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Social protection for Mozambique's elderly

History, structure, and potential effectiveness

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Abstract: This study assesses the effectiveness of Mozambique's flagship social pension programme, the elderly component of the *Programa de Subsídio Social Básico* (PSSB). Focusing on three key criteria—programme targeting, reliability, and materiality—we combine administrative data on the universe of beneficiaries with the complete records of the 2017 Population and Housing Census. Merging these datasets at the *localidade* level, we provide a highly granular view of programme coverage rates and payment delivery regularity. We estimate that in the best case with zero targeting errors, the PSSB-Elderly programme reaches two-thirds of its target group. However, significant regional disparities persist, including under-coverage in poorer regions. Additionally, we document substantial delays in payments since 2023, as well as various inaccuracies in the beneficiary registry. These findings underscore the importance of simple and robust designs for social protection in resource-constrained contexts. They also suggest that expanding programme coverage towards a quasi-universal subsidy in high-poverty locations merits serious consideration.

Key words: social pensions, programme targeting, coverage gaps, payment delays, Mozambique

JEL classification: H55, I38, E61

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1 Introduction

The *Programa de Subsídio Social Básico* (PSSB) is Mozambique's largest social protection scheme, covering over 650,000 individuals, or roughly 10% of all households. By size, the main component of the PSSB is a social pension to support poor elderly households, designed to provide a transfer of around US$9 per month to each beneficiary, equal to about 30% of the per capita poverty line. While the positive impacts of regular and material cash transfers are well established in multiple contexts (World Bank 2024), studies of the PSSB have been scarce and have primarily focused on the various challenges associated with effective expansion and efficient operation of the scheme. Consequently, little is known about the extent to which the programme fulfils its primary objective, which is to enhance consumption, reduce vulnerability, and strengthen resilience of the poorest labour-constrained households.

This study provides a data-driven holistic assessment of the effectiveness of the PSSB-Elderly. As described further below, the programme has expanded gradually over time. However, funding has been erratic and limited relative to overall needs, which explains the persistence of various significant operational challenges, including large payment delays in recent years. In this light, we closely examine how the programme operates in practice, focusing on three key criteria essential for effectiveness. These are: (1) accurate targeting of the subsidy towards eligible individuals; (2) ensuring reliable delivery of transfers; and (3) providing support that is material or sufficient in size.

Our analysis combines data from two main sources: (1) the complete beneficiary registry, containing basic demographic information and payment data recorded by the National Institute for Social Action (INAS), who operate the programme; and (2) the full records from the 2017 Population and Housing Census. We merge the two datasets at the locality (fourth administrative) level, allowing us to estimate bounds on programme coverage rates, as well as to investigate systematic determinants of various programme effectiveness indicators based on descriptive regressions.

Our findings reveal both strengths and limitations of the PSSB-Elderly. The programme appears to cover a large part of its main demographic; however, targeting accuracy is far from perfect, with evidence of significant over-coverage in the southern region and under-coverage in several of the poorest provinces. Furthermore, while expansion of the programme between 2020 and 2022 seems to have targeted more rural areas, the reliability of the programme, defined in terms of disbursement consistency, has significantly deteriorated since 2023. This has exacerbated regional disparities and undermined the potential of the programme to support vulnerable households. Also, while the value of transfers appears reasonable on a per capita basis in comparison to local poverty lines, there are significant regional differences reflecting

variations in living costs. Overall, our findings highlight the need for a simpler and robust operational model, which can ensure basic coverage even during periods of constrained resources.

2 Effectiveness criteria

Before reviewing the PSSB, we briefly motivate our three chosen effectiveness criteria—targeting, reliability, and materiality. Reflecting lessons from a large body of literature, these criteria are chosen to capture what may be viewed as necessary (but not sufficient) minimum conditions that, if met, should support the overall effectiveness of the programme.

The first criterion in our study is targeting—that is, the process of identifying and selecting individuals who are eligible to receive benefits. Targeting is a fundamental element of cash transfer programme design and cost-effectiveness, whereby accurate targeting is associated with better results in terms of poverty reduction and social equity (Bastagli et al. 2016; Coady et al. 2003). Drawing on Sabates-Wheeler et al. (2015), targeting errors can reduce the average marginal private value of cash transfers by either excluding the poorest or including the non-poor. Indeed, while errors of inclusion tend to simply increase the overall costs of assistance programmes, errors of exclusion are generally more concerning from an ethical viewpoint. In the extreme, if all beneficiaries of our programme were drawn from an ineligible population (e.g. the non-poor), one would expect programme effectiveness to be very low.

With respect to the criterion of reliability, various programme evaluations highlight that the frequency and consistency of cash transfers is crucial (Muller et al. 2020). Payment irregularities are frequently associated with administrative inefficiencies, funding shortages, and logistical challenges, which can have a negative impact for recipients. Evidence indicates that unpredictable transfers in certain contexts have undermined sustained improvements in dietary diversity, and beneficiary households have struggled to maintain gains in child nutrition and school attendance (Pellerano et al. 2014; Tiwari et al. 2016). The importance of reliability reflects the point that social protection often supports basic consumption needs.

Third, to make a real difference, transfers should be should be material in size—that is, they should be substantial enough to meaningfully impact the beneficiaries' lives. While there is not a consensus on this point, and some scholars argue that even very small transfers can have positive effects, there is clear evidence that larger transfers have large effects (Bastian et al. 2020; Fisher et al. 2017; Natali et al. 2018). Relatively high-value transfers are considered to be those in excess of 30% of a household's average annual income, which produce more significant and sustained economic impacts, such as increased investment and improved nutrition. Lower-value transfers (less than 30% of average annual income) nonetheless can help address basic needs and promote health and education when distributed regularly and predictably (World Bank 2024). In Malawi and Zambia, for example, cash transfers with a value

equivalent to at least 20% of a household's baseline consumption also lead to more widespread impacts in comparison to cash transfers of a lower value (Davis and Handa 2015).

3 History and structure of the PSSB

3.1 History

Turning to the PSSB-Elderly, Mozambique has a long history of efforts to assist its most vulnerable populations. A significant step in this direction was the creation of the Food Subsidy Programme (Programa Subsidio de Alimentos, PSA) in 1990, one of Africa's oldest non-contributory schemes. The PSA was designed to provide basic support to families in need, focusing primarily on food assistance to those affected by conflict (ILO and UNDP 2011).

Later, in 1996–97, the Mozambican government established the National Institute of Social Action (INAS) within the Ministry of Gender, Children, and Social Action (MGCAS), which represented the formal institutionalization of social protection in Mozambique. INAS was established to systematically and effectively manage and coordinate the country's social protection efforts.

During the 2000s, social protection systems in Mozambique continued to expand. In 2007, Mozambique introduced the Social Protection Law, which provided a legal framework for social protection. This law was a critical step to organize and establish the social protection system at three levels: basic social security, obligatory social security, and complementary social security. Shortly after this law was passed, Mozambique approved the Regulation for Basic Social Security (2009) and the National Strategy for Basic Social Security (2010) (Cunha et al. 2015).

Following these developments, the PSA underwent a major transformation, and the PSSB was created in 2010. The PSSB was designed to provide unconditional non-contributory support to various vulnerable groups, aiming to address their complex and diverse needs (MGCAS 2022). Today, the PSSB consists of a long-term cash transfer designed to assist three main groups of labour-constrained persons, namely:

1. households headed by elderly people, people with disabilities, people with chronic illnesses, or orphaned children;
2. vulnerable families containing individuals living with disabilities, chronic illnesses, or degenerative disease, as well as orphaned children; and
3. households with a child aged 0–2 years of age who is malnourished or at risk of chronic malnutrition and with one or more members with requirements to benefit from the PSSB.[1]

[1] This component, also know as the Child Grant, was introduced in 2022 and has not been extended to the national level.

Eligibility for the PSSB is thus determined by a combination of categorical criteria (e.g., age, disability status, illness), as well as being in a situation of poverty and vulnerability.

Historically, the PSSB has received funding from both the national government and international donors. In the early 1990s, social protection funding was relatively limited and until around 2010 the programme remained small, reaching 254,000 beneficiaries (Falange and Pellerano 2016). Between then and 2020, the national budget for the PSSB grew fairly consistently, reaching MZN3.6 billion (approx. US$60 million), signalling the government's commitment to expanding and strengthening the social protection sector in the country (ILO 2021). Table 1 shows values of the PSSB state budget between 2012 and 2023.

Table 1: National budget allocation for PSSB (2012–23)

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Million MZN	629.5	1307.9	1596.7	1640.8	1705.0	2580.0	3164.1	3414.1	3615.4	3616.2	4437.0	6333.5
Million US$	21.1	41.8	49.1	39.6	26.8	41.0	52.3	54.6	56.8	56.8	69.6	99.7

Note: the table reports nominal values of government budget allocations for the PSSB as a whole, not final executed values.

Source: authors' compilation using budgets retrieved from annual *Orçamento de Estado* (national budget) documents; US$/MZN exchange rates are annual averages from **www.xe.com**.

3.2 Structure of the PSSB

As noted, among the various components of the PSSB, transfers to the elderly—which effectively represent a kind of social pension—are by far the largest, representing over two-thirds of around 650,000 beneficiaries supported by the programme as a whole.[2] Since 2018, the PSSB-Elderly has been structured based on household size, with the benefit amounts varying according to the number of dependents supported by the beneficiary. The monthly subsidy ranges from MT540.00 (US$8.50) for a one-person household to MT1,000 (US$15.65) for households with five or more members. The subsidy is disbursed at a distribution point by INAS technical staff supported by a selected member of the community who works as an intermediary between INAS and programme beneficiaries. Known as *permanentes*, these representatives are responsible for communicating with beneficiaries and supporting distribution of the subsidy according to INAS instructions. *Permanentes* are also responsible for identifying potential candidates for the subsidy and submitting a list of people they consider to be eligible, based on INAS criteria.

According to guidelines set out in the PSSB manual, expansion of the PSSB into new areas and ongoing operation follows a structured process to ensure that assistance reaches those most in need. This process includes several stages (MGCAS 2022):

[2] According to the government's 2023 social report, 649,912 households were supported by the PSSB in 2023 (MEF 2023).

1. Geographic prioritization: at the central level, INAS defines priority provinces and sets expansion goals. At the provincial level, INAS delegations collaborate with the provincial administration to identify priority districts aligned with central goals. At the district level, the INAS-IP Delegation and district governments determine priority *postos administrativos* and communities, utilizing information such as poverty levels to assess needs.
2. Regional organization: communities, typically through a collaborative process involving community leaders and members, propose a list of five individuals deemed capable of overseeing regional efforts related to PSSB distribution and supporting INAS. These candidates then participate in INAS training, which evaluates their suitability and selects one individual to serve as the community's *permanente*.
3. Identification: potential beneficiaries are listed by the *permanente* and submitted to INAS.
4. Validation and prioritization: INAS makes formal validation checks of candidates and takes the decision to prioritize validated beneficiaries, according to budget availability.
5. Registration of beneficiaries: approved individuals are formally registered in the programme.
6. Payment: the subsidy payments are disbursed to the registered beneficiaries.
7. Case management: ongoing management and support are provided to ensure the effectiveness of the programme.

3.3 Overview of existing studies on PSSB

For many years, the PSSB (and its earlier incarnations) has been perceived as a lifeline for many struggling households in Mozambique (Ellis et al. 2012), not least due to high levels of poverty across the country. Nonetheless, evidence remains limited as regards the efficiency and effectiveness of the programme, including impacts on beneficiaries. In 2012, the World Bank released a comprehensive Social Protection Assessment (World Bank 2012), which concluded that despite high ambitions, the PSSB remained constrained by severe budget limitations and that many families in need of support were not covered due to insufficient funding. The World Bank also urged Mozambique to think bigger and better, suggesting that aligning the PSSB with other social initiatives could amplify its reach and effect (ILO 2021; World Bank 2012).

When it comes to the effectiveness of the PSSB, previous studies have largely focused on operational issues, including coverage. de Arruda (2018) points out that there are more fundamental issues at play than just resources, such as frequent struggles to coordinate efforts between the different government entities involved in the distribution of the PSSB. On top of that, integration between cash transfers and other social services often falls short. The PSSB, the Direct Social Support Program (PASD), and the Productive Social Action Program (PASP), for example, are poorly linked, despite operating in similar settings and having similar goals.

Some experts believe that more consistent and transparent ways to monitor and evaluate the programme would help to ensure resources reach those in most need (de Arruda 2018). Similar concerns were raised in the midterm evaluation of the current National Basic Social Security Strategy (ENSSB II), running for the period 2015–24. As set out in MGCAS (2022), challenges such as limited financial resources, institutional capacity, and coordination issues hindered its full implementation, namely in terms of coverage, impact, relevance, coordination and institutional capacity (see also Cunha et al. 2015).

These views are not new. A 2012 report from the Overseas Development Institute (ODI) suggested that without greater transparency and accountability, local-level implementation of the PSSB can be highly problematic, undermining programme effectiveness (Selvester et al. 2012). The latter conclusions were based on qualitative fieldwork capturing the lived experiences and complex realities of PSSB beneficiaries in Mozambique. Beneficiary testimonies highlighted that support was not always sufficient to create a meaningful or lasting impact or lift them out of poverty. Furthermore, it was noted that community leaders, who play a key role in determining eligibility for aid in their role as *permanentes*, often exert significant influence over vulnerable individuals. In many rural areas, these leaders act as gatekeepers to the programme and reports of favouritism and lack of transparency surfaced on various occasions. The limited awareness among beneficiaries of their rights under the PSSB has further made them easy targets for exploitation.

In terms of impacts, the main quantitative analysis of the PSSB has been a pilot study of the Child Grant programme, implemented with support from UNICEF (Bonilla et al. 2022). This evaluation assessed the programme's measurable effects on children's health, nutrition, and overall well-being, as well as the economic conditions of beneficiary households. Using a mixed-methods approach, the study combined quantitative and qualitative data collection, including surveys and interviews with caregivers and community leaders, alongside health assessments of the children. The findings revealed that the programme effectively reduced poverty, improved nutritional outcomes, and enhanced child development. Beneficiary households reported increased food security and better access to essential services, including healthcare. As in other contexts, the success of the programme underscores the high potential of targeted and well-implemented cash transfers to support vulnerable groups.

4 Data and methods

This section describes the two main sources of data used in the subsequent analysis, as well as the key variables of interest. The datasets consist of: (1) complete household-level records of the population and housing census 2017; and (2) the digital registry of all PSSB-Elderly beneficiaries that INAS has been collecting and coordinating since 2019, known as e-INAS.

This section starts by presenting both datasets, summarizes the methods and technical aspects involved in merging information from both sources, and describes how the data will be analysed to study the potential of the subsidy.

4.1 Datasets

The first dataset we use is the full (100%) sample of Mozambique's General Population and Housing Census. This is a nationwide demographic and socio-economic census, conducted by the National Institute of Statistics (INE). It aims at providing sustainable and consistent data for understanding population dynamics, social structure, and living conditions across the country. The Census is conducted every ten years, and the most recent data collection was held during August 2017. This was the fourth edition of the Census in Mozambique's modern history, following the Censuses of 1980, 1997, and 2007.

As described further below, we use household-level information to identify the age of the household head as well as the living conditions faced by the household, which are taken from a series of (binary) indicators used to create a multidimensional poverty index. This provides insights into the distribution of households headed by elderly individuals across the country, their structure (e.g. number of dependents), and their *potential* eligibility for the PSSB, where multidimensional poverty is used as a proxy for their poverty status.

The second dataset, which provides a natural complement to the first, is the electronic registry used by INAS to manage the enrolment (on-boarding), payment, and other social protection programmes (e.g. PASD and PASP). Denoted hereafter as e-INAS, this digital platform was designed to improve the efficiency, transparency, and accountability of INAS social protection programmes, which previously had all been managed using manual records located in different INAS delegation offices (Arbodela et al. 2019). Indeed, while the earliest versions of INAS digital records go back to the early 2000s, there were continuous efforts to improve data quality and accessibility to achieve a centralized database that could support INAS activity across the country.

Developed in 2015 but rolled out from 2019, e-INAS is a cloud-hosted database containing beneficiary-level information that (in principle) is available to all delegations as well as INAS central office (Arbodela et al. 2019). The system allows for the electronic registration of beneficiaries and is designed to facilitate vulnerability assessments. Nonetheless at present, relevant socio-economic data to facilitate such assessments is not collected or digitalized, and the assessment algorithm has not been finalized.[3] Thus, currently, only limited information is avail-

[3] According to INAS staff, a preliminary pilot of a proxy means test (designed by World Bank consultants) excluded the vast majority of existing beneficiaries.

able in the registry, including name, gender, age, and number of dependents of each beneficiary, as well as payment amount and dates. Data is available for the period 2019–23, although (discussed below) data from 2019 appears to be incomplete as payment data begins in the middle of the year. More precisely, e-INAS data includes information on payments registered between 23 May 2019 and 29 November 2023.

4.2 Data management

The analysis of this study is based on merging the above datasets, namely the complete records of *both* the 2017 Census and the e-INAS registry. While merging at the individual level is not possible due to the anonymized nature of the Census, we can aggregate and merge data at the neighbourhood level, defined as *localidades* or *bairros*, which represent the fourth official administrative tier below provinces, districts, and administrative posts.

In the first step (aggregation), we take location-specific means of key variables from each dataset. Variables aggregated from the 2017 Census include:

- *Deprivation*: the average deprivation level in the neighbourhood, defined as the row-wise average of a series of binary indicators each of which take a value of 1 if a household is deprived in a given domain. The domains covered are access to electricity, water, sanitation, housing conditions, assets, and cooking materials. Echoing similar calculations for Mozambique, a household is considered multi-dimensionally poor if it has a deprivation score of 0.5 or less (Egger et al. 2020; Fisker et al. 2023).
- *Female head*: the average share of households headed by a woman in each neighbourhood. This is particularly relevant for this programme, since women represent the majority of PSSB beneficiaries and female-headed households are often associated with higher levels of economic hardship (Saad et al. 2022).
- *Heads of household above 60 years old*: the total number of heads of household above 60 years old in the neighbourhood.

Key variables aggregated from the e-INAS registry include:

- *Beneficiaries*: the number of beneficiaries that were attended at community level in each year between mid-2019 and November 2023.
- *Payment frequency*: the number of times beneficiaries were attended at community level in each year between mid-2019 and November 2023.
- *Payment value*: the total payment value paid by INAS to beneficiaries at the community level in each year between mid-2019 and November 2023.

Merging these aggregated datasets is not straightforward due to the absence of a consistent naming or numerical system to identify different locations. To make the Census and e-INAS compatible, there was a need to clean and standardize variable names, especially related to geographical identifiers at the community level, which was the common level between both datasets. After merging the datasets, we calculated the match rate in the data given by the proportion of *localidades* (lowest geographical level available) that could not be matched. Overall, we find an average of 10% mismatch, which we believe is reasonable (i.e. our analysis covers 90% of all *localidades* in the country).

4.3 Analytical framework

In the first stage of analysis (Section 5.1), we present general descriptive statistics, covering the evolution and profile of beneficiaries over time. Next, to assess the potential effectiveness of the PSSB, we focus on each of the three dimensions of potential effectiveness: targeting, reliability, and materiality. Each dimension is explored through a set of indicators, leveraging the merged datasets.

Targeting

The targeting analysis evaluates whether the PSSB is reaching its intended beneficiaries, namely the vulnerable elderly population without other income sources. To investigate this, we provide various estimates of the coverage rate, including the ratio of the population receiving the subsidy to the total elderly population, as well as a poverty-adjusted coverage rate defined as the ratio of the population receiving the subsidy relative to the elderly poor population. The latter is captured by the following expression:

$$UB\ Coverage_y = \left(\frac{PSSB_y}{Pop.\ 60+}\right) \cdot \left(\frac{Pop.\ 60+\ poor}{Pop.\ 60+}\right)^{-1} \quad (1)$$

where $PSSB_y$ indicates the number of PSSB-Elderly beneficiaries covered in year y, and the other terms refer to the number of household heads aged 60+ and the number in a situation of multidimensional poverty, as estimated from the 2017 Census.[4]

The number of beneficiaries ($PSSB_y$) can be counted in two main ways: (I) de jure coverage, which corresponds to beneficiaries that are formally enrolled in the system and had thus received at least one prior payment; and (II) de facto coverage, which corresponds to beneficiaries actually receiving a payment in a given year. The latter can be further separated according to the amount of payments received. Thus, we distinguish between: (IIa) minimum de

[4] Population estimates based on the 2017 census are updated to account for population growth using national-level estimates of growth rates.

facto coverage, which corresponds to having received at least one payment in a given year (i.e. any individual receiving at least one payment in a given year is counted as 1, while individuals receiving no payments are not counted); (IIb) adjusted de facto coverage, which takes into account the proportion of payments actually made (i.e. if an individual receives six months of payments in a given year they are counted as 0.5); and (IIc) final de facto coverage, which corresponds to those who have been fully paid in each year (i.e., individuals are counted as 1 if they have received full payments in a given year and 0 otherwise).

It further merits note that Equation (1) provides an upper bound estimate on the share of the poor and elderly covered by the PSSB-Elderly. That is, it implicitly assumes that if there are N_1 individuals aged 60+ in a given location, of which $N_2 \leq N_1$ are poor, then all PSSB beneficiaries are members of group N_2, which is equivalent to assuming errors of inclusion are minimized. The most conservative (opposite) assumption is that PSSB beneficiaries are chosen first from the non-poor. In this case, a lower bound estimate of the coverage rate is given by:

$$LB\ Coverage_y = \left(\frac{PSSB_y - (Pop.\ 60+ - Pop.\ 60+\ poor)}{Pop.\ 60+} \right) \cdot \left(\frac{Pop.\ 60+\ poor}{Pop.\ 60+} \right)^{-1} \quad (2)$$

Note that we censor both the lower and upper bound coverage rate estimates at the extremes of 0 and 1 to facilitate meaningful interpretation.

As a complementary exercise, we conduct a set of regressions to explore determinants of the number of beneficiaries enrolled in the scheme and the number of beneficiaries paid in each year, based on alternative coverage metrics used in definitions I, IIa, IIb, and IIc above. Concretely, we regress these dependent variables measured at the locality level against various socio-demographic determinants, as well as province fixed effects, thereby helping to identify disparities in the distribution of beneficiaries and payments. These estimates are based on the following generic specification:

$$\begin{aligned} \ln PSSB_{ij,y} = \beta_0 + \beta_1 Urban_i + \beta_2 \ln(Poverty)_i + \beta_3 Female_i + \beta_4 \ln(Pop.\ 60+)_{i,y} \\ + \lambda_j + \epsilon_{i,y} \end{aligned} \quad (3)$$

where PSSB is the beneficiary count, typically the number of PSSB-Elderly beneficiaries of some kind (e.g. minimum de facto). i indexes locations and j provinces.

As the outcomes used in Equation (3) are transformed into natural logarithms, the specification effectively represents a restatement and extension of the coverage rate in Equation (1), allowing the analyst to identify systematic determinants in differences in coverage rates across locations. The explanatory variables included in Equation (3) cover key demographic economic and regional characteristics. The variable 'urban' is a binary indicator of whether the community is classified as an urban or rural area. The poverty measure, which enters in log form, consists of

the mean multidimensional poverty headcount among households with a head aged 60 years or older, as measured from the Census 2017 data. The variable 'female' is the average share of households headed by a woman in each community. The logarithm of the number of household heads of 60 years or older is added to all specifications of the model to take into account the elderly population density at the community level.[5] The model also includes province fixed effects to control for unobserved regional factors that may affect the outcome.

Finally, since the PSSB coverage of the elderly population showed positive progression between 2020 and 2022, but with a significant drawback in 2023 in de facto terms (see below), we use the same type of regression analysis to explore determinants of changes in PSSB-Elderly coverage over time. Thus, in these regressions the dependent variable becomes the difference in the log. number of beneficiaries per neighbourhood between 2020 and 2022.

Reliability

Reliability encompasses the consistency or predictability of PSSB payments, a feature generally viewed as vital for households to take full advantage of the transfers. In our case, we examine payment frequency, focusing on the number of payments per year and the time gap between payments. In regression analysis (as above) we use the standard deviation of payment gaps (time between payments) to review how such gaps vary across time and space, placing a focus on discrepancies across provinces.

Materiality

Materiality assesses the adequacy of the PSSB payments with respect to basic living expenses. This involves comparing the value of the subsidy to local costs of living (including food, housing, healthcare, and education), as reflected by poverty lines. As per standard practice in Mozambique, poverty lines are calculated on a regional basis based on data from household surveys. The ratio of PSSB payment values to the relevant monthly poverty line therefore captures a lower bound on the relative increase in consumption among poor beneficiaries. This dimension thus helps evaluate whether the PSSB is likely to make a meaningfully improvement in well-being for its recipients.

[5] We update population data from the 2017 Census with an estimate of growth rates based on UN population projections for 2018–27 (DESA-EN 2024).

5 Results

5.1 Descriptive analysis

The e-INAS dataset contains payment-level information from mid-2019 to the end of November 2023 (payment data was extracted on 15 December 2023). The dataset contains information per payment and household, which means that we consider a PSSB beneficiary any household who received at least one payment in that year. Data on the number of beneficiaries covered by the e-INAS register can be complemented with data from INE statistical yearbooks between 2015 and 2022. The year 2015 was the first year after PSSB was restructured and 2022 is the last year for which INE national statistical yearbooks are publicly available. Table 2 combines information from both sources, showing the evolution of the number of PSSB-Elderly beneficiaries receiving payments in each year since 2015.

Table 2: Total beneficiaries attended by year

	INE		e-INAS	
Year	Beneficiaries	var.%	Beneficiaries	var.%
2015	339,850		.	
2016	370,769	9.1	.	
2017	363,121	–2.1	.	
2018	391,397	7.8	.	
2019	339,850	–13.2	220,304	
2020	.	.	382,805	
2021	454,296	33.7	410,085	7.1
2022	467,012	2.8	441,647	7.7
2023	.		316,603	-28.3

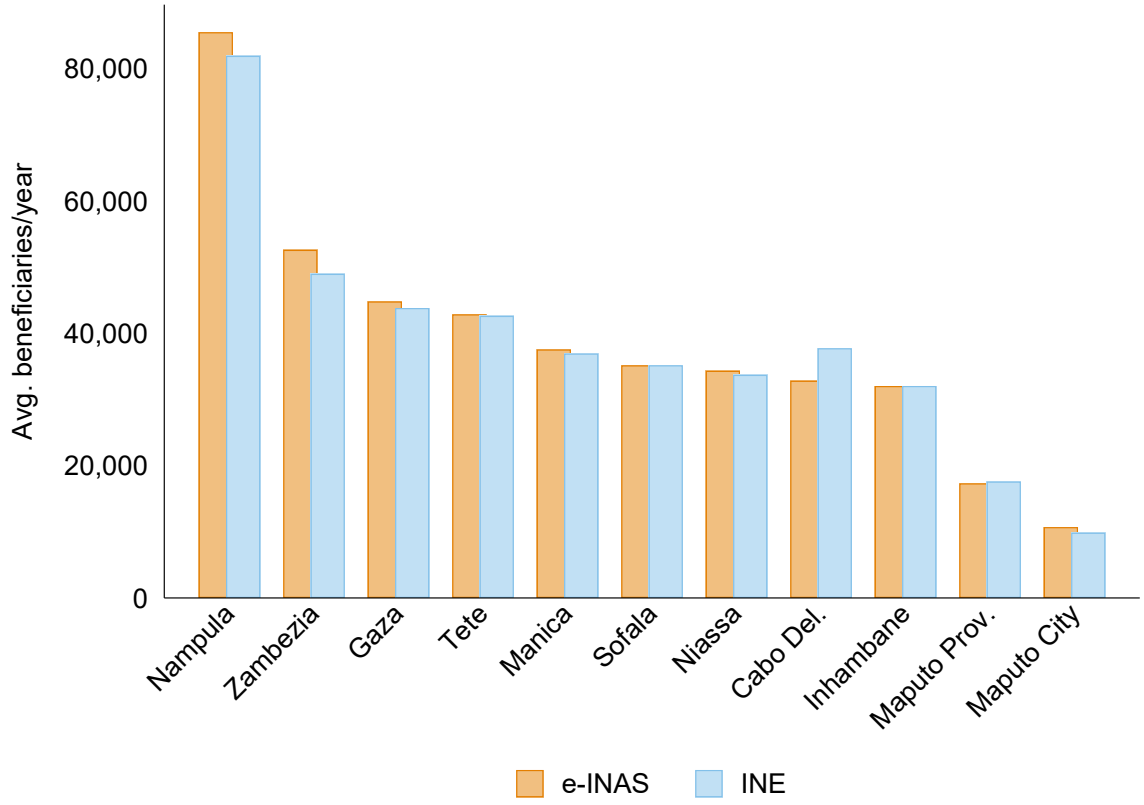
Note: this table shows figures for the number of PSSB beneficiaries between 2015 and 2023 based on alternative data sources, INE Annual Statistical Books 2016–22, and e-INAS data. See Table A2 in Appendix A for average values per province. All figures refer to the number of beneficiaries attended (receiving some payment)—that is, it is possible that not all beneficiaries registered were attended each year. e-INAS data for the year 2019 is incomplete, so variation rates are not computed for this case. Also, e-INAS data was accessed in December 2023, meaning data for this registry ends in approximately November 2023.
Source: INE data and own calculations from e-INAS.

Both sources confirm the substantial magnitude of the PSSB-Elderly. Between 2015 and 2019, according to INE, the number of beneficiaries attended was relatively stable, with an average of about 350,000 individuals supported. After 2020 there was an increase of more than 30% until 2022. As for the e-INAS data, the number of beneficiaries reported to have been attended increased by around 7% each year from 2020 and 2022. In 2023, the payment process suffered severe delays, confirmed by the reduction in the number of beneficiaries attended. This latest decline does not mean people have been removed from the list of beneficiaries, but rather that some beneficiaries received no payments in that year according to the available data. These figures are broadly consistent with information from the 2023 and 2024 state budget reports. These indicate that a total of 649,912 individuals received at least one PSSB payment in 2023 across all PSSB components, including the child subsidy (which accounts

for the majority of the difference to the e-INAS 2023 figure); but in 2024 up to September, only 20% of these (130,783) had received any payment (MEF 2023, 2024).

Looking at the geographical distribution of beneficiaries, Figure 1 compares the average number of beneficiaries attended per year using e-INAS and INE data. The figure compares the average number of beneficiaries per year using information from 2021 and 2022, the two years for which data is available in both datasets. We see that the average number of beneficiaries attended in each year approximately matches between sources at the province level, ranging from more than 80,000 beneficiaries per year in Nampula to about 10,000 in the city of Maputo.

Figure 1: Average number of total beneficiaries attended per year, by province

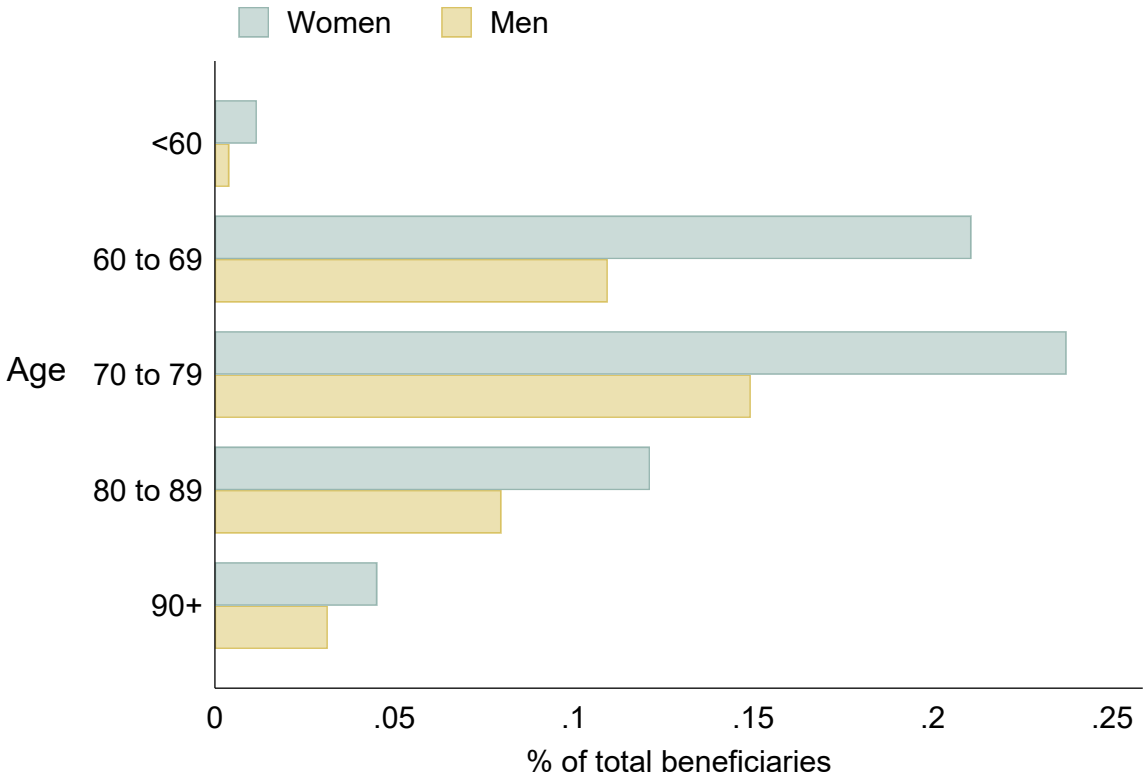


Source: authors' compilation based on data from e-INAS and INE Statistical Yearbook 2021–22 (overlapping years between both datasets).

Continuing to focus on the e-INAS data (2019–23), Figure 2 shows the distribution of PSSB-Elderly beneficiaries by age and sex at the time of the first PSSB payment recorded in the database. Noting that PSSB age of eligibility is currently 60 years old, most of our registered beneficiaries are within the 60–74 age group. A total of 62% of the beneficiaries attended by INAS in these years were women, and for all age groups considered it is always around 60% women. As per other parts of Africa, Mozambican women not only tend to live longer than men, but they are also more likely to suffer from severe poverty and illness at an advanced age due to cumulative disadvantages in access to social and economic resources throughout their

lives, and being more likely to be caregivers, which makes them more likely to be PSSB potential candidates (Adhikari et al. 2021; Knight et al. 2020).

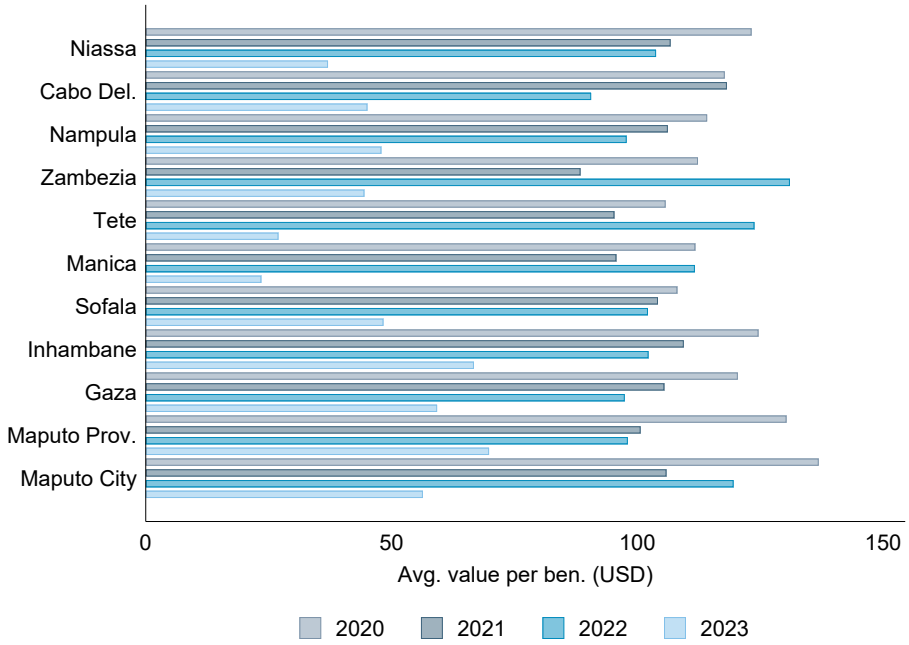
Figure 2: Beneficiary distribution by gender and age group (total e-INAS dataset)



Note: the figure shows distribution of beneficiaries across age groups by gender according to e-INAS (total beneficiaries *N* = 554,886).
Source: authors' compilation based on e-INAS data.

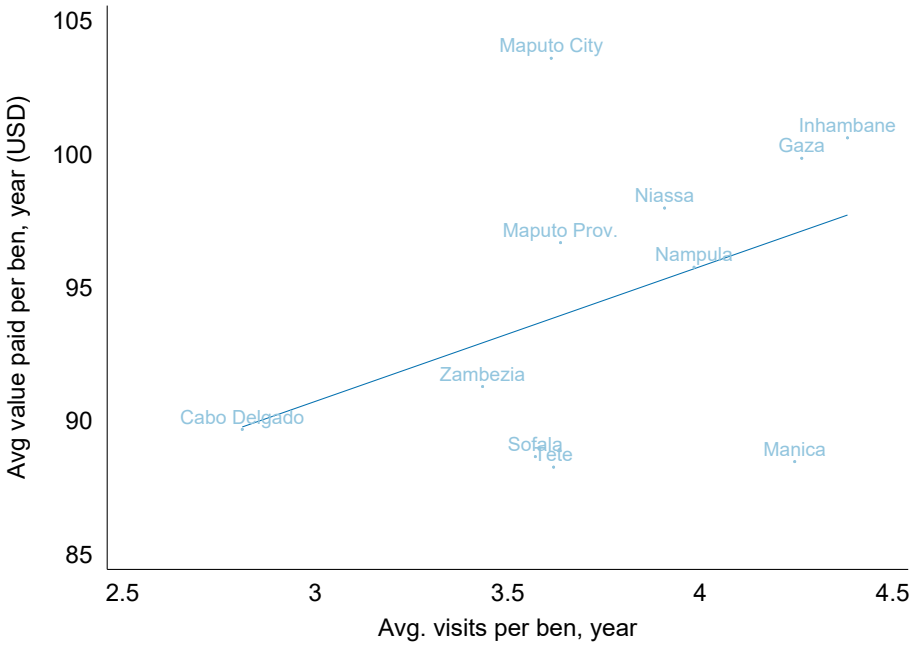
Average payment values appear to be moderately higher in Maputo City, but have generally shown a decreasing tendency over time except in the provinces of Manica, Tete, and Zambezia (Figure 3) (UNDP 2024). In part this reflects a decrease in payment frequency, since average payment values have a positive relationship with frequency—that is, the number of payments is higher in provinces where average payment value is also higher (Figure 4). The decline in payment values is especially stark in 2023, when most beneficiaries received less than half of what they had in previous years.

Figure 3: Average value paid by beneficiary attended between 2020 and 2023, by province



Note: the figure shows the mean payment value in US dollars per beneficiary and province for each year 2020–23.
Source: authors' compilation.

Figure 4: Relationship between average value paid by beneficiary per year and average visits per beneficiary per year (2020–23)



Note: each data point refers to the average at the province level. The relationship between average PSSB-Elderly payments by beneficiary per year and average number of visits (payment events) per beneficiary per year according to the e-INAS registry 2020–23.
Source: authors' compilation.

Table 3 summarizes the descriptive statistics by province included in the e-INAS data. Based on this information, the typical PSSB beneficiary is a woman in her seventies who has few dependents. In a typical year, she receives one PSSB payment every quarter of around US$23 (the equivalent to three months of payments), amounting to an average subsidy value of US$90 per year.

Table 3: Summary of beneficiary data from e-INAS registry, 2020–23

	Women		Age		HH size		Paym. (US$)		Freq.	
Province	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Niassa	0.65	0.48	73.46	8.52	1.35	0.81	96.51	29.01	3.75	1.01
Cabo Del.	0.67	0.47	74.49	9.10	1.22	0.67	81.90	32.61	2.54	1.17
Nampula	0.44	0.50	74.56	10.06	1.26	0.73	92.64	26.44	3.88	0.98
Zambezia	0.58	0.49	71.96	7.66	1.35	0.84	92.68	33.37	3.32	1.14
Tete	0.68	0.47	75.87	9.44	1.16	0.51	87.71	21.01	3.56	0.84
Manica	0.75	0.43	72.64	8.08	1.35	0.86	91.32	21.89	4.34	0.82
Sofala	0.68	0.47	68.23	8.75	1.20	0.66	82.56	25.96	3.30	1.03
Inhambane	0.69	0.46	75.85	9.54	1.27	0.63	92.10	27.71	3.90	1.25
Gaza	0.77	0.42	72.12	10.27	1.42	0.86	94.82	28.68	3.97	1.14
Maputo Prov.	0.74	0.44	73.49	9.94	1.41	0.88	80.29	34.94	3.02	1.05
Maputo City	0.21	0.41	66.56	6.86	1.52	0.97	98.67	31.20	3.50	0.78
Total	0.63	0.48	73.17	9.46	1.30	0.76	90.23	28.80	3.59	1.14

Note: the table shows the profile of the average beneficiary of the PSSB-Elderly in each province based on the e-INAS database over the period 2020–23. Payment values and visit frequency are averages per year.
Source: own estimates.

5.2 Targeting

The previous section identified one key stylized fact—there are substantial differences in the number of beneficiaries enrolled in different provinces, with by far the most (20% of all beneficiaries) being located in Nampula, which is also the largest province by population. At the same time, there are large spatial differences in rates of deprivation (poverty) across the country, with the south generally showing much lower rates of multidimensional poverty than the rest of the country (e.g. Egger et al. 2023). This raises the question of whether the PSSB-Elderly effectively targets the neediest among the elderly. As previously remarked, errors of exclusion and inclusion would be expected to diminish its overall efficacy.

Table 4 provides a first answer to this question, showing crude de jure and de facto coverage rates. The former is defined as the ratio of the number of individuals enrolled in the PSSB-Elderly to the total estimated population aged 60 years or older; and the latter adjusts the number of individuals according to payment received in a given year—that is, these measures follow the coverage definitions in Section 4.3, but do not adjust for differences in poverty rates. As we can see, average de jure coverage rates improved from 2020 to 2023, from 38% to 45% of the population aged 60 years or older, confirming the programme has expanded over time.

Table 4: De jure and de facto measures of PSSB-Elderly coverage of the total population aged 60+, by province (%)

	De jure		De facto minimum		De facto adjusted		De facto final	
Province	2020	2023	2020	2023	2020	2023	2020	2023
Niassa	54.57	60.10	54.57	22.30	59.11	9.61	52.87	0.32
Cabo Delgado	29.44	46.71	29.44	37.25	32.83	15.31	25.26	0.24
Nampula	35.17	43.35	35.04	19.94	36.15	9.54	32.36	1.01
Zambezia	34.14	39.07	34.12	21.25	34.33	8.82	28.87	0.08
Tete	41.44	46.81	41.44	32.85	40.65	8.53	30.78	0.00
Manica	52.68	56.29	52.68	36.32	52.59	8.37	49.05	0.00
Sofala	45.62	54.65	45.62	51.03	44.71	25.59	27.42	0.01
Inhambane	31.48	38.87	31.48	35.29	35.48	22.31	29.04	1.71
Gaza	59.13	65.62	59.13	34.79	61.33	20.81	54.80	0.55
Maputo Prov.	14.46	29.61	14.46	27.77	16.28	17.18	13.50	0.38
Maputo City	23.00	28.82	23.00	24.40	26.91	12.33	21.64	0.06
Total	37.59	45.46	37.56	28.85	38.83	12.86	32.42	0.42

Note: the table shows the ratio of the number of PSSB beneficiaries in each province to estimates of the total population aged 60+. De jure coverage counts all beneficiaries enrolled in the e-INAS system in the given year or before; de facto min. coverage counts beneficiaries that have received at least one payment in the given year; de facto adjusted coverage counts payments paid as a share of due payments in a given year; and de facto final coverage counts beneficiaries that have received full payment in the given year. The maximum coverage rate is set at 100% for all indicators.
Source: own calculations.

In 2020, the difference between de jure and all the de facto coverage definitions is small, showing all enrollees were paid according to what was planned or due. Nonetheless, all the de facto coverage rates fell from 2020 to 2023, reflecting delays and inconsistencies in payments during 2023. We estimate that at most only 29% of the elderly population were minimally covered by the PSSB-Elderly in 2023 (i.e. received one payment). Furthermore, adjusted and final de facto coverage values were extremely low in 2023, with less than 1% of the elderly population receiving full coverage in that year (vs. the 45% who would be entitled to do so). Regardless of the coverage indicator chosen, we also see large regional disparities. Gaza and Niassa stand out as having the highest crude de jure coverage rates (at over 60% in 2023). Provinces that suffered from a comparatively large decrease in de facto coverage in 2023 include Gaza, Niassa, and Tete, which are mostly non-urban provinces. By contrast, Maputo City and Province are the only provinces that managed to increase PSSB-Elderly coverage according to the minimum and adjusted de facto measures over the period 2020–23.

Tables 5 and 6 go further to look at the de jure, minimum de facto, adjusted de facto , and final de facto coverage of the poor elderly population, showing the lower and upper bound (LB, UB) coverage estimates as explained in Section 4.3. For the elderly and poor, the gap between the lower and upper bound estimate is very large in Maputo City and Province, reflecting the point that these two provinces have the lowest poverty levels but substantial numbers of enrollees. This reflects the point that in the region of the capital city there are fewer elderly persons who are considered poor, such that the PSSB-Elderly is likely to be reaching both poor and non-poor elderly households in the southern region (i.e. errors of inclusion are probable). Also,

confirming the evidence in Table 4, full de facto coverage of the elderly and poor is almost zero or zero across the country in 2023.

Table 5: De jure and de facto min. PSSB coverage of the population aged 60+ and multidimensionally poor by province (2020 and 2023)

		De jure coverage %				De facto min. coverage %			
		2020		2023		2020		2023	
Province	Poverty	LB	UB	LB	UB	LB	UB	LB	UB
Niassa	0.73	46.94	62.78	53.98	67.07	46.94	62.78	20.28	24.73
Cabo Delgado	0.73	17.57	42.27	30.95	61.63	17.57	42.27	25.26	49.02
Nampula	0.75	23.77	48.84	31.52	57.57	23.65	48.70	13.82	25.55
Zambezia	0.80	24.84	40.40	29.84	45.11	24.83	40.38	12.90	26.21
Tete	0.61	24.81	62.15	30.94	67.65	24.81	62.15	19.15	51.57
Manica	0.57	31.54	77.07	34.41	78.87	31.54	77.07	15.45	59.94
Sofala	0.55	27.51	70.90	35.79	78.73	27.51	70.90	33.07	76.25
Inhambane	0.57	12.61	55.32	17.54	64.84	12.61	55.32	15.32	60.04
Gaza	0.39	33.79	91.97	45.46	94.40	33.79	91.96	18.79	42.60
Maputo Prov.	0.12	2.33	81.96	8.21	95.84	2.33	81.96	7.54	93.19
Maputo City	0.02	0.46	100.00	2.29	100.00	0.46	100.00	0.85	100.00
Total	0.62	23.53	58.99	30.42	66.46	23.50	58.96	16.55	46.17

Note: the table shows the multidimensional poverty index, by province, as well as upper and lower bounds on the share of poor elderly persons covered by the PSSB-Elderly; de jure and de facto min. coverage differ when individuals enrolled in the scheme do not receive any payments in a given year; lower bound (LB) assumes non-poor elderly are covered before the poor elderly; upper bound (UB) assumes the poor elderly are covered before the non-poor; the minimum and maximum coverage rates are set at 0% and 100% for all indicators.
Source: own calculations.

Table 6: De facto adjusted and final PSSB coverage of the population aged 60+ and multidimensionally poor by province (2020 and 2023)

		De facto adj. coverage %				De facto final coverage %			
		2020		2023		2020		2023	
Province	Poverty	LB	UB	LB	UB	LB	UB	LB	UB
Niassa	0.73	52.65	65.63	4.39	15.16	45.12	61.20	0.07	0.44
Cabo Delgado	0.73	21.53	44.84	6.29	26.34	15.30	37.03	0.17	0.44
Nampula	0.75	24.42	49.74	3.96	13.11	21.05	45.74	0.49	1.14
Zambezia	0.80	25.07	40.31	3.10	13.53	19.70	35.02	0.23	0.35
Tete	0.61	24.01	60.86	0.72	16.54	16.52	49.13	0.00	0.00
Manica	0.57	31.70	76.77	0.21	25.69	27.96	74.23	0.00	0.00
Sofala	0.55	26.95	67.66	9.41	55.49	16.87	47.73	0.26	0.40
Inhambane	0.57	14.63	61.03	5.81	43.13	10.76	52.30	0.10	3.16
Gaza	0.39	43.45	91.90	8.93	38.50	23.93	90.36	0.00	0.89
Maputo Prov.	0.12	2.90	84.84	2.74	84.99	1.82	80.36	0.00	1.17
Maputo City	0.02	1.45	100.00	0.07	100.00	0.43	100.00	0.00	2.12
Total	0.62	24.99	59.69	4.01	29.58	19.15	53.25	0.19	0.77

Note: the table shows the multidimensional poverty index, by province, as well as upper and lower bounds on the share of poor elderly persons covered by the PSSB-Elderly; de facto (adjusted and final) show average of beneficiaries fully paid in relative or absolute terms; lower bound (LB) assumes non-poor elderly are covered before the poor elderly; upper bound (UB) assumes the poor elderly are covered before the non-poor; the minimum and maximum coverage rates are set at 0% and 100% for all indicators.
Source: own calculations.

The gap between LB and UB estimates of the de jure coverage rates of poor elderly households is informative about the importance or marginal value of poverty-based targeting in dif-

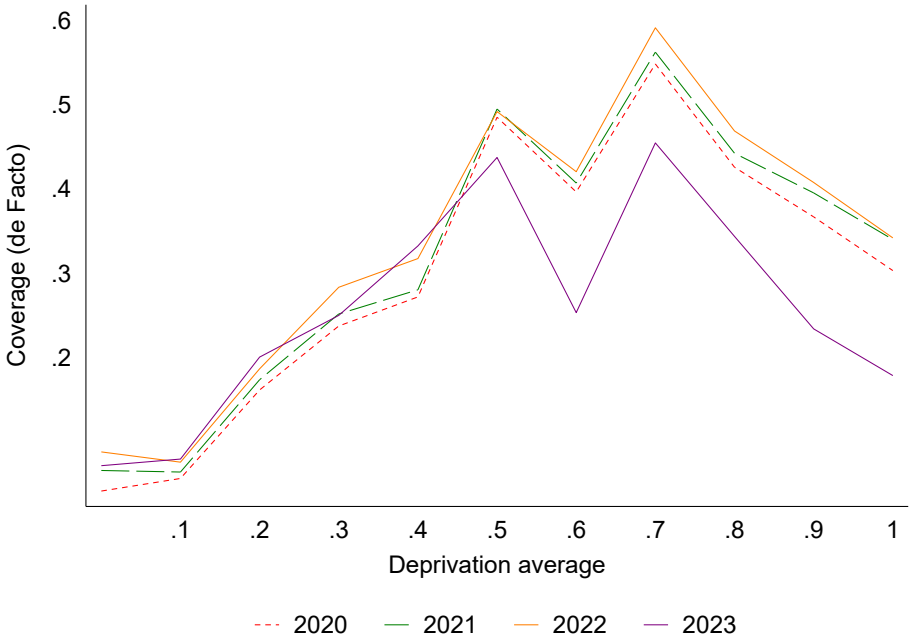
ferent locations. Effectively, this gap directly reflects differences in the prevalence of poverty. In any given location, we can expect that the probability of exclusion errors is likely to be lower as the average poverty rate is higher. Logically, if everyone in a location is poor, then there is no possibility of making any inclusion errors. From this perspective, given much higher rates of multidimensional poverty in the northern provinces, concerns around mis-targeting would appear to be of secondary importance relative to expanding coverage.

Appendix Figures A1–A12 provide more details on these discrepancies, showing maps of the various outcomes at the level of each *posto adminstrativo*. As might be expected, the distribution of elderly people by absolute numbers is highly unequal, with a concentration in the more urban *postos* of Maputo City, Inhambane, and Tete, as well as the more populous provinces of Zambezia and Nampula. Regarding coverage rates, we also see substantial variation, with the south showing higher levels of coverage compared to the rest of the country, especially compared to the northern provinces of Nampula and some parts of Cabo Delgado.

Figures 5 and 6 dig further into the relationship between crude de jure PSSB-Elderly coverage rates in each community and the communities' average level of deprivation. Deprivation values equal to unity indicate that all households headed by an elderly person are deprived in all dimensions, while crude coverage rates equal to unity would mean that all elderly households are enrolled in the PSSB-Elderly. Naturally, we expect that communities with higher deprivation rates would generally enjoy higher crude coverage rates (i.e. if everyone is poor, then everyone should be enrolled). Consistent with this assumption, the figures do show that crude coverage rates have been generally low in communities with low mean deprivation levels. Even so, the relationship is not monotonic, and we observe that many communities at the highest levels of deprivation (close to 1) show crude de facto coverage rates of below 0.5. In other words, scheme coverage appears highly uneven or inconsistent. Figure 5 also shows that the 2023 payment delays affected coverage for the most deprived. This can be because beneficiaries in the lowest levels are more isolated and more difficult to reach, and thus they are also the last to be attended by INAS.

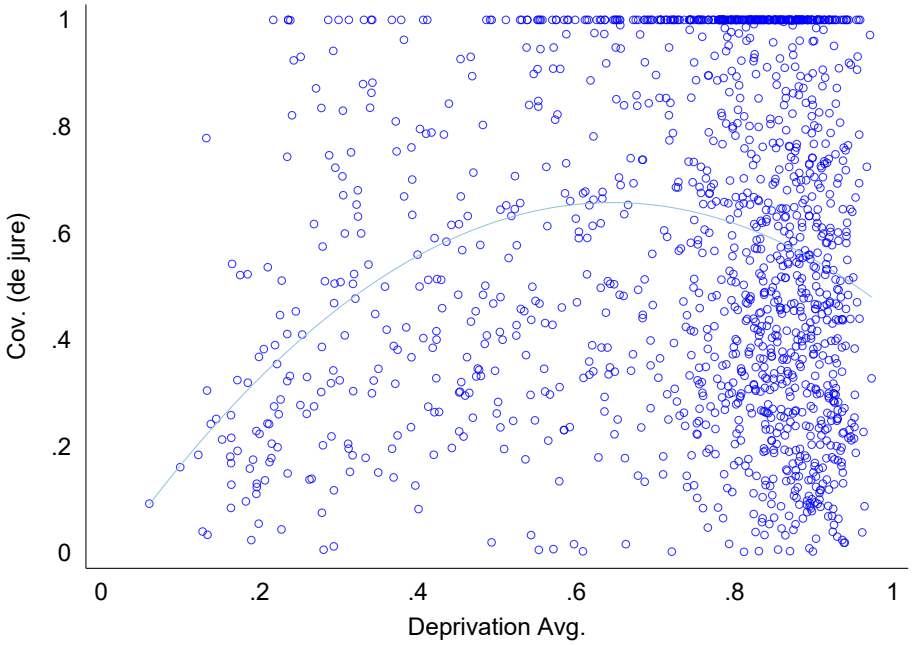
In Figure 7 we show the gap between the estimated number of potential beneficiaries (at least 60 years old and poor) versus the actual number of beneficiaries enrolled in the PSSB-Elderly between mid-2019 and November 2023 (on a de jure basis). Negative values indicate that there are more beneficiaries enrolled than the number of people estimated to be in the target group, while positive numbers suggest the eligible population exceeds the number of enrollees. The results point to a surplus of beneficiaries in Gaza, Maputo Province, Maputo City, and Niassa. Sofala and Manica show a small gap, but all other provinces have a positive gap, meaning the estimated number of people at least 60 years old and poor is larger than the number of beneficiaries enrolled in PSSB-Elderly.

Figure 5: Crude de facto PSSB coverage of the elderly at different deprivation levels (rounded to one decimal place)



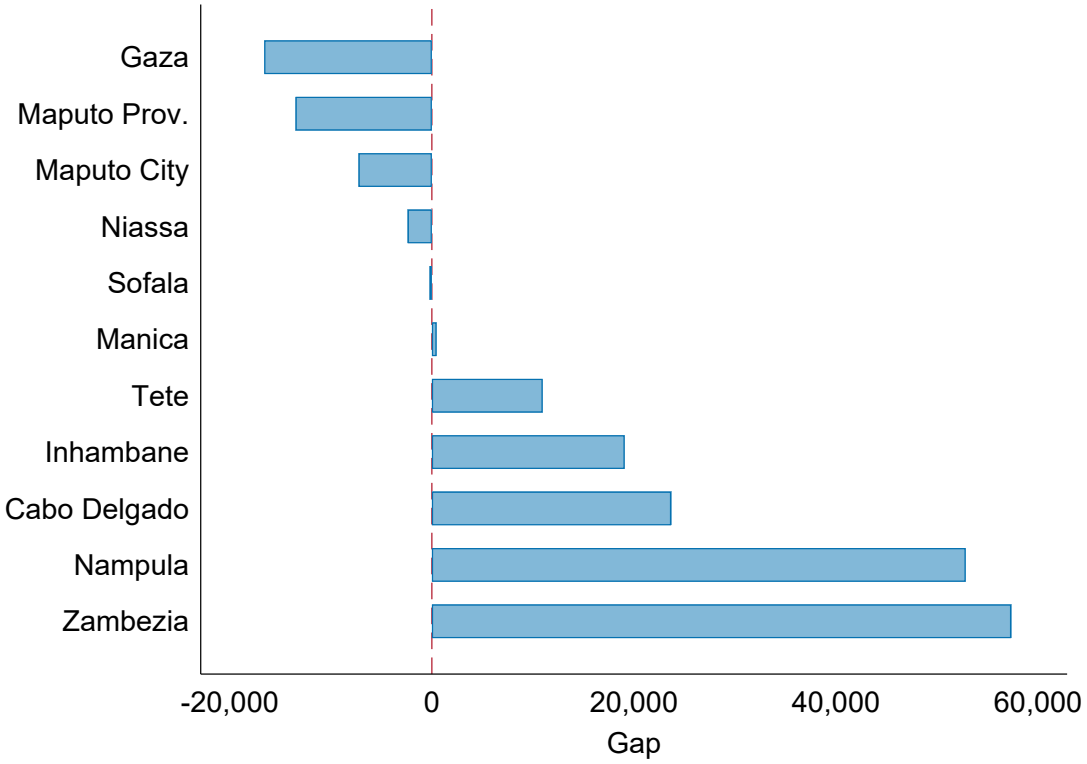
Note: the figure shows average de facto coverage per average level of deprivation.
Source: own calculations from e-INAS and the 2017 Census.

Figure 6: Relationship between (de jure) coverage and average deprivation



Note: coverage of the PSSB is given by the ratio between PSSB beneficiaries attended and population above 60 years old between 2020 and 2023 in all provinces. The year 2019 is excluded because data for the whole year is not available.
Source: own calculations.

Figure 7: Absolute coverage surplus/deficit of the poor and elderly under the PSSB, by province



Note: the gap is the difference between the estimated number of potential beneficiaries (at least 60 years old and poor) and the actual number of beneficiaries enrolled between mid-2019 and November 2023 (on a de jure basis). Negative values indicate a potential surplus and positive values indicate a deficit.
Source: own calculations.

Turning to the regression analysis, Table 7 reviews the correlates of the (natural logarithm of the) de jure number of beneficiaries—that is, the total number of beneficiaries enrolled in the PSSB-Elderly up to the given year. Tables 8 and 10 repeat the same analysis for minimum de facto payments, and final de facto payments, respectively. For all coverage types we estimate the same model for 2020 and 2023, progressively increasing the number of explanatory variables included. In the final column of each table, we switch the dependent variable to the difference between the 2020 and 2023 values, approximately equivalent to the percentage difference between the two values.

The results of the de jure number of beneficiaries regression (Table 7) show that the estimated number of people above 60 years old in the community is a strong determinant of the number of individuals enrolled in the PSSB-Elderly, under all model specifications. There is also a significant positive association between the multidimensional poverty headcount and enrolled beneficiaries for 2020 and 2023. In 2023, if the number of poor doubles, the number of PSSB enrollees is predicted to increase by about 15%, implying the elasticity of PSSB coverage with respect to poverty is equal to 0.15. The female-headed households indicator shows a significant positive effect in 2020, but this effect diminishes substantially in 2023, with the change be-

tween the two years being significant and negative at the 10% level. Although not statistically significant, urban communities are positively associated with the number of beneficiaries, but this effect turns negative in 2023, with a significant reduction over the period (i.e. expansion favoured rural areas).

Table 7: Relationship between number of beneficiaries enrolled (de jure) and socio-demographic conditions, 2020 and 2023

	2020			2023			Diff.
	(Ia)	(Ib)	(Ic)	(IIa)	(IIb)	(IIc)	(III)
Pop. 60+	0.52***	0.52***	0.54***	0.51***	0.51***	0.50***	–0.04
	(0.06)	(0.06)	(0.06)	(0.04)	(0.04)	(0.04)	(0.04)
Poverty headcount		0.10	0.22***		0.11***	0.15***	–0.07
		(0.07)	(0.08)		(0.04)	(0.06)	(0.05)
Female HH			1.35**			0.73	–0.62*
			(0.61)			(0.48)	(0.34)
Urban			0.31*			–0.04	–0.35***
			(0.18)			(0.11)	(0.13)
Niassa			0.02			0.01	–0.01
			(0.17)			(0.14)	(0.08)
Cabo Delgado			–0.98**			–0.10	0.88**
			(0.39)			(0.12)	(0.38)
Nampula			–0.16			0.06	0.22**
			(0.16)			(0.13)	(0.10)
Zambezia			–0.52**			–0.41**	0.11
			(0.21)			(0.16)	(0.11)
Manica			0.24			0.14	–0.10
			(0.14)			(0.14)	(0.08)
Sofala			0.00			0.20	0.20
			(0.20)			(0.13)	(0.14)
Inhambane			–0.10			0.01	0.11
			(0.18)			(0.14)	(0.10)
Gaza			0.19			0.23	0.04
			(0.19)			(0.17)	(0.09)
Maputo Prov.			–0.70**			0.01	0.70***
			(0.27)			(0.20)	(0.16)
Maputo City			0.24			0.32	0.09
			(0.27)			(0.22)	(0.13)
N	1,411	1,406	1,406	1,411	1,406	1,406	1,406
R^2	0.12	0.12	0.22	0.24	0.25	0.30	0.13

Note: de jure represents the total number of beneficiaries enrolled in the system in 2023 or before, in its logarithmic form. Columns (1)–(3) show values for 2020 with different specifications; Columns (4)–(6) show values for 2023 with different specifications. Column (7) shows the difference between enrolled beneficiaries in 2020 and 2023.
Source: own calculations.

Regarding regional differences (see columns Ic, IIc, and III), province fixed effects are incorporated using Tete as the base category. In 2020, Cabo Delgado, Zambezia, and Maputo Province are associated with lower relative levels of enrolment relative to Tete after taking into account other factors, highlighting significant regional inequities in de jure coverage rates. In 2023, some of these disparities change. Notably, Cabo Delgado and Maputo Province no longer show a significant difference from the base region; but Zambezia remains a clear outlier with

lower coverage. Looking at the last column, coverage thus improved significantly in Cabo Delgado, Nampula, and Maputo Province. Other provinces exhibited minimal or no significant changes over this period.

With respect to regressions for the measure of minimum de facto coverage, the size of the population aged 60 and older remains a significant and positive predictor (see Table 8). The headcount poverty measure also shows a positive and significant association with coverage in 2020, but in 2023 this relationship becomes less consistent and even negative before inclusion of province fixed effects (see column IIb). The average proportion of female heads of household in the community shows a positive and significant effect in 2020, an effect that does not persist in 2023. Urban communities have a positive association with coverage, especially in 2023, where the urban indicator is significant at the 5% level.

Again, regional disparities are relevant, in 2020, the provincial differences in minimum de facto coverage are similar to those of the de jure metrics (Table 7). The provinces of Cabo Delgado, Zambezia, and Maputo Province had a significant and negative coefficient—after controlling for both population and poverty (*inter alia*), the model predicts fewer beneficiaries in these provinces received at least one payment compared to Tete (the base-level province). Other provinces, such as Niassa, Nampula, or Maputo City, did not show significant differences from Tete in 2020. In 2023, the Maputo Province coefficient shows a significant improvement from 2020, increasing from –0.71 to 1.41. In contrast, Niassa now shows a negative and significant difference from Tete in terms of fully paid beneficiaries. The provinces of Maputo Province, Sofala, and Inhambane showed the most significant improvements in terms of full payments coverage by 2023. The Maputo City coefficient in 2023 also indicates a significant improvement, while the opposite happened in Niassa, relative to Tete.

Regressions based on adjusted and final de facto metrics of coverage are found in Tables 9 and 10. Again, the 60+ population level continues to be relevant for most specifications, but loses relevance in the estimates for receipt of full payments in 2023. In fact, for this outcome, only the Maputo City and Nampula fixed effects have statistical positive significance. Niassa, Manica, and Gaza suffered the largest decrease in adjusted and full coverage levels from 2020 to 2023, while Maputo City and Province, Inhambane, Sofala, and Cabo Delgado are associated with higher numbers of beneficiaries paid. In some cases, the effect is stronger than that found for minimum coverage, as is the case of Maputo City. These results merely confirm large regional disparities in terms of the de jure distribution of the PSSB-Elderly relative to needs and in terms of payment completion.

Table 8: Relationship between number of beneficiaries attended at least once (minimum de facto) and socio-demographic determinants, 2020 and 2023

	2020			2023			Diff.
	(Ia)	(Ib)	(Ic)	(IIa)	(IIb)	(IIc)	(III)
Pop. 60+	0.54***	0.54***	0.55***	0.48***	0.46***	0.56***	0.00
	(0.05)	(0.05)	(0.06)	(0.13)	(0.13)	(0.15)	(0.15)
Poverty headcount		0.09	0.18**		–0.32***	0.24	0.06
		(0.07)	(0.09)		(0.11)	(0.16)	(0.17)
Female HH			1.18*			0.81	–0.38
			(0.60)			(2.00)	(1.93)
Urban			0.18			1.07**	0.88
			(0.19)			(0.53)	(0.58)
Niassa			0.04			–1.53*	–1.57*
			(0.17)			(0.85)	(0.90)
Cabo Delgado			–0.95**			0.49	1.44**
			(0.39)			(0.66)	(0.73)
Nampula			–0.21			–0.95	–0.74
			(0.15)			(0.74)	(0.72)
Zambezia			–0.50**			–0.49	0.01
			(0.21)			(0.71)	(0.69)
Manica			0.27*			0.04	–0.23
			(0.14)			(0.78)	(0.82)
Sofala			0.01			1.57***	1.56***
			(0.19)			(0.54)	(0.56)
Inhambane			–0.06			1.18*	1.24**
			(0.17)			(0.62)	(0.58)
Gaza			0.21			–1.36	–1.57*
			(0.19)			(0.98)	(0.91)
Maputo Prov.			–0.71***			1.41**	2.12***
			(0.27)			(0.64)	(0.59)
Maputo City			0.23			0.99	0.77
			(0.28)			(0.68)	(0.63)
N	1,411	1,406	1,406	1,411	1,406	1,406	1,406
R^2	0.13	0.13	0.22	0.03	0.05	0.21	0.23

Note: minimum de facto represents the total number of beneficiaries that have been paid once in each year, in logarithms. Columns (I)a–(I)c show values for 2020 with different specifications; Columns (II)a–(II)c show values for 2023 with different specifications. Column (III) shows the difference between enrolled beneficiaries in 2023 and 2020.
Source: own calculations.

Table 9: Relationship between number of beneficiaries attended adjusted by the share of due payments paid (adjusted de facto) and socio-demographic determinants, 2020 and 2023

	2020			2023			Diff.
	(Ia)	(Ib)	(Ic)	(IIa)	(IIb)	(IIc)	(III)
Pop. 60+	0.54***	0.54***	0.56***	0.42***	0.40***	0.47***	–0.10
	(0.06)	(0.06)	(0.06)	(0.12)	(0.12)	(0.12)	(0.12)
Poverty headcount		0.05	0.19**		–0.32***	0.18	–0.01
		(0.07)	(0.09)		(0.10)	(0.15)	(0.15)
Female HH			1.16*			0.51	–0.64
			(0.65)			(1.64)	(1.53)
Urban			0.29			0.82*	0.53
			(0.20)			(0.45)	(0.52)
Niassa			0.17			–1.07	–1.24*
			(0.18)			(0.66)	(0.70)
Cabo Delgado			–0.93**			0.55	1.47**
			(0.43)			(0.53)	(0.63)
Nampula			–0.14			–0.45	–0.31
			(0.16)			(0.57)	(0.53)
Zambezia			–0.46**			–0.20	0.26
			(0.22)			(0.55)	(0.50)
Manica			0.32**			–0.13	–0.45
			(0.16)			(0.59)	(0.60)
Sofala			–0.05			1.62***	1.67***
			(0.24)			(0.43)	(0.39)
Inhambane			0.13			1.72***	1.59***
			(0.18)			(0.50)	(0.43)
Gaza			0.32			–0.71	–1.03
			(0.21)			(0.82)	(0.72)
Maputo Prov.			–0.54*			1.83***	2.37***
			(0.28)			(0.52)	(0.42)
Maputo City			0.36			1.30**	0.94**
			(0.30)			(0.56)	(0.46)
N	1,411	1,406	1,406	1,411	1,406	1,406	1,406
R^2	0.12	0.12	0.21	0.04	0.06	0.24	0.26

Note: adjusted de facto represents the total number of beneficiaries that have been paid adjusted by the share of payments received in a given year, in logarithms. Columns (I)a–(I)c show values for 2020 with different specifications; Columns (II)a–(II)c show values for 2023 with different specifications. Column (III) shows the difference between enrolled beneficiaries in 2023 and 2020.
Source: own calculations.

Table 10: Relationship between number of fully paid beneficiaries (maximum de facto) and socio-demographic determinants, 2020 and 2023

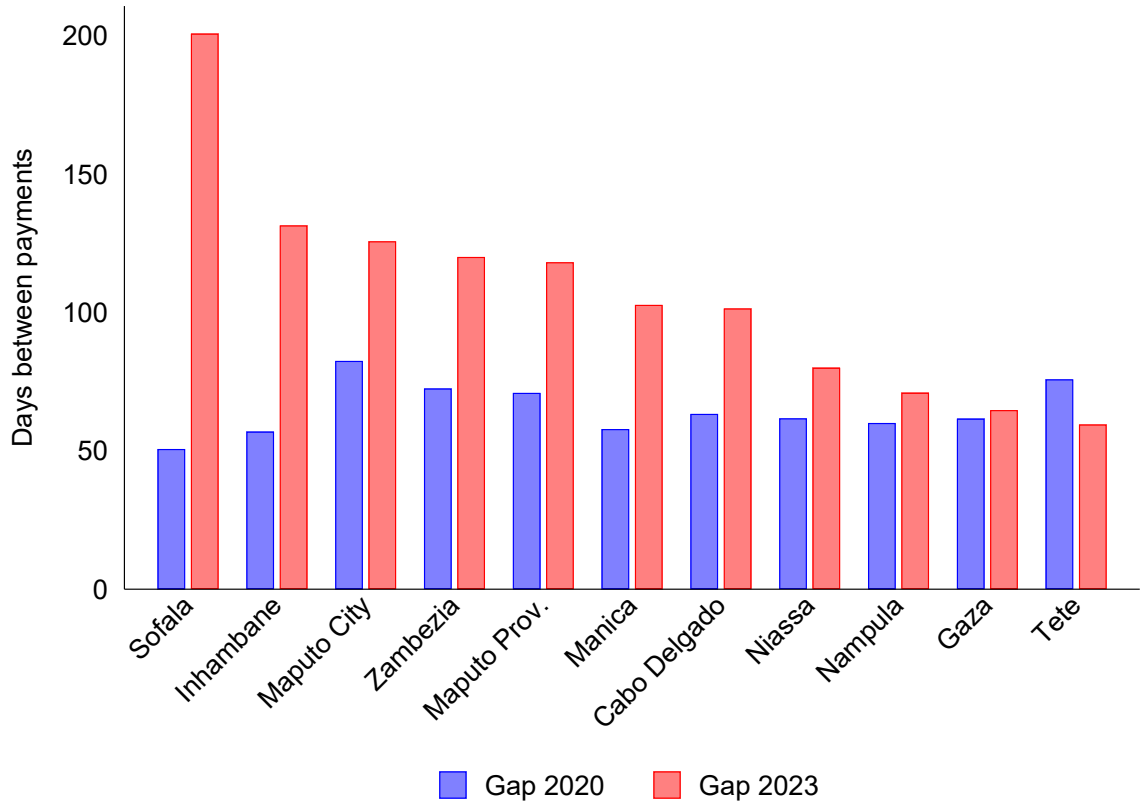
	2020			2023			Diff.
	(Ia)	(Ib)	(Ic)	(IIa)	(IIb)	(IIc)	(III)
Pop. 60+	0.56***	0.55***	0.68***	0.07	0.07	0.04	–0.64***
	(0.08)	(0.08)	(0.08)	(0.04)	(0.04)	(0.03)	(0.09)
Poverty headcount		–0.11	0.11		0.03	0.01	–0.09
		(0.08)	(0.14)		(0.03)	(0.05)	(0.14)
Female HH			0.67			0.76	0.09
			(1.11)			(0.47)	(1.17)
Urban			0.65**			–0.10	–0.74**
			(0.27)			(0.15)	(0.32)
Niassa			1.26**			0.10	–1.16**
			(0.54)			(0.08)	(0.56)
Cabo Delgado			–0.64			0.10*	0.74
			(0.76)			(0.06)	(0.79)
Nampula			0.85			0.41**	–0.45
			(0.52)			(0.17)	(0.54)
Zambezia			0.31			0.02	–0.29
			(0.55)			(0.05)	(0.55)
Manica			1.25**			–0.00	–1.25**
			(0.52)			(0.05)	(0.53)
Sofala			–1.81*			0.01	1.82**
			(0.94)			(0.05)	(0.91)
Inhambane			1.04*			0.64	–0.40
			(0.53)			(0.40)	(0.68)
Gaza			1.45***			0.34	–1.10*
			(0.53)			(0.24)	(0.58)
Maputo Prov.			0.35			0.25	–0.10
			(0.60)			(0.17)	(0.61)
Maputo City			0.75			0.25**	–0.50
			(0.64)			(0.11)	(0.64)
N	1,411	1,406	1,406	1,411	1,406	1,406	1,406
R^2	0.07	0.07	0.28	0.01	0.01	0.07	0.20

Note: maximum de facto represents the total number of beneficiaries that have been paid in full, in logarithms. Columns (I)a–(I)c show values for 2020 with different specifications; Columns (II)a–(II)c show values for 2023 with different specifications. Column (III) shows the difference between enrolled beneficiaries in 2023 and 2020. Source: own calculations.

5.3 Reliability

With respect to programme reliability, Figure 8 plots average payment gaps—namely, the mean period between payments in days in a given year—for 2020 and 2023 by province. Although the PSSB-Elderly theoretically is a monthly transfer, it is clear that most beneficiaries receive an average of four separate payments per year (see also Table 3). During 2020, there was little variation in the gap between provinces, with the difference in the average gap between Maputo City (highest) and Sofala (lowest) being around 30 days. In 2023, by comparison, we see major challenges in the distribution of PSSB relative to 2020. In 2023 the average gap increased to 79 days, with increases across almost all provinces except for Tete relative to 2023.

Figure 8: Average payment gaps (days) by province



Note: the figure shows average gap between PSSB-Elderly payments by province in 2020 and 2023, according to the e-INAS registry.
Source: own calculations.

As a further measure of programme (un)reliability, we compute the coefficient of variation of the gap between payments, given by the ratio of the standard deviation of the payment gap to the mean payment gap in a given year. A higher ratio is consistent with more erratic payment intervals, implying transfers are less predictable; conversely, a lower value suggests that payments each year have been relatively consistent even if not necessarily on a monthly basis.

Similar to the previous exercise, we conduct a set of regression analyses to examine whether there are systematic determinants of (un)reliability. Table 11 shows these results for 2020 and 2023, where the final column captures the difference in unreliability across the two years. The primary explanatory variables of interest are as before and include the number of people aged 60 years or older, average poverty levels (in logs), the average number of female-headed households, and whether the community is considered an urban area or not. Note that unreliability is a negative outcome, so positive coefficients are associated with less reliable payments.

The results reveal few systematic factors are associated with programme payment reliability. At the province level, in 2020, many provinces showed either small or no significant divergences with the base region, Tete province. However, by 2023, these differences became more pronounced. Niassa reports the largest positive and significant coefficient in 2023, meaning ben-

eficiaries in this province had the least reliable payments. Niassa is a northern province with very remote areas that possibly were more affected by the 2023 payments delay. In contrast, reliability seems to have comparatively improved in Sofala and Maputo Province. Regarding differences between unreliability in 2020 and 2023, being in an urban community was relevant to decreasing the gap between the years, which may indicate that beneficiaries in urban areas are easier to reach and payments are more reliable in these areas relative to rural communities.

Table 11: Relationship between unreliability of payments and socio-demographic characteristics

	2020			2023			Diff.
	(Ia)	(Ib)	(Ic)	(IIa)	(IIb)	(IIc)	(III)
Pop. 60+	–0.02	–0.02	–0.02	–0.06	–0.05	–0.09*	–0.07
	(0.03)	(0.03)	(0.03)	(0.05)	(0.05)	(0.05)	(0.06)
Poverty headcount		0.02	–0.01		0.16***	–0.02	–0.01
		(0.02)	(0.04)		(0.04)	(0.06)	(0.07)
Female HH			–0.24			0.09	0.33
			(0.26)			(0.74)	(0.80)
Urban			–0.07			–0.33*	–0.26
			(0.10)			(0.18)	(0.23)
Niassa			0.13			0.64*	0.50
			(0.11)			(0.35)	(0.40)
Cabo Delgado			0.31*			–0.17	–0.48
			(0.18)			(0.26)	(0.33)
Nampula			0.14			0.56*	0.41
			(0.10)			(0.28)	(0.32)
Zambezia			0.01			0.10	0.09
			(0.10)			(0.29)	(0.35)
Manica			–0.06			0.02	0.08
			(0.08)			(0.33)	(0.36)
Sofala			–0.03			–0.52**	–0.49*
			(0.09)			(0.23)	(0.28)
Inhambane			–0.21**			–0.28	–0.07
			(0.09)			(0.26)	(0.30)
Gaza			0.03			0.69*	0.65*
			(0.10)			(0.36)	(0.39)
Maputo Prov.			0.18			–0.49*	–0.67**
			(0.13)			(0.26)	(0.34)
Maputo City			–0.02			–0.24	–0.22
			(0.11)			(0.28)	(0.33)
N	1,411	1,406	1,406	1,411	1,406	1,406	1,406
R^2	0.00	0.00	0.05	0.00	0.04	0.23	0.16

Note: the unreliability metric is computed as the ratio between the standard deviation and the mean number of days between payments in each year. This ratio shows how consistent or erratic the payment intervals are over time by measuring how values vary around the mean.
Source: own analysis.

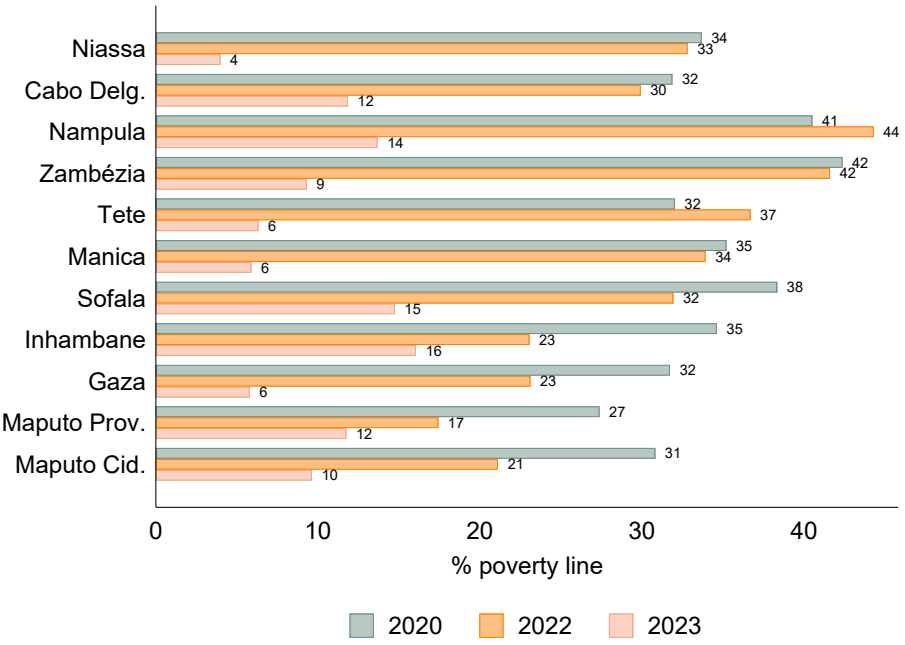
5.4 Materiality

We consider the materiality of the PSSB-Elderly in terms of the real purchasing power it affords beneficiaries. To do so, we look at the total value of payments received by the average

beneficiary in each community in a given year compared to the poverty line. Poverty lines are calculated in Mozambique for different spatial domains (combinations of urban/rural and provinces), based on household survey data. The national average poverty line, which indicates the level of consumption below which an individual is considered to be poor, was estimated to be MZN58.4 person/day in 2019–20. This corresponds to about MZN1,776.3 person/month (US$25.6 person/month at the 2020 exchange rate (CEIC 2020)), which is more than three times the official PSSB-Elderly monthly transfer of around MZN540 (US$8.4), a value that has not been updated since 2018 in nominal terms.

Figure 9 shows the PSSB-Elderly total value of payment received as a percentage of the annualized poverty line in 2020, 2022, and 2023, by province. The figure shows that in 2020 and 2022 the PSSB-Elderly ranged between 17% and 44% of the per capita poverty line, and in most provinces was above 30% in both years. Reflecting lower living costs, Zambezia and Nampula registered the highest ratios, reaching above 40% of the poverty line. Nonetheless, the figure also underscores the impact of delays in payments in 2023. In 2023, Inhambane was the province with payments covering the highest share of the poverty line, at just 16%.

Figure 9: PSSB payments as a percentage of the poverty line



Note: the figure shows PSSB-Elderly average payments by province and year as a percentage of the poverty line, estimated in the 2017 Census.
Source: own calculations.

5.5 Data accuracy

As a last exercise, we build on work developed for the Vulnerable Lives Survey (VLS), an impact evaluation study of the PSSB-Elderly (IGM 2024). The purpose here is to cross-check the

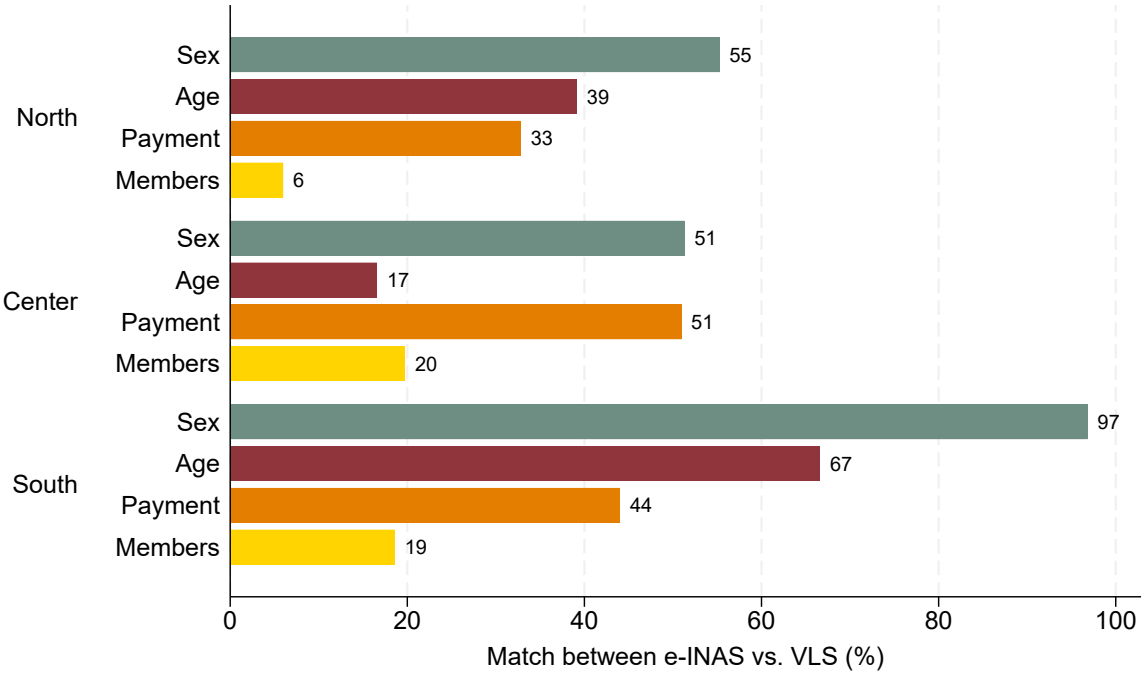
accuracy of information contained in the e-INAS database. The VLS included a random selection of PSSB-Elderly beneficiaries taken from the e-INAS registry in six administrative posts in different parts of the country. This data thus contains individual-specific data on PSSB-Elderly beneficiaries, which can be directly compared with the information on e-INAS.

Figure 10 shows the share of the e-INAS sample that matches the VLS in terms of sex, age, last payment, and household members, by region (north, centre and south). The sex of the beneficiary is the variable with the highest matching accuracy. However, while the match is nearly complete in the southern region, it is only slightly above 50% in the northern and central regions. The match in terms of age is also notably low, likely due to participants not having accurate information about their date of birth. This may stem from lost documentation, which, when renewed, could not be verified for precise accuracy. The variable with the least alignment with the VLS is the number of household members. While household size naturally varies over time, this variable is critical as the amount of the PSSB-Elderly subsidy is adjusted based on the beneficiary's number of dependents.

Due to the advanced age of the target group, a key concern with the registry was that some beneficiaries selected for the VLS may have passed away between their registration and the start of fieldwork. Additionally, others may have been difficult to locate due to migration, displacement, or changes in residence. Figure 11 documents the share of people in the VLS sample that was found, not found, or that were reported as dead. Overall, 12% of selected participants were not found and 22% were reported as dead. This is a significant amount given that these names are in the list of beneficiaries, and thus officially still being paid.

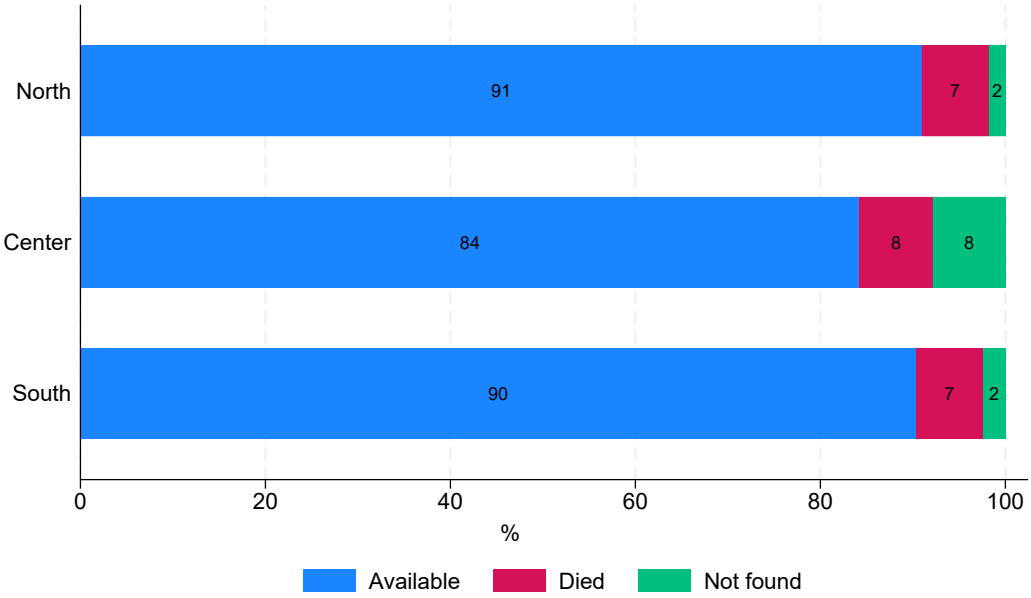
This mismatch between the datasets and information on deaths shows how important it is to invest in the management of the electronic registry and to keep data updated, which is key to ensuring the efficiency of the programme and reducing targeting errors.

Figure 10: Match between e-INAS and VLS, by region



Note: the figure shows the percentage data match between the VLS and e-INAS for each variable. North: Cabo Delgado, Nampula, Niassa; centre: Sofala, Tete, Zambezia; south: Maputo City, Maputo Province, Gaza, Inhambane.
Source: own estimates.

Figure 11: Share of beneficiaries not located, deceased, or available (VLS)



Note: the figure shows the percentage of participants found, not found, and available (interviewed) in the first wave of VLS data collection; North: Nampula; centre: Sofala and Zambezia; south: Maputo Province.
Source: own estimates.

6 Conclusion

This study provided an up-to-date overview of Mozambique's largest social protection scheme, namely a social pension to the poor and elderly: the *Programa de Subsídio Social Básico*. Combining administrative data on the universe of beneficiaries with information from the 2017 Census, we reviewed the potential effectiveness of the scheme with respect to its targeting, reliability, and materiality. Reflecting previous studies in various contexts, our point of departure was that targeting errors, low reliability, and small real transfer values would be expected to weaken the potential of the scheme to contribute to the well-being of beneficiaries—that is, these represent necessary but not sufficient conditions for the programme to effectively meet its main objective of providing unconditional non-contributory support to the elderly and poor.

Our findings revealed that, while the programme is important in absolute and relative terms, and has shown progress in terms of expansion, there remain notable challenges with respect to consistent and equitable delivery. In particular:

- *Targeting*: we observed that the programme has been partially successful in reaching its intended beneficiaries. Approximately 45% of all households headed by individuals aged 60+ are enrolled in the programme, which equates to an upper bound coverage rate of 66% of the eligible population, specifically the elderly and poor (based on a definition of multidimensional poverty). However, issues of under-coverage and over-coverage remain material in certain regions, with particularly low coverage (exclusion errors) in several high-poverty communities in Nampula and Zambezia compared to excess coverage (inclusion errors) in the south.
- *Reliability*: PSSB-Elderly transfers are rarely made on a monthly basis. Nonetheless, their reliability in terms of adhering to a consistent disbursement timetable shows significant regional disparities and has deteriorated notably since 2022. This decline is likely to undermine the programme's credibility and its potential for delivering positive impacts (see also IGM 2024).
- *Materiality*: based on a comparison with region-specific Mozambican poverty lines, the size of benefits received under the PSSB appeared to be an acceptable level on a per capita basis up to 2020. However, existing evidence suggests that the benefits are not sufficient to lift beneficiaries out of poverty or to cover all their essential needs. Additionally, due to variations in living costs, the real purchasing power of the transfer differs significantly across provinces.

The above analysis highlights the many financial, logistical, and operational challenges associated with sustaining effective PSSB delivery in the Mozambican context. Indeed, we found that even the basic demographic data contained in the e-INAS registry may not be entirely accu-

rate (e.g. recording of deaths of members), which in large part reflects the high costs of visiting beneficiaries on a regular basis and keeping records updated.

Taking these insights together, critical priorities for the PSSB-Elderly would appear to be (1) normalizing payments and, where possible, (2) expanding the programme to high-poverty underserved locations. Furthermore, in the presence of operational challenges, managing beneficiary expectations around payment frequency is likely to be valuable to enhance the programme's sustainability and efficiency. This would require a realistic minimum level of commitment that allows households to plan according to expected disbursements. For instance, scheduling cash disbursements semi-annually could be easier to implement compared to the planned monthly payments of the PSSB-Elderly system.

We also conclude that efforts to achieve ever more precise individual-level poverty-based targeting of the PSSB-Elderly may not be important in many locations. Larger benefits in terms of programme focus, efficiency, and effectiveness may be gained from a shift to a near-universal scheme, based on geographical prioritization and clear exclusion criteria—that is, all individuals aged 60+ (or perhaps a higher age threshold in urban areas) would receive the social pension, excluding those receiving other benefits or those who opt out. This appears especially pertinent in (rural) locations where rates of deprivation are consistently very high.

To substantiate this conclusion, quantitative simulations of the implications of a shift towards a near-universal programme would be helpful. Future research also may focus on the benefits of making transfers via mobile wallets, as well as gaining a deeper qualitative understanding of the logistics and distribution processes. However, none of this will be relevant in the absence of regular and adequate macro-level programme financing.

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Appendix A

A1 Tables

Table A1: INE number of beneficiaries per year, 2015–22

Province	2015	2016	2017	2018	2019	2020	2021	2022
Niassa	31,184	29,122	28,924	32,555	35,072	.	36,054	40,008
Cabo Delgado	36,991	35,900	34,614	36,660	39,346	.	40,848	41,795
Nampula	69,334	70,787	68,493	70,880	74,753	.	96,119	87,036
Zambezia	40,855	41,593	40,772	45,534	49,125	.	56,374	55,583
Tete	39,279	39,110	38,209	39,663	43,852	.	44,810	48,111
Manica	36,429	35,704	35,081	36,736	38,155	.	38,817	40,029
Sofala	31,937	30,232	29,866	32,886	35,348	.	36,703	40,010
Inhambane	29,740	27,979	27,831	29,512	32,291	.	32,773	34,190
Gaza	100	37,909	37,416	42,103	44,403	.	45,036	47,194
Maputo Prov.	14,128	13,275	12,874	14,411	15,349	.	15,734	21,326
Maputo City	9,873	9,158	9,041	10,457	10,856	.	11,028	11,730
Total	339,850	370,769	363,121	391,397	418,550	.	454,296	467,012

Note: numbers of PSSB beneficiaries between 2015 and 2023 using the INE Annual Statistical Book 2016–22.
Source: own estimates.

Table A2: e-INAS number of beneficiaries per year, 2019–23

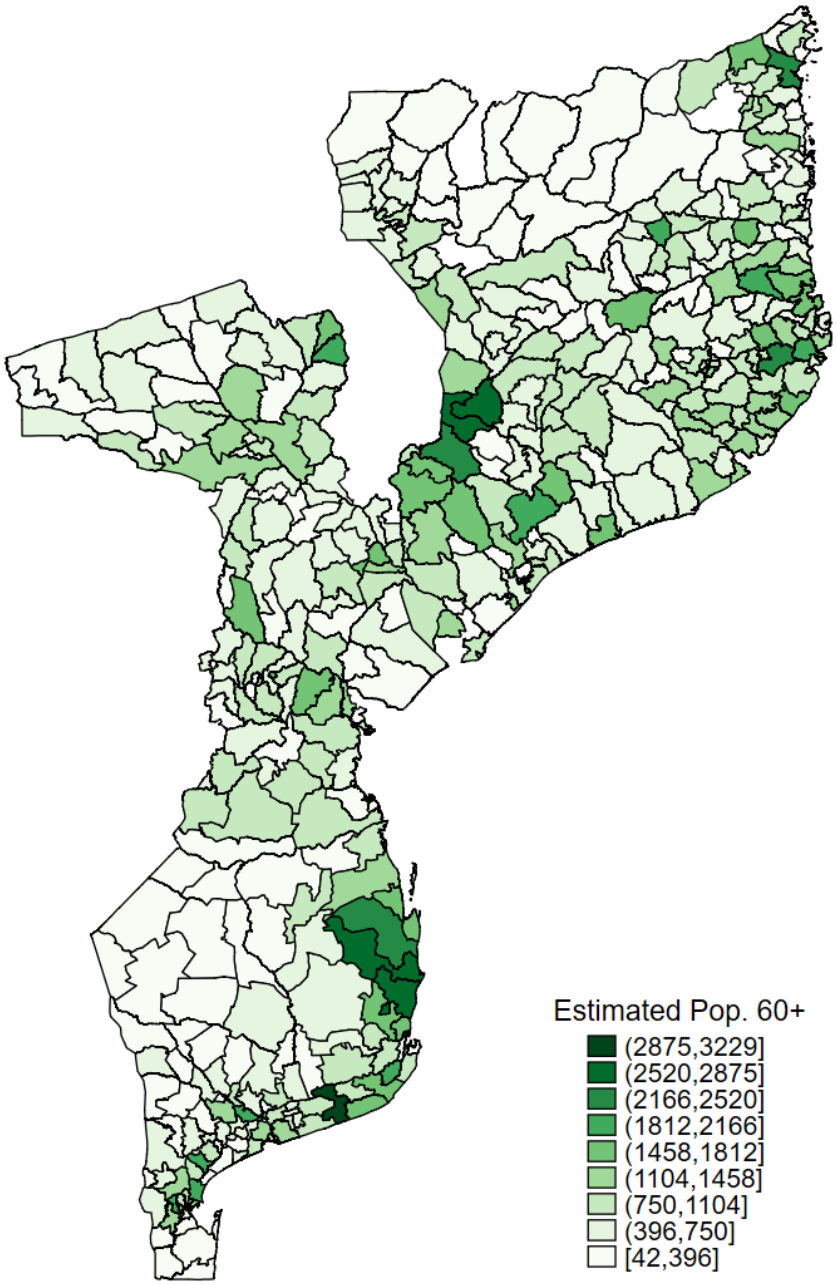
Province	2019	2020	2021	2022	2023
Niassa	19,402	31,561	32,564	36,119	15,881
Cabo Delgado	1,655	25,251	29,718	35,970	31,682
Nampula	62,135	73,488	85,409	85,660	46,806
Zambezia	35,230	49,742	51,389	53,871	32,282
Tete	20,490	40,194	41,248	44,505	34,978
Manica	0	35,605	37,291	37,838	22,668
Sofala	0	32,092	33,140	37,208	38,023
Inhambane	21,615	29,942	31,123	32,953	34,778
Gaza	38,996	41,558	43,492	46,163	23,320
Maputo Prov.	11,699	13,785	14,526	20,123	25,904
Maputo City	9,082	9,587	10,185	11,237	10,281
Total	220,304	382,805	410,085	441,647	316,603

Note: numbers of PSSB beneficiaries between mid-2019 and 2023 using e-INAS data. Number of beneficiaries refers to number of beneficiaries attended each year. E-INAS data for the year 2019 is only available for half of the year and because data was assessed in December 2023 this registry ends in November 2023.
Source: own estimates.

A2 Maps

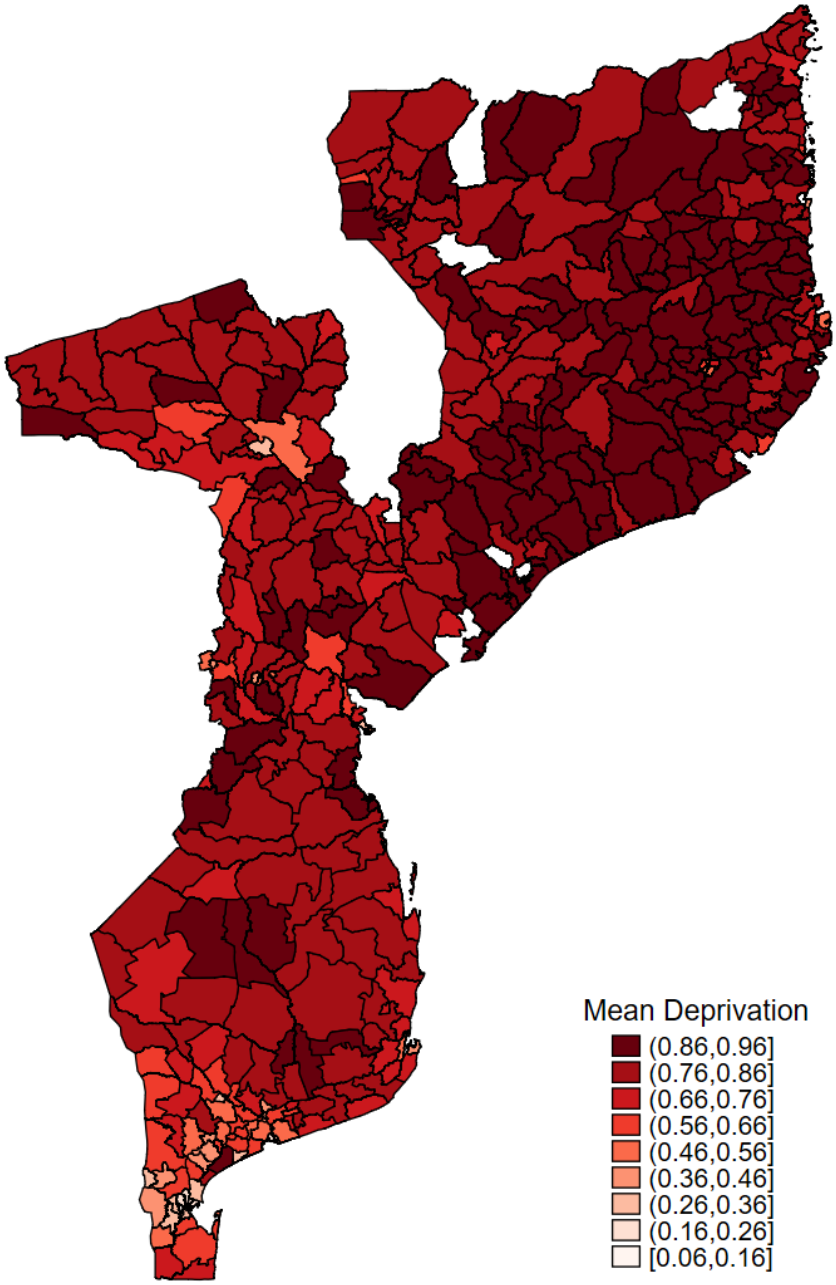
Population and average deprivation estimates

Figure A1: Estimated population above 60 years old by *posto*—Census 2017



Note: the map shows population above 60 years old by *posto*, using the 2017 Census and growth rates from UN population estimates (DESA-EN 2024).
Source: own estimates.

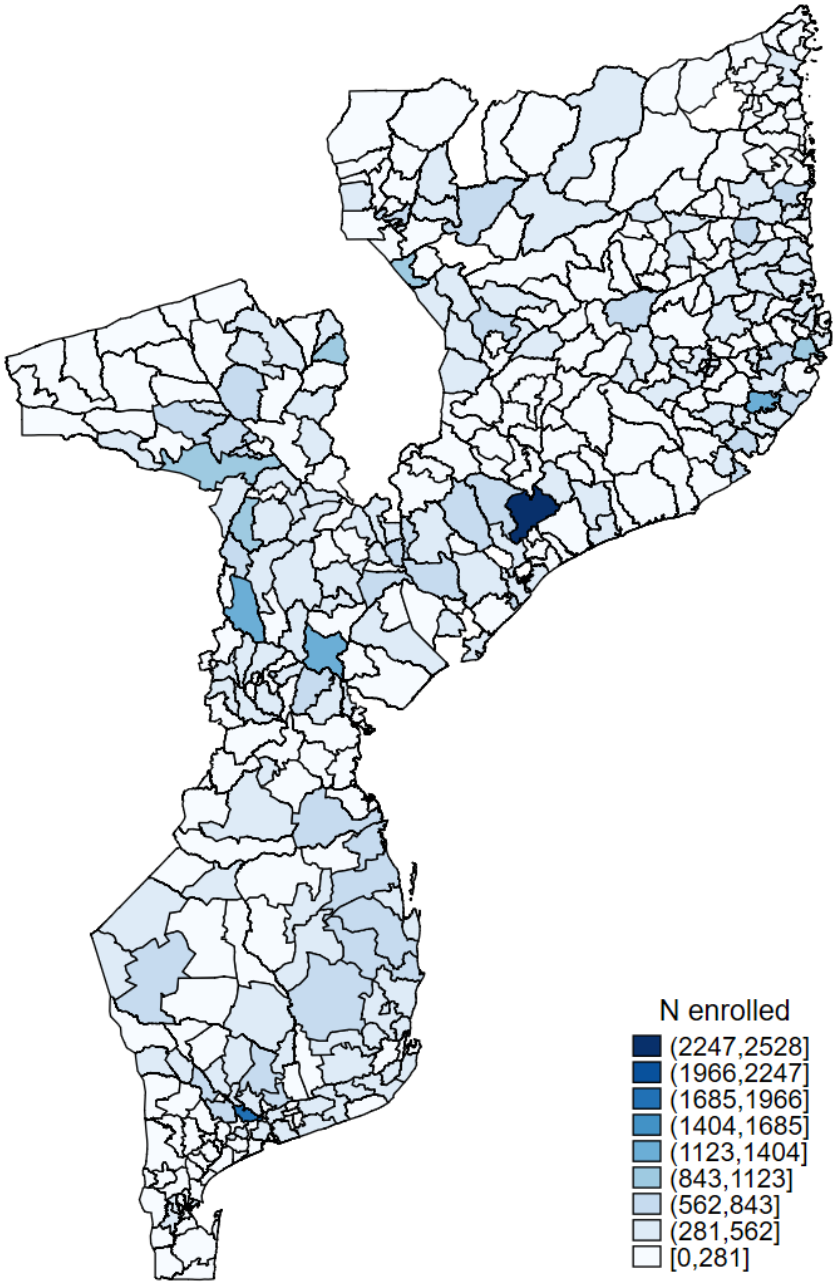
Figure A2: Average deprivation level by *posto*—Census 2017



Note: the map shows average level of deprivation by *posto*, as per the definition in Section 4.2.
Source: own estimates.

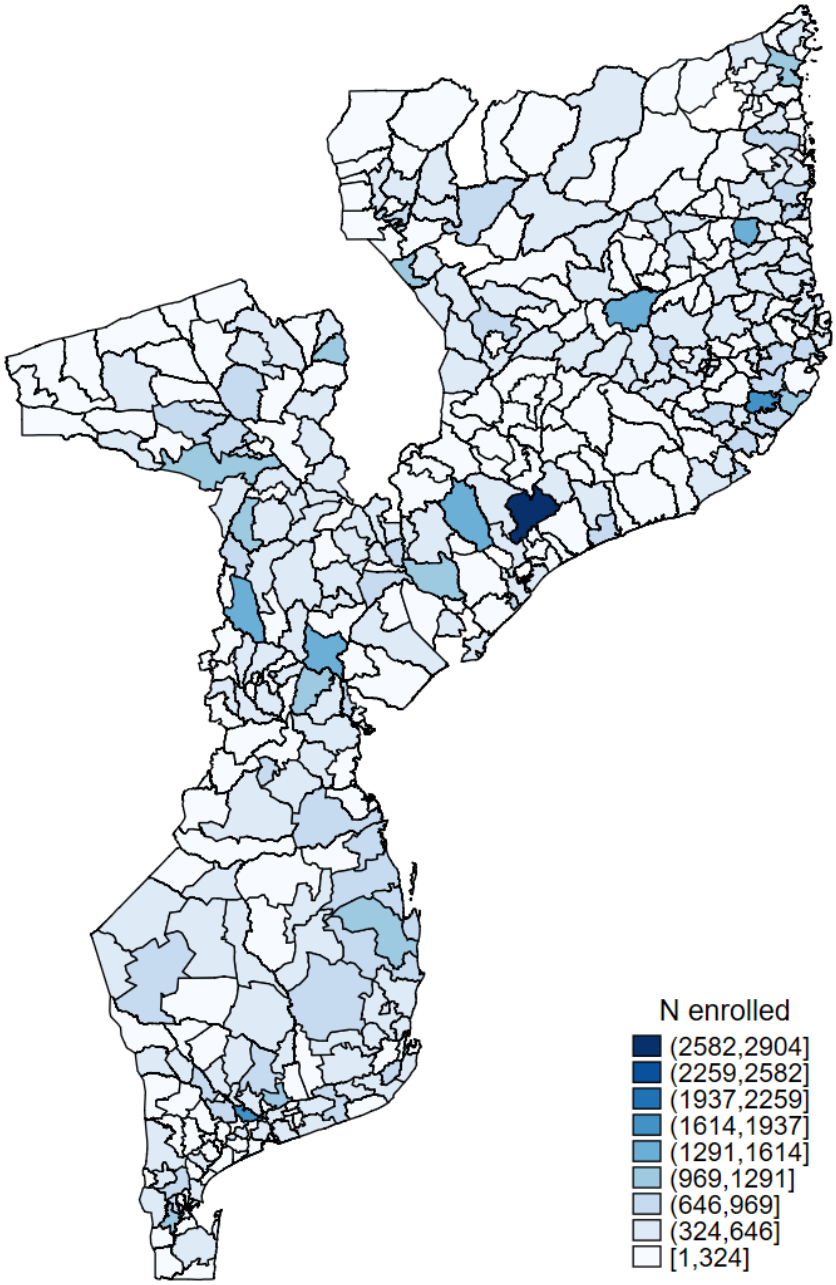
Number of PSSB-Elderly enrolled beneficiaries 2020–23

Figure A3: Number of enrolled beneficiaries in PSSB-Elderly—2020



Note: the map shows the number of beneficiaries enrolled in PSSB-Elderly according to the e-INAS registry in 2020.
Source: own estimates.

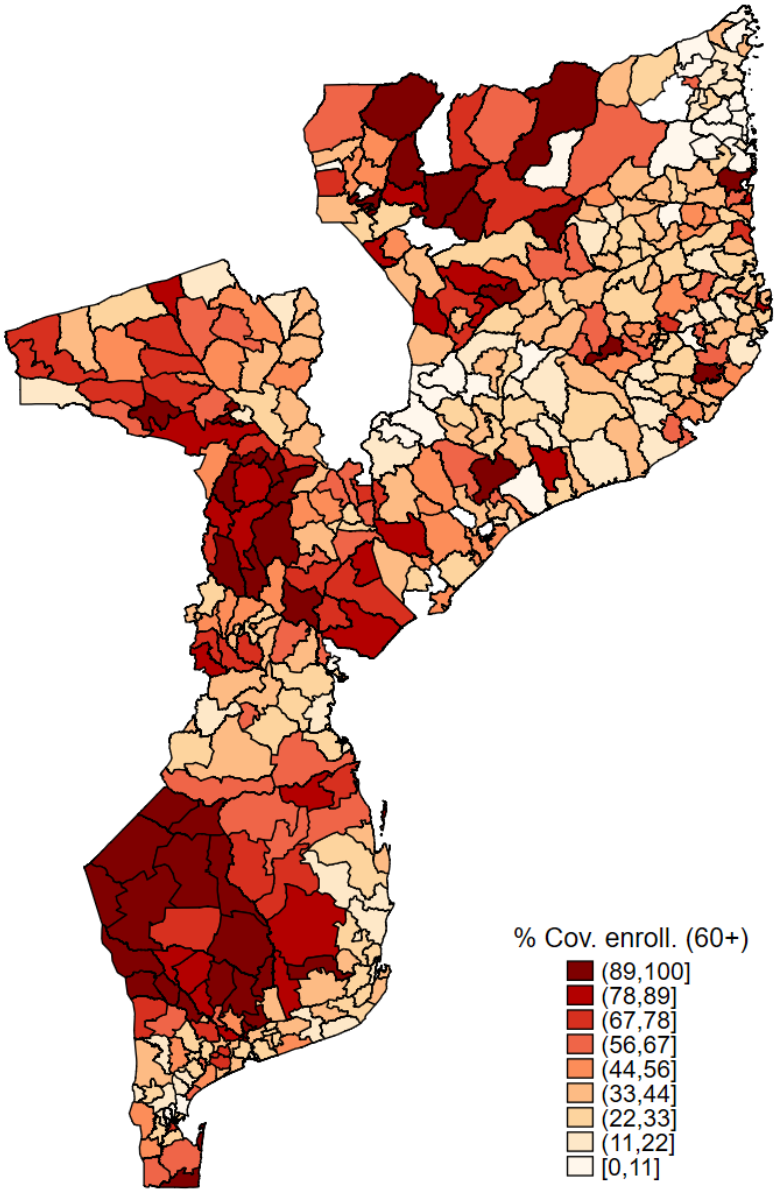
Figure A4: Number of enrolled beneficiaries in PSSB-Elderly—2023



Note: the map shows the number of beneficiaries enrolled in PSSB-Elderly according to the e-INAS registry from 2020 to 2023.
Source: own estimates.

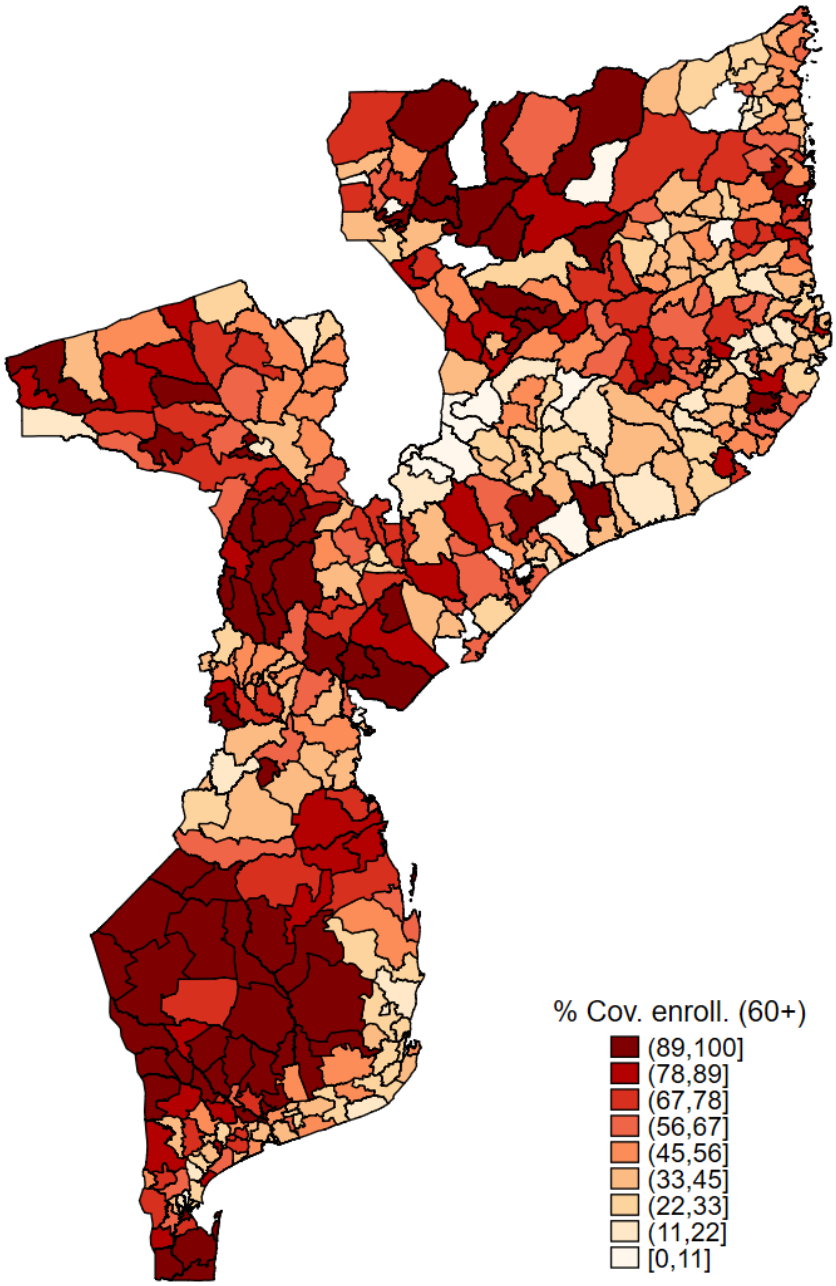
De jure coverage of PSSB-Elderly beneficiaries as a share of the elderly, and the elderly and poor population

Figure A5: De jure coverage of PSSB-Elderly beneficiaries as a percentage of the elderly population—2020



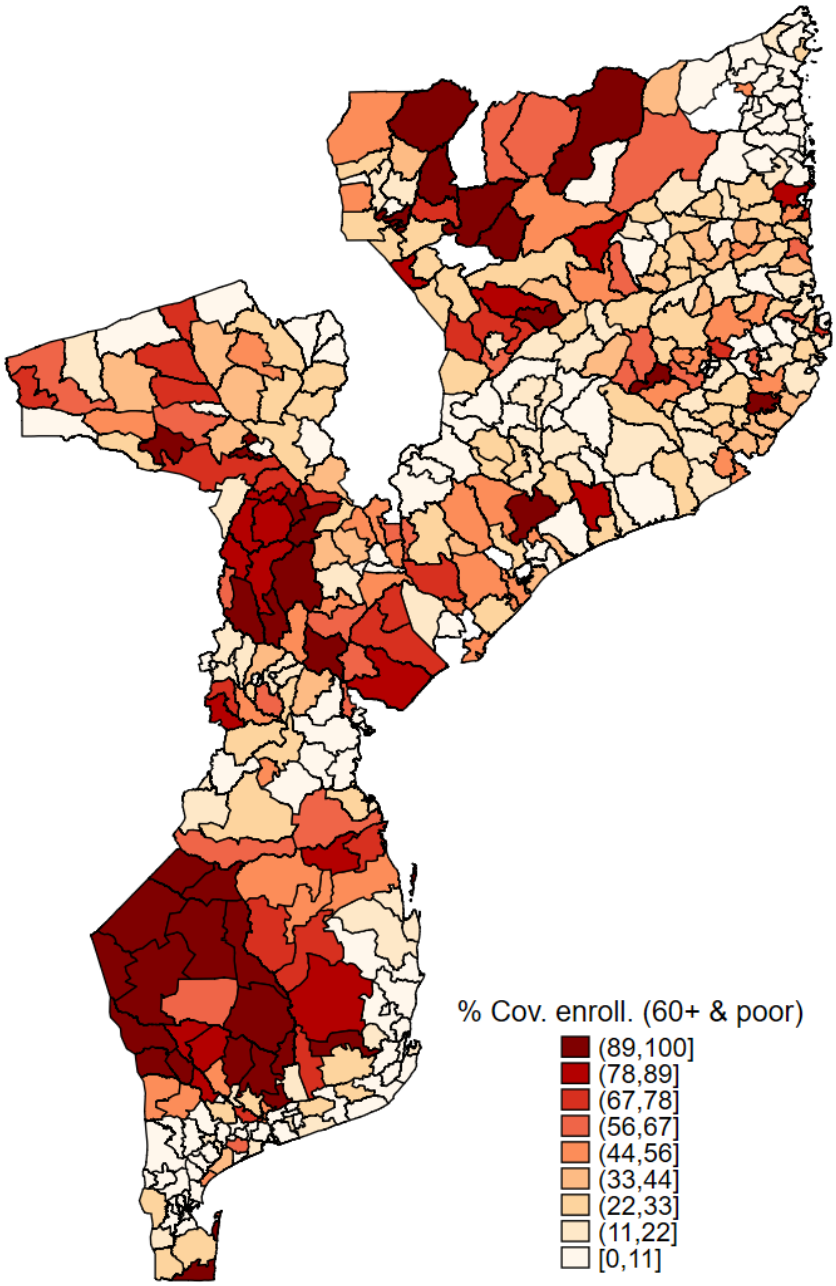
Note: the map shows de jure coverage of PSSB-Elderly (i.e. enrolled beneficiaries) as a percentage of the population above 60 years old by *posto*, using growth rates from UN population estimates (DESA-EN 2024).
Source: own estimates.

Figure A6: De Jure coverage of PSSB-Elderly beneficiaries as a percentage of the elderly population—2023



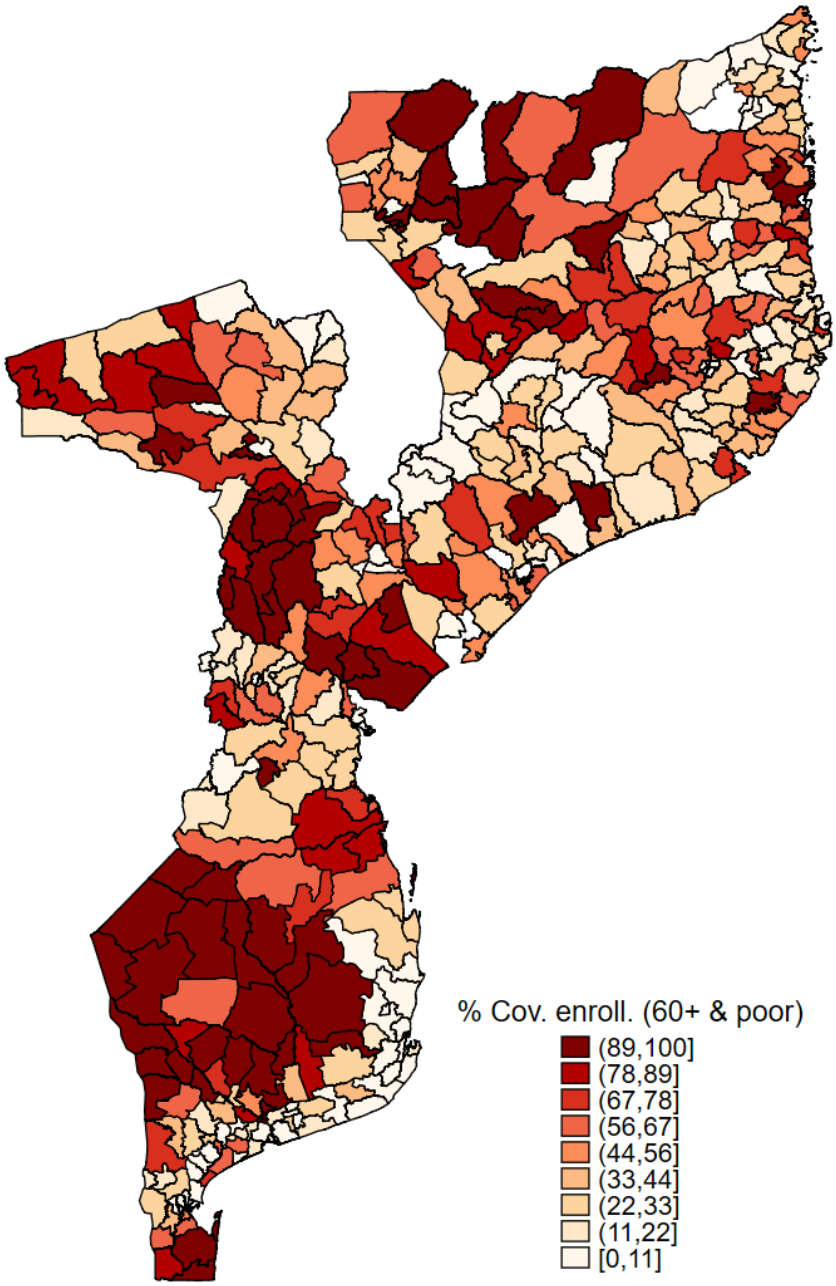
Note: the map shows de jure coverage of PSSB-Eelderly (i.e. enrolled beneficiaries) as a percentage of the population above 60 years old by *posto*, using growth rates from UN population estimates (DESA-EN 2024).
Source: own estimates.

Figure A7: De jure coverage of PSSB-Elderly beneficiaries as a percentage of the elderly and poor population—2020



Note: the map shows lower-bound de jure coverage of PSSB-Elderly (i.e. enrolled beneficiaries) as a percentage of the population above 60 years old and poor by *posto*, using growth rates from UN population estimates (DESA-EN 2024). The lower-bound estimate, the most conservative approach, assumes non-poor elderly are covered before the poor elderly as defined in Equation (2) in the main text.
Source: own estimates.

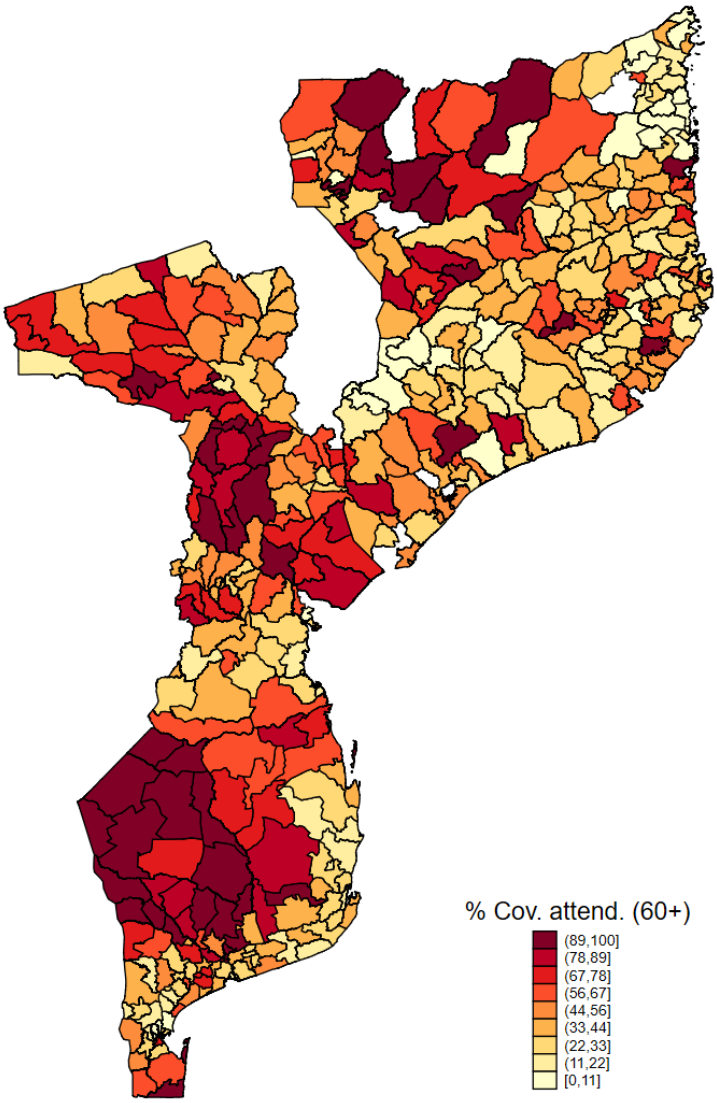
Figure A8: De jure coverage of PSSB-Elderly beneficiaries as a percentage of the elderly and poor population—2023



Note: the map shows the lower-bound de jure coverage of PSSB-Elderly (i.e. enrolled beneficiaries) as a percentage of the population above 60 years old and poor by *posto*, using growth rates from UN population estimates (DESA-EN 2024). The lower-bound estimate, the most conservative approach, assumes non-poor elderly are covered before the poor elderly as defined in Equation (2) in the main text.
Source: own estimates.

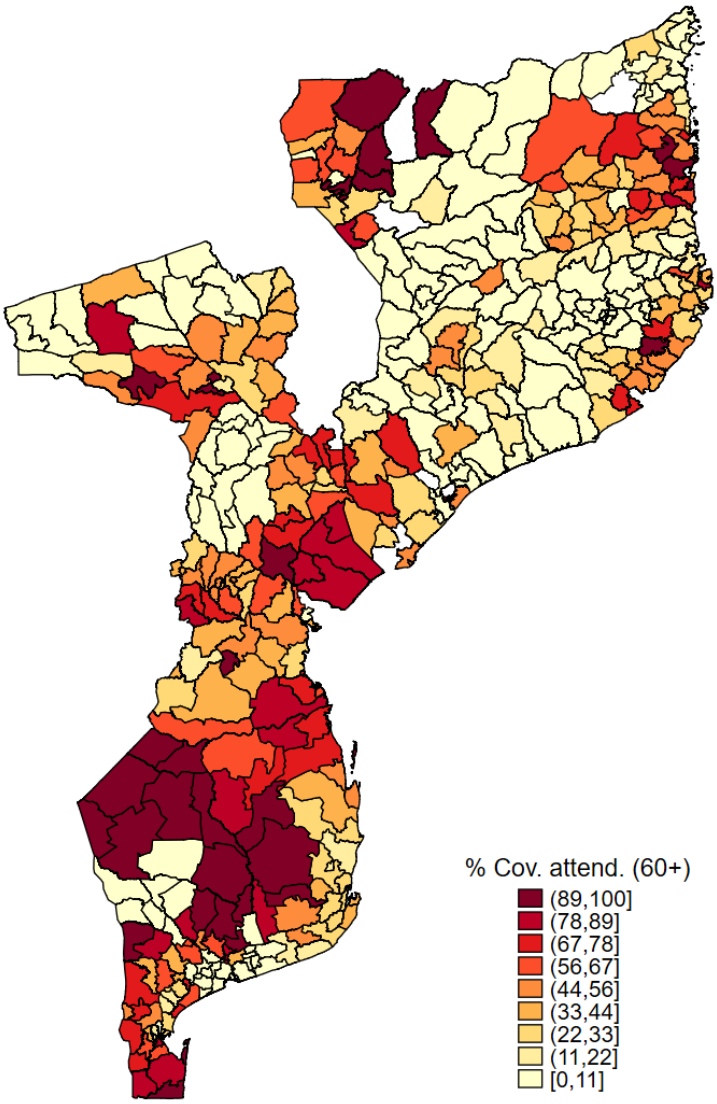
Minimum de facto coverage of PSSB-Elderly beneficiaries as share of the elderly, and elderly and poor population

Figure A9: Minimum de facto coverage of PSSB-Elderly beneficiaries as a percentage of the elderly population—2020



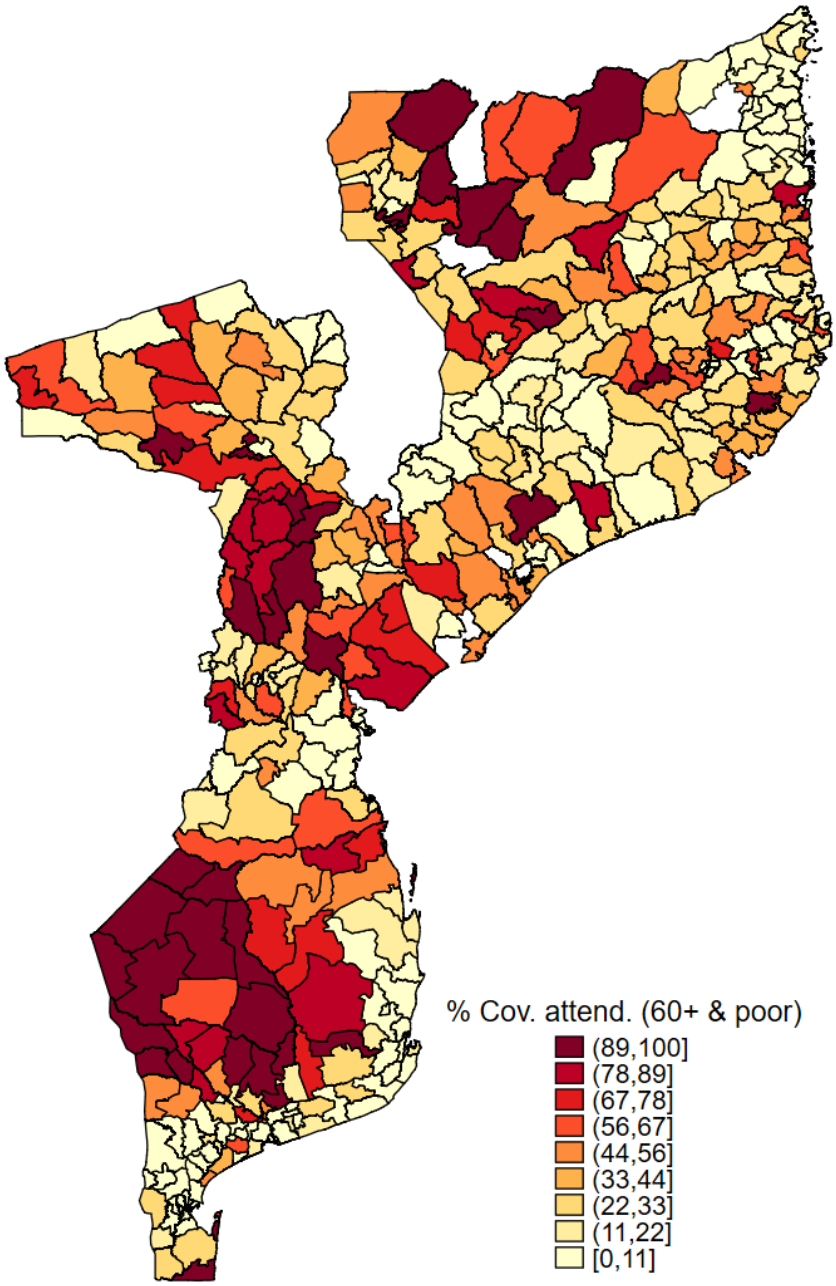
Note: the map shows minimum de facto coverage of PSSB-Elderly (i.e. beneficiaries attended at least once) as a percentage of the population above 60 years old by *posto*, using growth rates from UN population estimates DESA-EN (2024).
Source: own estimates.

Figure A10: Minimum de facto coverage of PSSB-Elderly beneficiaries as a percentage of the elderly population—2023



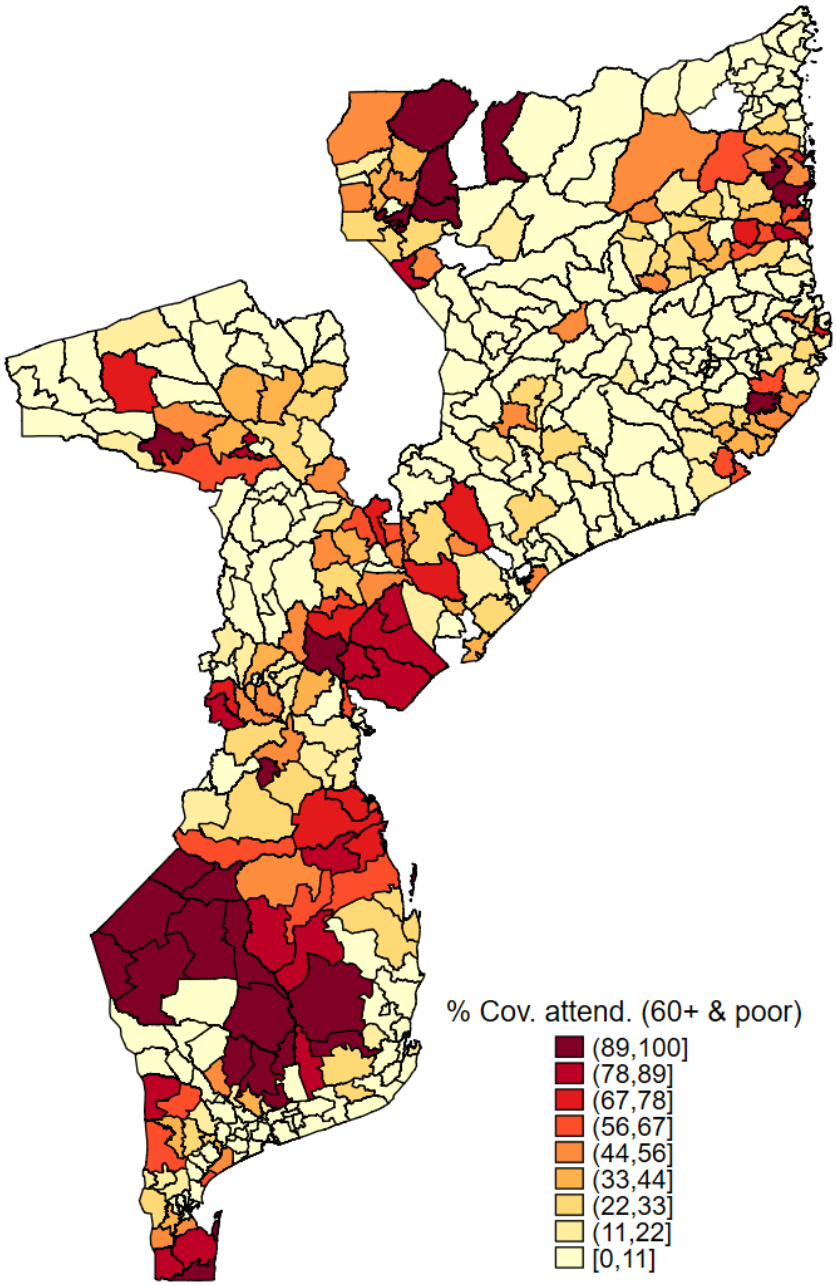
Note: the map shows the minimum de facto coverage of PSSB-Elderly (i.e. beneficiaries attended at least once) as a percentage of the population above 60 years old by *posto*, using growth rates from UN population estimates (DESA-EN 2024).
Source: own estimates.

Figure A11: Minimum de facto coverage of PSSB-Elderly beneficiaries as a percentage of the elderly and poor population—2020



Note: the map shows lower-bound minimum de facto coverage of PSSB-Elderly (i.e. beneficiaries attended at least once) as a percentage of the population above 60 years old and poor by *posto*, using growth rates from UN population estimates (DESA-EN 2024). The lower-bound estimate, the most conservative approach, assumes non-poor elderly are covered before the poor elderly as defined in Equation (2) in the main text.
Source: own estimates.

Figure A12: Minimum de facto coverage of PSSB-Elderly beneficiaries as a percentage of the elderly and poor population—2023



Note: the map shows lower-bound minimum de facto coverage of PSSB-Elderly (i.e. beneficiaries attended at least once) as a percentage of the population above 60 years old and poor by *posto*, using growth rates from UN population estimates (DESA-EN 2024). The lower-bound estimate, the most conservative approach, assumes non-poor elderly are covered before the poor elderly as defined in Equation (2) in the main text.
Source: own estimates.