

# Fertility trajectory in Mozambique by region and education, 1987 to 2007

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## *Introduction and objectives*

Sub-Saharan Africa was the last region in the world to record a fertility downward trend, however, at a very slow pace (Bongaarts; Casterline, 2012; Bongaarts, 2017). Some authors have highlighted the fertility decline in many sub-Saharan Africa countries in recent decades without clear consensus about the factors contributing to the decline or high levels persistence and to the speed of change in fertility (Caldwell et al 1992; Garenne and Joseph, 2002; Shapiro and Gebreselassie, 2007; Bongaarts and Casterline, 2012; Bongaarts, 2017). There is a general understanding, though that the decline starts in urban areas and spreads to rural areas (Garenne and Joseph, 2002; Shapiro and Gebreselassie, 2007).

Mozambique is located in the south-eastern strip of the African continent, consisting of 11 provinces, one of which is the City of Maputo, the country capital (See Map1 in Annex). With 70% of its population living in rural areas (INE, 2007), it is among the countries with the highest fertility rates. The 2007 Demographic Census revealed a young population, with 47% under 15 years. Among the 15+ population, half were illiterate and 64% of women had no education. The HDI (2016) of 0.416 places the country in the 181<sup>st</sup> position, among 185 countries. In 2015/16, 49.2% of the population lived below the poverty line. Fertility in Mozambique has dropped in recent decades from 6.4 in 1980 to 6.0 in 1997 and 5.7 in 2007. The decline was not homogeneous among the provinces. In 2007, while northern provinces such as Niassa and Tete had TFRs of 6.9, southern provinces such as Maputo and Maputo City had TFRs of 3.9 and 3.0 respectively. In 1980, the same provinces levels were 7.4, 7.3, 6.4 and 5.7, respectively (Macaringue, 2019). Also, inside the provinces, the fertility decline is more intense in urban areas (Arnaldo (2007; 2013), INE (1999; 2009), IDS (1997; 2003)). In general, there is scarce evidence on the trajectory fertility in the country. This paper intends to advance in this direction.

The main objective is to analyze the fertility trajectory in Mozambique between 1987 and 2007, highlighting fertility differentials by area of residence and the educational level. We want to test two hypotheses: (i) the decline was more intense in urban areas; (ii) more educated women have lower fertility levels.

To the analysis by educational level, we classify women in two categories. (a) Lower educational group: 0-3 years of study; (b) Higher educational group: 4+ years of study. To the analysis by place of residence, we consider three areas<sup>1</sup>: (c) Metropolitan Maputo (MM), constituted by Maputo City<sup>2</sup> and urban areas of Maputo Province; (d) Rest of urban areas (UR), constituted by urban areas of the other 9 provinces; (e)

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<sup>1</sup> These are non-traditional but homogeneous areas in Mozambique.

<sup>2</sup> Maputo City is entirely urban.

Rural (RR), constituted by rural areas of 10 provinces. All indicators are presented for Mozambique, two educational levels and three regions.

### ***Data and Methods***

Data come from the 1997 and 2007 Demographic Censuses from IPUMS-International (Minnesota Population Center, 2020). In the last two censuses (1997 and 2007), questions on the total number of live births and live births in the year prior to the census were included. The information allows the application of Brass's P/F technique (Brass, 1986) with an adaptation by Gonçalves et al. (2019). The censuses also present information about family relationships, which allows the reconstruction of birth histories (HN) following the methodology formulated by Miranda-Ribeiro, Rios-Neto and Carvalho (2009) that allows incorporation of important demographic elements in the births series reconstructed. We estimate the following set of fertility measures: (i) series of TFR; (ii) series of ASTRF; (iii) parity progression ratios (PPR) for 40-44 women. All indicators cover the 1987-2007 period. For the TFR estimations, we corrected the level by  $P_2/F_2$  Brass technique values.

### ***Preliminary Results***

Figure 1 shows TFR series for the regions and by educational levels indicating significant differentials of fertility trajectory in Mozambique, regarding place of residence and education. Regarding the former, one can say that for rural areas (RR), fertility increased until the beginning of the 2000's and then declined, but levels are still high. For urban areas (UU), fertility was quite stable around 5. For metropolitan Maputo (MM), fertility dropped during all period. Although increased trend can be related to deficiencies in the censuses coverage, results signal no evidences of fertility declining trends in the rural area. Regarding educational levels, for the higher educated women fertility dropped during all period; for the less educated, fertility remained in high levels and even increased from 1987 to 2003, which, as in the previous case, part of this trend can be related to the coverage failure.

The national average reflects both the high rural population share and the heavy presence of women with low educational levels.

Figure 1 – Mozambique, 1987-2007. Total Fertility rate* according place of residence and women education	
a) Rural, Urban** and Metropolitan Maputo***	b) Women educational level

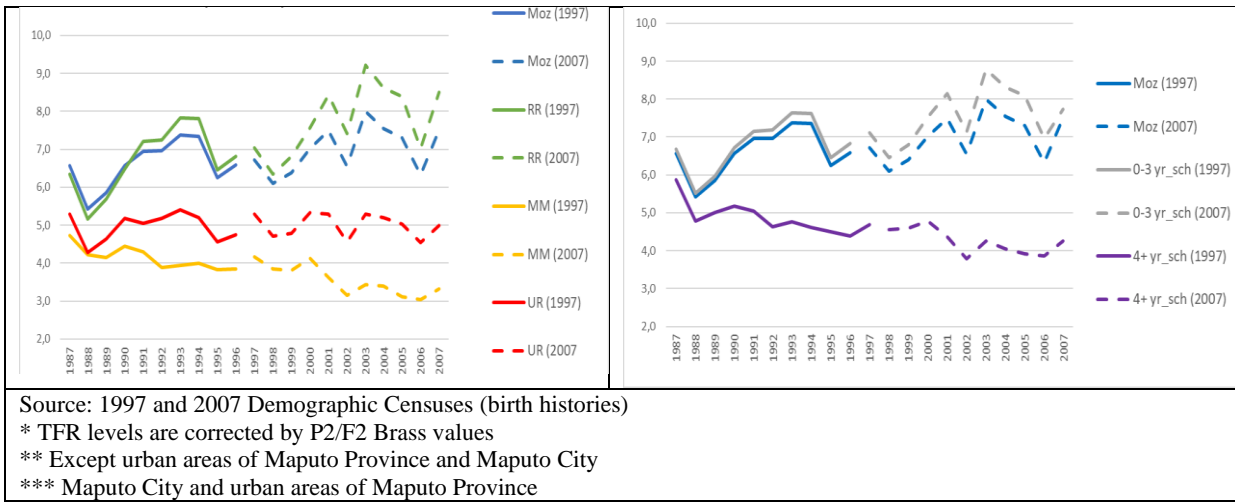


Figure 2 – Parity Progression Ratios (PPR), 3<sup>rd</sup> to 8<sup>th</sup> births, women 40-44 – Residential áreas Mozambique 1987-2007

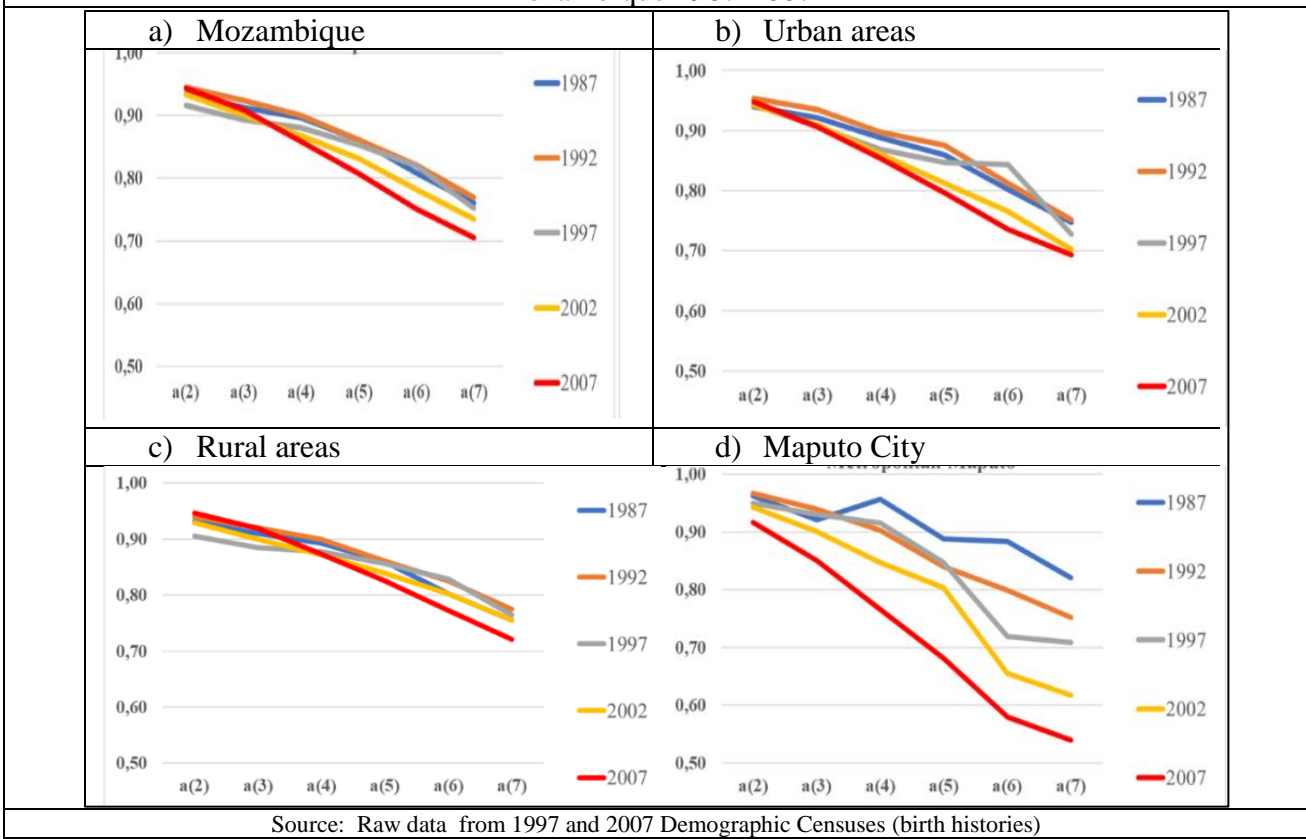


Figure 2 shows the parity progression ratios (PPR) for 3<sup>rd</sup> to 8<sup>th</sup> births, from 1987 to 2007, for 40-44 years old women. For Mozambique, the 2002 and 2007 curves show a decrease in the PPR from a birth of a given order, a(n) to the next a(n+1); in this case, particularly we consider a(4) to a(7). For the Rural Areas (RR), one can observe that for the 2007 curve, the progression to 6<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> births are at lower levels, comparing to previous years. In Urban Areas (UR), these two curves distance from the others from the progression to the 5<sup>th</sup> birth. For Metropolitan Maputo (MM), one can observe that progressions started to decline earlier and for lower birth orders: in 2007, progression to 3<sup>rd</sup> to 8<sup>th</sup> births are at lower levels, comparing to previous periods. In 2002, progression to 4<sup>th</sup> to 8<sup>th</sup> births are lower than the observed to

1997; in the 1997 curve, a(6) and a(7) are lower than the values observed for 1992. The clearest pattern of change corresponds to the Metropolitan Maputo followed with much less emphasis in the remain urban areas.

Forthcoming: PPR by educational level; ASFR by region and educational level.

### ***Comments***

This paper aims to contribute to the analysis of fertility trajectory in Mozambique from 1987 to 2007. The results point to the decline of fertility in certain regions and some population strata. Results show that fertility decline is more pronounced in Maputo Metropolitan (MM) followed by the Urban Areas (UR). In Rural Areas (RR), which concentrate about 70% of the population, there are no clear signs of fertility decline. Metropolitan Maputo, which includes the country's capital, is at the forefront of fertility decline. The region is marked by higher socioeconomic, institutional development, low child and youth mortality, high education, greater access to family planning services and economic opportunities. Education also plays an important role in the fertility decline in Mozambique.

Relatively low fertility levels estimated for the rural areas at the earliest periods will be discussed in the final version of this paper. Finally, results from de 2017 census will help us to better understand the fertility transition in Mozambique.

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#### Annex 1 - Map of Mozambique and 11 provinces



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