

Niger's Demographic and Education Future: The Last Country to Start Its Fertility Transition

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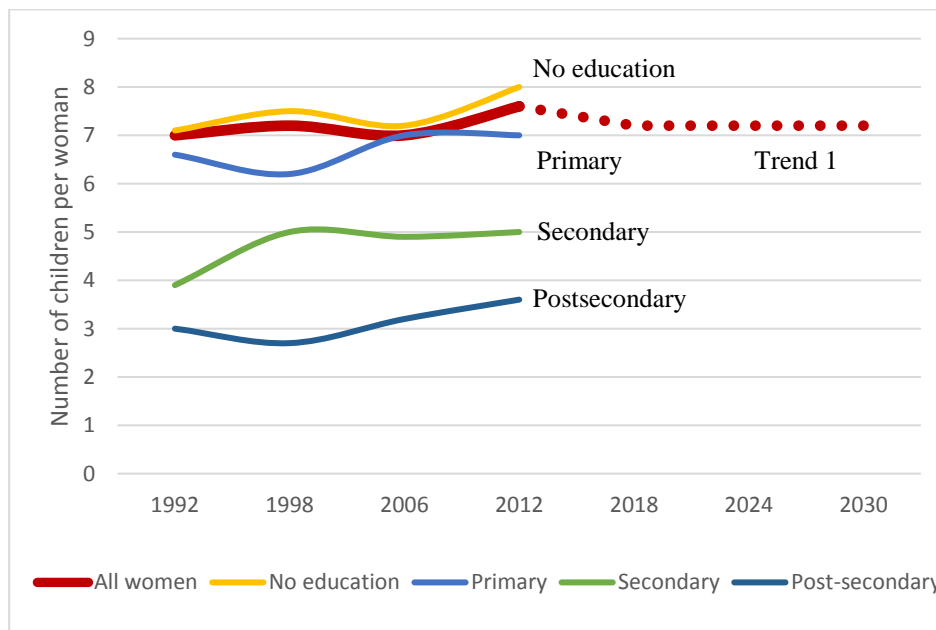
Extended Abstract

Introduction

Niger has the fastest population growth in the world while being among the least developed countries according to the United Nations Development Program. Several rounds of demographic and health surveys (DHS -- 1992, 1998, 2006, 2012) show that the total fertility rate (TFR) has been stable around 7 children on average per woman between 1992 and 2008 and increased to 7.6 children in 2012 (Fig. 1). The momentum of population growth, which will continue to ensure rapid population growth in the medium to long term, represents a planning challenge for Niger's development. Indeed, the Nigeriens are mostly young, 58% and 70% of the population are under 18 and under 25 respectively. This is why the demographic variable occupies a central position in the Sustainable Development and Inclusive Growth Strategy (SDIGS) Niger 2035 document and the 2017-2021 Economic and Social Development Plan (PDES),

The social, economic, environmental and technological development of the country requires that this young population receives a good quality education. However, high population growth complicates the challenge of providing education for all because of the ever-increasing needs, a problem that is also reflected in other public services. The future of Niger will largely be a reflection of the country's ability to meet this challenge. Within the partnership between UNICEF and IIASA, we propose to study different future paths of demographic and educational development in Niger in order to inform decision-makers, but also to make the various actors aware of the potential consequences of political choices. The regional dimension in Niger is particularly important as each of its eight regions (Agadez, Diffa, Dosso, Maradi, Niamey, Tahoua, Tillabéri and Zinder) faces different challenges and develops at its own pace.

Figure 1. Total fertility rates in Niger, all women and by education, 1998-2012 and trend extrapolation (Source: Authors' calculations based on several DHS rounds)



Methodology

To capture the important impact of education on demographic parameters such as fertility and mortality, and to account for regional diversity, we use the multistate cohort component method to project the population of Niger by age, sex, education, and region according to different scenarios for the period 2012-2062. The base-year information (2012) concerning population, fertility, migration and education

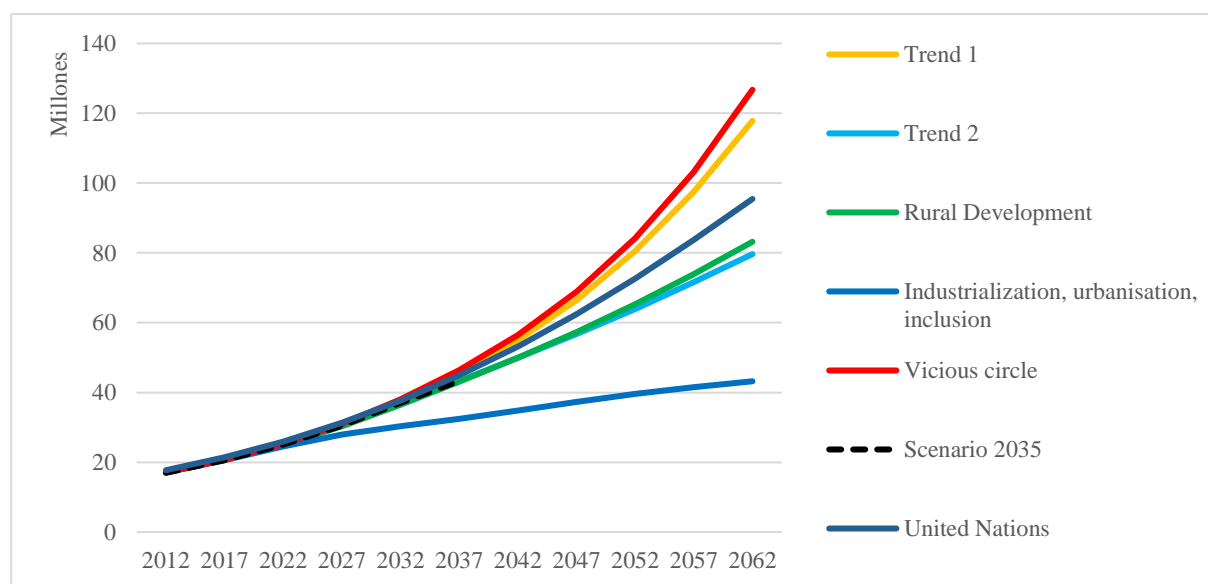
(no education, koranic, incomplete primary, primary, lower secondary, upper secondary, professional, post-secondary education) estimated from the 2012 census and the 2012 DHS data. Mortality parameters are derived from the mortality parameters of Niger in the UN World Population Prospect.

We used a mixed method to derive the scenarios. Together with stakeholders and decision-makers in Niger (February and July 2018), we developed qualitative narratives about the different futures possible for Niger to the 2062 horizon. In a second step, the narrative elements of the stories were transformed into quantitative assumptions about fertility, mortality, migration, and educational development, which are necessary to run the projections (see Table 1 for a general overview of the scenarios).

Preliminary results

Starting from a total population of 17 million in 2012, the population of Niger will increase drastically in the next few decades with little difference between all scenarios until 2035 (Fig. 2). In 2062, the population could be as high as 127 million if investments in education are kept low, leading to a vicious circle of sustained poverty and persistent high fertility. It is also worth noting that under the most positive scenario (Industrialization, urbanization, inclusion), the population would still grow to reach 43 million inhabitants in 2062.

Figure 2. Total Population, Niger, 2012-2062, five scenarios (Source: Authors 'calculations), Scenario 2035 (Source: Institut National de la Statistique, 2016), and United Nations medium scenario (Source: United Nations, 2017)



Population growth will have important repercussions on school population (Fig. 3). All scenarios imply a significant increase in the population to be schooled at every level, but particularly at the primary level.

Another important result is that the pace of education progress implied by the trend scenario (Trend 2) varies across regions for both sexes, increasing in primary (Fig. 4), especially when comparing Niamey and the other regions, and also at higher levels of education (not shown).

Conclusions and further work

Scenarios still must be refined and findings will be further analyzed. We will additionally add other derived variables to the model, such as nutrition, labor force participation, water and agricultural needs. Together, the results will provide a reflection tool for defining policy options. Scenario analysis in particular allows for the comparison of demographic and educational trends with the objectives and targets of the Niger's development plans. Such comparisons may help to establish the policy changes required to meet human resources and other basic social service requirements.

Table 1. The five scenarios developed for the regions of Niger (Source: Authors' translation of discussion with government officials and key stakeholders)

Scenario → Indicator	Trend 1	Trend 2	Rural Development	Urbanization, industrialization, inclusion	Vicious circle
Narrative	Trends in all socio-demographic domains continue over the next 50 years	Trends in all socio-demographic domains continue over the next 50 years, except we anticipate a drop in fertility.	Rapid development based on agriculture. The resource regions retain workers, who benefit from the development of vocational education. Inequalities between men and women tend to persist.	The government puts in place binding measures to reduce fertility. Urbanization and rapid industrial development occurs in several cities, e.g. Niamey, Zinder, Agadez and Maradi. The education system can expand as it suffers less from the demographic pressure. Women are fully included in education and in the labor force.	Formal education collapses under demographic pressure. Progress in mortality is limited, especially among children. The fertility decline stalls. Rural areas are overcrowded, and migration to Niamey is accelerating.
Fertility	~Constant according to the trend observed between the 1992 and 2012 DHS (Fig. 1).	Trend anticipating a decline in the 2017/18 DHS. TFR reaches 3.1 children in 2062.	TFR reaches 3.0 children in 2062.	Very low level in 2037 (China equivalent in 2015), constant thereafter.	Stalled fertility decline.
Mortality	Average mortality reduction (e0 between 68 and 75 years, by region and education for women in 2062).	Average mortality reduction (e0 between 68 and 75 years, by region and education for women in 2062).	25% reduction in mortality compared to baseline (e0 between 74 and 80 years by region and education for women in 2062).	50% mortality reduction compared to baseline (e0 between 80 and 85 years by region and education for women in 2062).	Progress reduced in infant and older mortality (e0 between 62 and 70 years by region and education for women in 2062).
Internal migration	Exit rate constant across regions. Mobility mainly towards Niamey.	Exit rate constant across regions. Mobility mainly towards Niamey.	Exit rates are halved, except in Niamey.	By 2037, exit rates are halved in Niamey, Zinder, Maradi and Agadez. Regional city centers become industrial centers attracting youth from other regions.	Exit rates gradually doubled by 2062 across regions, mostly towards Niamey.
International migration	No international migration				
Education	Average progression (based on trend across age groups <35 years)	Average progression (based on trend across age groups <35 years)	Development of primary and vocational education	For 2062, about the same level (<35 years) as China in 2015. Faster progress in Niamey, Zinder, Agadez and Maradi. Disappearance of gender inequalities.	Increase in the population without education or only with religious education.

Figure 3. Estimates of the population out and in school in 2012, and in 2062, by level of education and scenarios, Niger (Source: Authors' calculations)

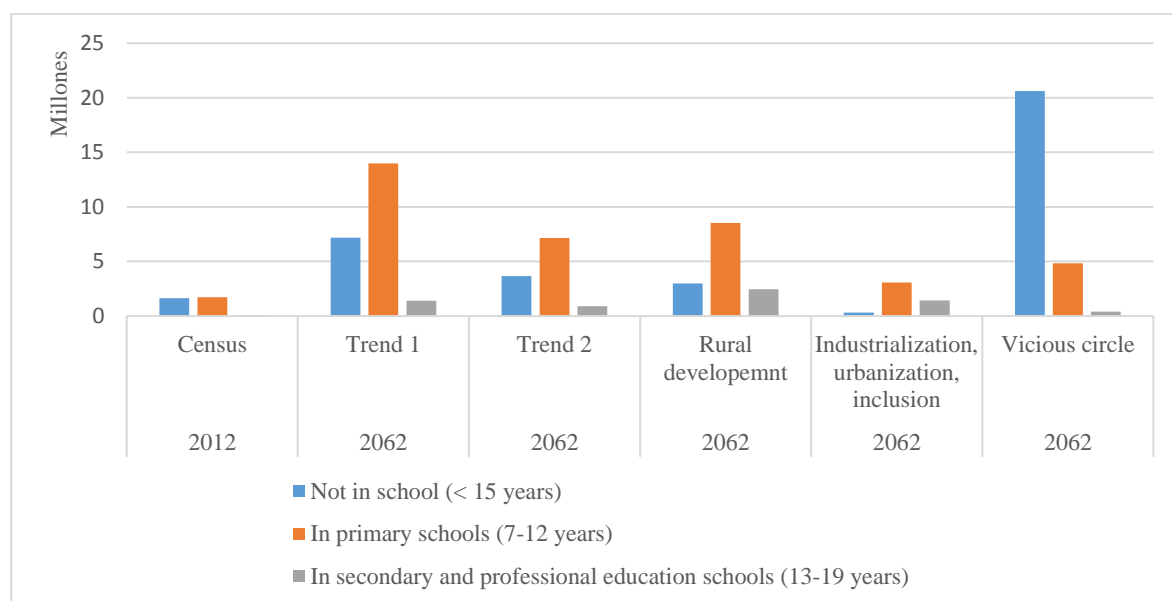
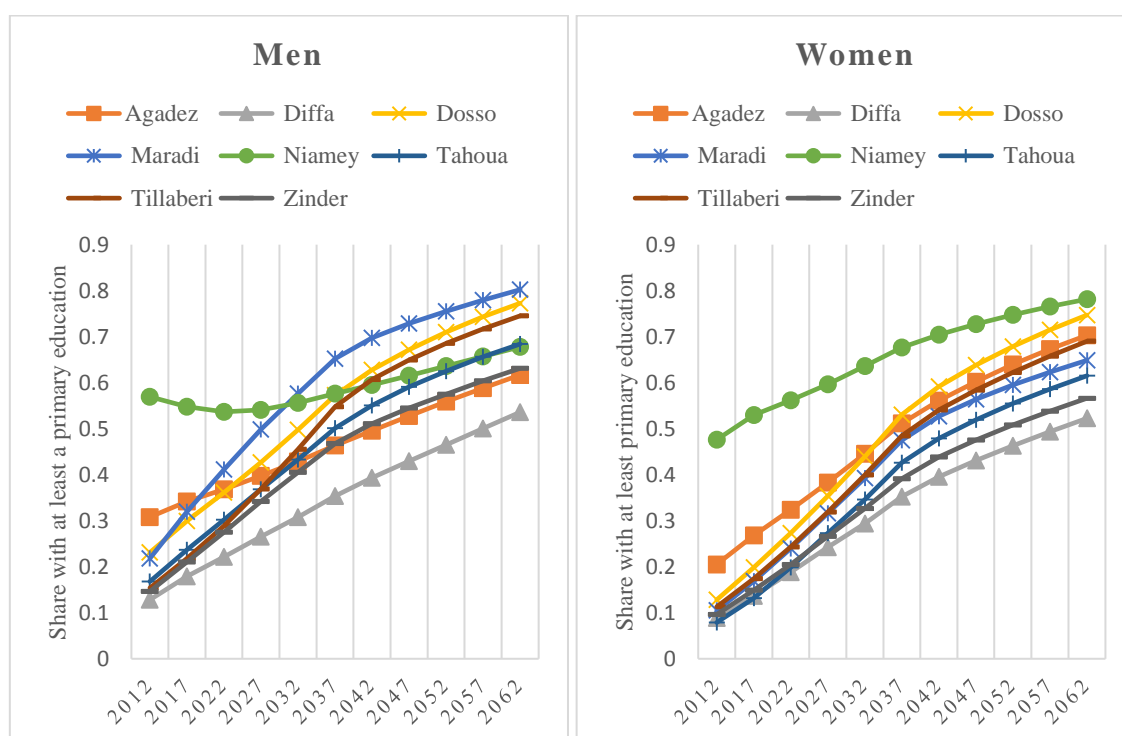


Figure 4. Share of population 15+ with at least a primary education, Trend 2 scenario, 2012-2062



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