

# Technical Brief: Mozambique Impact Evaluation Baseline Findings

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# TECHNICAL BRIEF: MOZAMBIQUE

## IMPACT EVALUATION BASELINE FINDINGS\*

The World Bank's Africa Gender Innovation Lab (GIL) and Trade and Competitiveness (T&C) have partnered with the Mozambique Integrated Growth Poles Project (IGPP) to assess the impact of the rehabilitation of two feeder roads in Tete province on household welfare. The region is characterized by high agricultural potential growth but suffers from poor market linkages, which could be improved through upgraded market access roads. After the IGPP's technical and economic assessment, the roads R604 and R605 crossing Angonia, Tsangano and Macanga districts were given priority for the investment and rehabilitation. Critical sections of the two priority rural roads will be upgraded and maintained to provide all weather road access. The road works are expected to take place between May 2017 and December 2018.

To date, the amount of rigorous evidence on the effectiveness of feeder road rehabilitation interventions is thin. The impact evaluation will help fill this knowledge gap and generate evidence that can inform the design of future feeder roads rehabilitation programs in Mozambique and elsewhere. The impact evaluation will also use a rigorous randomized control trial approach to evaluate a novel policy intervention that supplements agricultural extension services targeted to women farmers with a pilot training on non-cognitive skills. This intervention seeks to deepen the impact of the feeder roads rehabilitation program under the IGPP, and improve the ability of women to take advantage of better road infrastructure.

A baseline survey was conducted from April to June 2016 on a sample of approximately 3,000 households in 150 rural communities (20 households per community). The survey collected extensive information on the characteristics of the communities, households, and farms. Half of the sample is located along the two roads that will be rehabilitated under the IGPP (R604 and R605), and the other half along two other nearby roads that will not be rehabilitated (N302 and R603).<sup>1</sup> The sample is also stratified by distance to the roads: half of the communities are located 0-2 km away from the roads, and the other half located 2-10 km away from the roads.<sup>2</sup>

This technical brief summarizes the baseline findings related to the characteristics of the communities, households, and farms in the sample.

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<sup>1</sup> Roads N302 and R603 are in the vicinity of roads R604 and R605, share the same agro-ecological characteristics, and are in an equally poor state thus forming a natural comparison group to roads R604 and R605. This feature of the program placement, combined with baseline and follow-up data, will be used in order to estimate the impacts of better road infrastructure using a difference-in-differences (DD) methodology. This method will purge the estimates from (time-invariant) differences between treatment and comparison roads.

<sup>2</sup> To further improve the robustness of the analysis, the impact evaluation will also use a triple-difference (DDD) approach to estimate the impacts of the feeder roads rehabilitation intervention, which combines variation across time, across rehabilitated and non-rehabilitated roads, and across distance to roads.

## *Community Characteristics*

**The current living conditions of the households remain precarious.** Access to electricity is still rare and improved water sources are not available in every community. However, we note a high mobile phone and radio signals penetration. Natural shocks are relatively common in the region, with a high incidence of epidemics on livestock, crop diseases, and droughts.

**Communities are remote and suffer from poor market linkages.** More than half of the communities are accessible by trails only. The level of market penetration is low: the overall business integration of enterprises in the region is weak, and communities along R604 and R605 report to buy and sell less to specialized companies than communities along N302 and R603. Bordering countries, namely Malawi and Zambia, are important suppliers of inputs for the farmers in the region.

**We note a high variation of cultural traditions within the visited communities.** The communities along the roads R605 and R604 are in large majority matrilineal, whereas patrilineal rules prevail in the communities around N302 and R603.

## *Household Characteristics*

**The majority of the households in the sample are illiterate, with women more likely to be illiterate than men.** 24% of the women can read and write, against 63% of the men. The illiteracy rate is significantly lower among households close to the roads compared with households further away.

**Household welfare remains low, with households far from the roads being worse off than households close to the roads. In all welfare dimensions – consumption, assets, housing quality and food security – female-headed households are more deprived than male-headed households.** The average annual consumption per capita is 5,726 MZN. Households close to the roads consume on average 28% more in value than households far from the roads. The dwellings are in majority made of poor quality materials and the households possess on average just a few durable goods. In addition, we remark a high incidence of hunger in the region. The households closer to the roads experience less periods of hunger and possess more durable goods.

**The provision of agricultural services is low and unequal across roads and genders.** Few households contracted an agricultural credit (12%) and received information from an agricultural extension agent (16%). The provision of those services is even more scarce for the households along R604 and R605. Compared with women, more men contracted agricultural credits, received information from extension programs and belong to an agricultural association.

**Regarding household decision-making, men are the primary decision-makers on all major household purchases.** In couple households, women are rarely the sole decision-maker. We find some evidence of inter-generational transmission of women bargaining power, but no sign of improved women's bargaining power between the past generation and today's generation. Although about half of the women earn money, they remain financially dependent from their husband.

**We note a small gender gap in cognitive and non-cognitive skills.** On average, men scored higher in cognitive skills tests and registered slightly higher non-cognitive scores. We also observe some evidence of assortative mating on non-cognitive skills: high ability men tend to be married with high ability women.

### ***Farm Characteristics***

**In the region, the agricultural calendar is made of two agricultural seasons. The first season running from September to February is more intensive than the second season from March to August.** Almost every household cultivates during the first season, whereas only 35% of the households cultivate during the second season.

**The agricultural sector in the region is characterized by the cultivation of subsistence crops, principally maize, but also by the cultivation of tobacco, the high-value crop of the region.** During the main agricultural season, the principal subsistence crops grown are maize (99% of the households), groundnut (41%), butter bean (38%) and black eyed-pea (27%). The main horticulture crops grown are pumpkin (42%), okra (12%) and kale (9%). The main cash crops grown are tobacco (40%) and soybean (23%). The top fruit crops grown are mango (23%) and banana (11%). We note that the crop portfolios of the households differ importantly across roads.

**The average yields per households is 11,551 MZN/ha during the main season, and about 40% of the produce is sold.** We observe low levels of agricultural input usage, as well as a high incidence of agricultural losses: 55% of the households in the sample suffered some pre-harvest losses during the first agricultural season.

**Female-headed households' farms are less productive and less market-orientated than the male-headed households.** On average, female-headed households own significantly less and smaller parcels than male-headed households. They also use less fertilizer and pesticides. In addition, female-households tend to cultivate less cash crops – tobacco, soy and sugar cane.