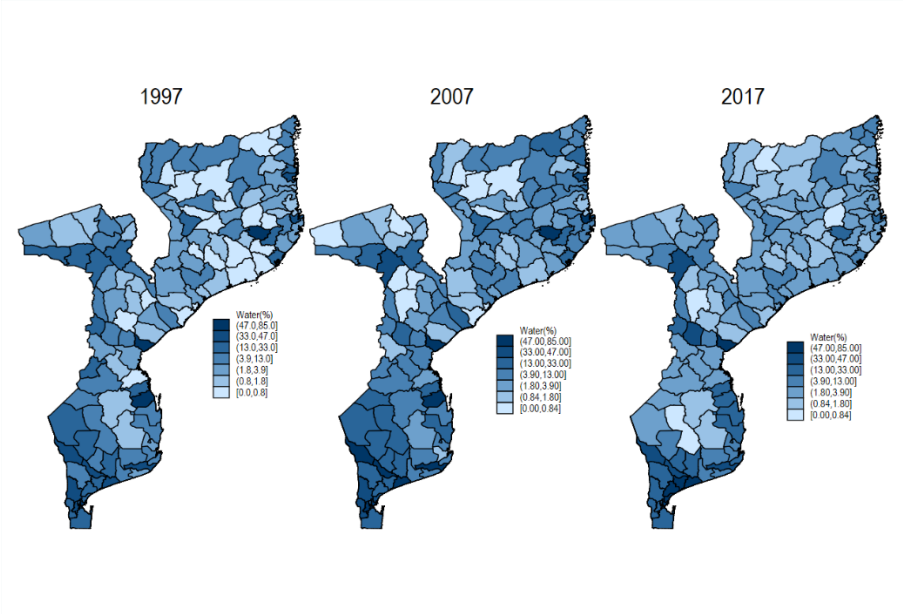


Source: Authors' illustration using data from the census 1997, 2007 and 2017.

2.6.2 Access to piped water

The distribution of piped water access at the district, provincial, and regional levels in Mozambique in 2017 is shown in Map 3. In general, piped water access is higher in districts that include the capital cities. At the provincial level, access is greater in the southern region, particularly in Maputo city, Maputo province, and some districts in Gaza province close to the city of Xai-Xai. Additionally, in the southern region, there is higher access to piped water in the coastal districts of Inhambane province. Overall, districts along the coast have a better level of piped water access than inland districts.

Map 3. Mapping access to piped water at district level

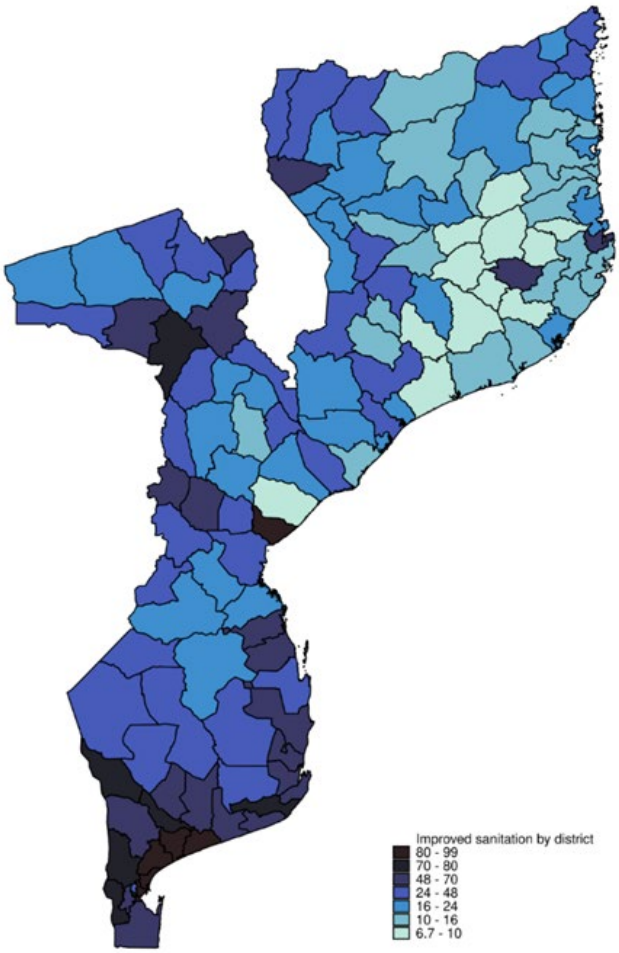


Source: Authors' illustration using data from the census 1997, 2007 and 2017.

2.6.3 Access to sanitation

The Map 4 shows the distribution of sanitation access in 2017 at the district, provincial, and regional levels. The southern provinces have higher level of sanitation access. In the northern region, the city of Lichinga, including the surrounding districts also have higher level of access to sanitation. In the remaining provinces, sanitation access in the districts is very close to the capital cities. However, it is worth noting that in the majority of districts, more than 50% of the population has access to sanitation.

Map 4. Mapping access to improved sanitation at district level



Source: Authors' illustration using data from the census 2017.

In summary, Mozambique has significant regional disparities in terms of access to basic services. The population living in the city and province of Maputo, in the southern region, has the highest levels of access to most of the basic services, followed by the capital cities in some of the provinces such as Beira in Sofala, Chimoio in Manica, and Tete in Tete. In these provinces, over 30% of households have access to electricity. Access to piped water follows a similar trend; districts in the southern region, particularly around Maputo and parts of the Gaza province near Xai-Xai, show higher levels of piped water access. Regarding improved sanitation, the data also suggest that the southern provinces outperform those in other regions of the country.

3. Discussion and Conclusion

This study presents the profile of social inequality in Mozambique. It discusses it within the framework of government social policies, which include, among various objectives, the reduction of inequality in Mozambique. The results show that, although there has been progress in reducing poverty, challenges remain in achieving social equality goals, as in many cases, inequality remains high especially in access to basic services such as education, electricity, water, and sanitation.

In the post-colonial period, Mozambique's social policies were greatly influenced by the civil war, the socialist policies of the FRELIMO government, and the structural adjustment policies stimulated by the IMF and the World Bank. At a more global level, social policies are aligned with economic and social development objectives, improved well-being, and respect for human rights established in the Constitution of the Republic. To achieve these objectives, the government designed and implemented several policy instruments. Some of these instruments had a long-term impact, as some of the measures implemented remain in place today. For instance, the Social Rehabilitation Program (PRES), whose implementation began in 1989, provided the basis for the liberalization of the economy that was confirmed through the revision of the Constitution of the Republic in 1990. This revision legally recognized market forces and private property in determining the economic order. This review followed attempts to implement a socialist economic model based on the collective ownership of the means of production as one of the conditions to combat poverty and social inequality that had marked Mozambique since the colonial period. However, the political dynamics at the time determined that the objectives and targets in the policy instruments designed, as in the case of the PPI, were not achieved.

The Mozambican government adopted the Poverty Reduction Plan (PARPA) as part of the PRES structural policies. This plan was inspired by international organizations' policies, such as the United Nations, the World Bank, and the International Monetary Fund, in the context of the Poverty Reduction Strategy Papers (PRPS). Mozambique also adopted the Millennium Development Goals and the Sustainable Development Goals, which set targets for inequality indicators regarding access to basic services and living conditions.

In line with international guidelines like the United Nations-led Millennium Development Goals and Sustainable Development Goals, Mozambique adopted the Poverty Reduction Plan (PARPA). Targets set under these frameworks aim for universal electricity and water access by 2035, 70% sanitation access, a 30% illiteracy rate, 95% primary education completion, and 75% basic education enrolment.

To achieve a primary education completion rate of around 95% for the population aged 15 to 65 in 2035, Mozambique must overcome many challenges. Regarding education access, in this study, inequality has been analysed by considering the school attendance rate of children aged 6 to 18, as well as the completion rate of primary and secondary education levels among individuals aged 15 to 65 and those aged 25 and older, respectively. The results show that, at the national level, the school attendance rate among children increased from 39% to 64% between 1997 and 2007 but decreased to 59% in 2017. This reduction may be partly attributed to the rapid growth in the proportion of children between 2007 and 2017. The children aged 6 to 17 increased by around two percentage points, going from 30% of the total population to 32%.

Access to education is unequally distributed across different areas, with significant disparities between urban and rural and provincial and district levels. Generally, urban areas, capital cities, and districts belonging to capital cities have higher rates of access to education than rural areas. For instance, in 2017, the school attendance rate for children in urban areas was 76%, compared to 51% in rural areas. In Maputo city, which is primarily urban, the school attendance rate was almost 88%, while in Niassa, it was nearly 47%, the lowest in the country. This pattern also persists in terms of completion rates, with a higher proportion of the population in urban areas having at least primary and secondary education, at 60% and 35%, respectively, compared to rural areas, where the rates are only 22% and 6%.

After the civil war, educational policies were implemented to increase schooling and literacy rates in Mozambique. However, some authors still emphasize the issue of poor education quality in the country. These results highlight both the progress made and the challenges that remain for the education sector in Mozambique, as attendance rates have been increasing, but the students still lack basic skills such as reading and writing (Lazaro, Maquia & Mairoce, 2021; Almeida, 2022; Chadza, Naciaia & Aquimo, 2023).

Access to electricity remains a significant challenge in terms of spatial inequalities and differences between households and individuals. The government aims to achieve 100% access to electricity for the population by 2035. The increase in the electricity access rate has been significant, from 8% in 1997 to 28% in 2017. In urban areas, the electricity access rate was 68%, while in rural areas, it was only 11% in 2017. The Southern provinces, such as Maputo city (96%), Maputo province (75%), and Gaza province (44%), have higher electricity access rates than the rest of the country. In the central region, the province of Sofala has the highest access rate at 14%, while in the Northern region, the highest rate is in the province of Cabo Delgado at 19%.

The study analysed access to improved water, which refers to piped water, and found that this service is available mainly in urban areas. Over the years, there has been a fluctuating trend in access to piped water. The national level of access increased from 19% in 1997 to 22% in 2007, but it dropped to 18% in 2017. In urban areas, access rose from 54% in 1997 to 60% in 2007 sharply decreasing to 44% in 2017. In rural areas, access increased from 4% in 1997 to 6% in 2007, declining to 5% in 2017. This suggests that the piped water supply network has remained stagnant over the past ten years.

The reduction in access to piped water in urban areas may also be attributed to the growth of the urban population without a corresponding investment in infrastructure development. The provinces with the highest access rates to piped water are in the southern part of Mozambique. For instance, Maputo city has the highest access rate at around 87%, followed by Maputo province and Gaza with 71% and 46%, respectively. In the central zone, the highest rate is 20%, found in the province of Sofala, while in the North zone, the highest rate is 7% in Nampula and Cabo Delgado.

Spatial inequalities and inequalities between individuals also mark access to sanitation. The government aims for 70% of the population to have access to improved sanitation by 2035. This article focused on the use of improved latrines and flush toilets in 2017. The results indicate that 78% of the population had access to sanitation, mostly explained by the use of improved latrines. However, the use of flush toilets remains relatively low. Only 28% of the urban population had a flush toilet, while the figure was only 3% in rural areas. As for improved latrines, 76% of the urban population had access to them, while the figure was only 26% in rural areas in 2017.

In addition to spatial analysis, this study also considered the comparison of inequality by gender, as national policies highlight the government's interest in ensuring equal opportunities for men and women. The results suggest no major differences between female-headed and male-headed households in 2017. However, this difference was more significant in 1997, and female-headed households tend to have less access to essential services. For example, as of 2017, access to electricity was 32% in male-headed households versus 33% in female-headed households. On the other hand, access to improved sanitation was 79% in male-headed households versus 77% in female-headed households.

Regarding education, a significant difference was observed between men and women. From 1997 to 2017, the completion rate for primary education among women aged 15 to 65 increased from 6% to 30%, while that of men increased from 14% to 44%. Thus, in 1997, the difference between men and women was only eight percentage points, but in 2017, it increased to 18 percentage points. This divergence has important implications for social

policy, suggesting that female-headed households may experience worsening conditions compared to male-headed households over time. This difference may be associated with the fact that the study shows a positive relationship between access to essential services and the education level of household members. For example, households with at least one member who attended university have 70% access to electricity, compared to less than 10% among households where none attended school. The same trend is observed in access to piped water and sanitation.

An additional way of analysing inequality is by considering wealth owned by households. In this study, we used the average household asset index based on the ownership of certain goods, specifically, television, radio, computer, stove, refrigerator, car, motorcycle, and bicycle. The results show that households with a higher average asset index have better access to essential services. For example, in 2017, households in the wealthiest 20% quintile tend to have better access to education and electricity, with 86% of children aged 6 to 18 attending school, 85% having access to electricity, and almost 90% having access to improved sanitation. In contrast, less than 50% of households in the first and second poorest quintiles have access to these services. Ownership of assets is significantly more unequal in rural areas than urban areas.

The results of this study have important policy implications. The government needs to reconsider how social policies are implemented in Mozambique. The lowest access rates to essential services are found in the most populous provinces of the North, where most of the excluded and vulnerable population lives. This is a concerning issue, particularly given Mozambique's history of civil war and food riots (Chaimite, 2014; Brito et al., 2014; Forquilha & Pereira, 2020). If these inequalities are not addressed, rising tensions may lead to new waves of conflict and violence. Therefore, it is vital to improve the situation of the provinces in the North to prevent further crises.

Ensuring that 95% of the population obtains at least primary education involves increasing access and prioritizing the quality of education. The government must ensure that the infrastructure and distribution of schools are adequate to provide a satisfactory education to all individuals, regardless of age. Unfortunately, this study has shown that a significant portion of the population cannot attend and complete secondary education due to the need for more infrastructure. This situation is particularly evident in areas far from district villages, where secondary schools are often located.

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Appendices

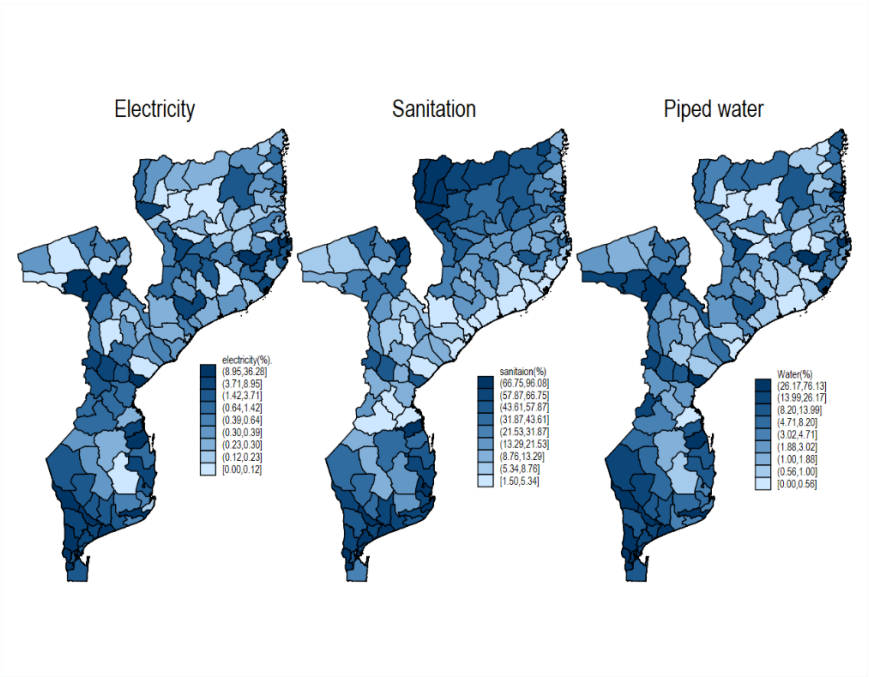
Appendix A - Tables and Figures

Table 2A. UC PCA weights

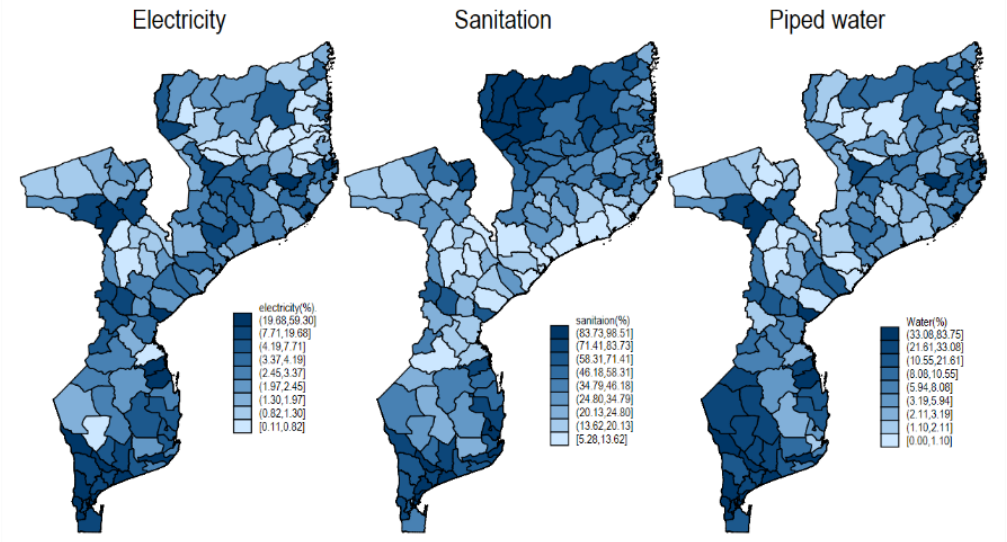
Variable	UC PCA coefficient
Radio	0.116437
TV	0.240848
Computer	0.357778
Internet	0.307604
Iron	0.242366
Charcoal Stove	0.165186
Gas stove	0.439038
Fridge	0.325004
Car	0.546972
Motorbike	0.138404
Bicycle	0.055373

Appendix B – Access to basic services by year

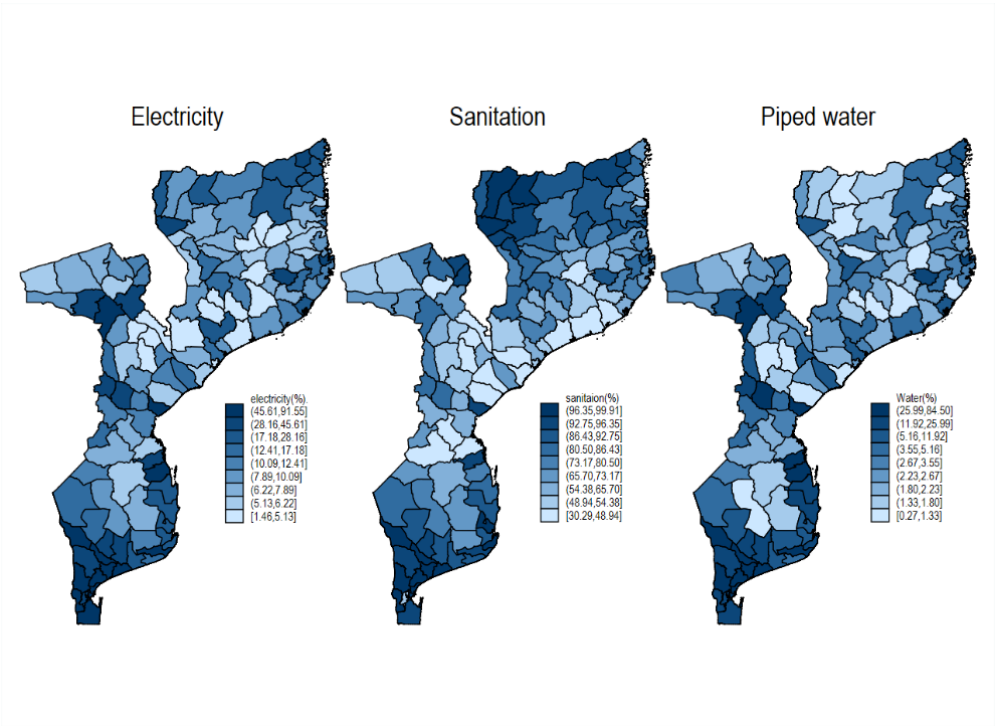
1997



2007



2017


Electricity
electricity(%)
(45.61,91.55]
(28.16,45.61]
(17.18,28.16]
(12.41,17.18]
(10.09,12.41]
(7.89,10.09]
(6.22,7.89]
(5.13,6.22]
[1.46,5.13]
Sanitation
sanitaion(%)
(96.35,99.91]
(92.75,96.35]
(86.43,92.75]
(80.50,86.43]
(73.17,80.50]
(65.70,73.17]
(54.38,65.70]
(48.94,54.38]
[30.29,48.94]
Piped water
Water(%)
(25.99,84.50]
(11.92,25.99]
(5.16,11.92]
(3.55,5.16]
(2.67,3.55]
(2.23,2.67]
(1.80,2.23]
(1.33,1.80]
[0.27,1.33]

ACEIR
SALDRU, School of Economics
University of Cape Town
Private Bag X1
Rondebosch, 7701
South Africa

Contact:
Murray Leibbrandt
Tel: +27 21 650 5715
Email:
murray.leibbrandt@uct.ac.za;
haajirah.esau@uct.ac.za
www.aceir.org.za

ACEIR – South Africa Node
SALDRU, School of Economics
University of Cape Town
Private Bag X1
Rondebosch, 7701
South Africa

Contact:
Vimal Ranchhod
Tel: +27 21 650 5715
Email:
vimal.ranchhod@uct.ac.za

ACEIR – Ghana Node
ISSER, University of Ghana,
Legon, Accra
Ghana

Contact:
Robert Darko Osei
Email: rdosei@ug.edu.gh

ACEIR – Kenya Node
School of Economics University
of Nairobi
Kenya

Contact:
Damiano Manda
Email: dkmanda@gmail.com

SALDRU
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