

AGE STRUCTURE EVOLUTION IN SOME SUB-SAHARAN COUNTRIES: THE ADVANTAGE OF AGEING¹

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1. Introduction

Demography, resorting to the formal rigor of mathematics of populations, builds scenarios for the future that contribute to feed collective fears. For more than fifty years - from the fundamental works of Frank W. Notestein (Notenstein F.W., 1945) and Kingsley Davis (Davis K., 1945) on the demographic transition - the fear indicated by the projections has been the overpopulation, in other words, the pressure that the population growth is supposed to exercise on the means of production, in particular on material resources and labour.

The fear of an overly rapid population growth has focused particularly on the Southern populations that came later in time (than those of the North) in the phase of the population explosion.

Later, however, the evident dramatic declines in fertility in different countries of the South, the United Nations has had to revise their projections assuming that the world population could reach a maximum amount significantly lower than previously expected.

As argued by the economist Walt Whitman Rostow, theorist of "The Stages of Economic Growth", in the next few decades, the planet will not be threatened by overpopulation, but, on the contrary, by the reduction of growth and, therefore, by the perspective of demographic stagnation (Rostow W.W., 1998).

This finding reveals a reverse fear which could affect, once again, in an insidious manner, the South more than the North since the South manifests a marked retardation in the awareness of the on-going slowdown of its growth and of the onset of a progressive ageing process. It is not, in fact, only a challenge for industrialized countries, which have already become familiar with the idea of ageing, but also, and perhaps above all, for the least developed countries that are not prepared for such a change.

¹ This paper is the result of the collaboration between the two Authors, in particular, the paragraphs 1 and 3 are attributable to M.C. Pellicani; the paragraphs 2 and 5 to V. Moro and the paragraph 4 to both Authors.

2. A macro-region with strong elements of heterogeneity

In our analysis, in the broader context of sub-Saharan Africa, we decided to consider the age structure evolution of the countries that compose, according to the UN, the “Middle Africa”.

The countries of this area were mainly affected by the French domination, with the exception of Cameroon (partly under British control) and Angola (Portuguese enclave) the last country to reach the Independence (1975).

Besides the historical and political affinities, practiced religions are also very homogeneous: Christianity is prevalent (mainly Catholic) followed by Animism² (Istituto Geografico De Agostini, 2011).

The region is, however, characterized by a deep heterogeneity in demographic, socio-cultural and economic terms. From a demographical point of view, with a total of almost 130 million people, the area includes countries with an amount of population ranging from 1.5 million of Gabon to nearly 70 million of the Democratic Republic of the Congo, passing by about 20 million of Angola and Cameroon³ (UN, 2011).

The infant mortality rate takes very different values: from 131.0 ‰ of Chad to 51.0 ‰ of Gabon. As a consequence, life expectancy at birth, still very low, ranges from 44.5 years (males) and 47.3 years (females) of the Central African Republic to 60.2 years (males) and 62.4 years (females) of Gabon. Finally, we find these two countries at the extremes also with regard to the total fertility rate, ranging from 6.2 children per woman in Chad to 3.4 in Gabon (UN, 2011).

In socio-cultural terms, illiteracy is still widespread⁴, especially in the peripheries of the cities and in the countryside, where the population lives in great poverty, often in improvised settlements.

Such situation of decay is predominant in countries like Chad and Angola, torn by many years of civil war that determined millions of displaced persons, or Democratic Republic of the Congo, which, besides the civil war, is also affected by the scourge of malnutrition, and also Cameroon, never affected by *coups d'état* but tormented by the epidemics concerning the whole area⁵. Despite the notable sanitary interventions of prevention, the HIV/AIDS continues to dominate the

² Only in Chad prevails the Islamic religion (53.0%) (Istituto Geografico De Agostini, 2011).

³ In this analysis we didn't consider other two countries of the region - Equatorial Guinea and São Tomé and Príncipe - because of their limited demographic dimension.

⁴ The literacy rate in 2010 ranges from 35.0% of Chad to 88.0% of Gabon (CIA, 2013).

⁵ Middle Africa is currently considered the area of the greatest risk of international transmission of polio, because of the limited impact of measures of control and the historical spread of this disease between Angola and Democratic Republic of the Congo (WHO, 2010).

scene, whose incidence among the young adult/adult population (15-49 years old) in 2011 ranges from 2.1% of Angola⁶ to 5.0% of Gabon (UNAIDS, 2012).

3. Methodology and data

Among the numerous questions concerning the African continent in terms of its future prospects, certainly there is the question related to the consequences of the changes of demographic behaviour on the age structure of its populations.

In this occasion we choose an age, 25 years, that concentrates as much the fears as the hopes. That is the age of the end of the studies (when the case), of the entry in the labour market (if not yet the case), of the leave of the parental *foyer* to start (later) its own family and finally, the age of the stronger geographic mobility (Fargues Ph. - Pellicani M.C., 2000).

To try to approach as much as possible the “lived reality”, we simulated the individual perspective rather than the population one.

In generational terms and at the moment of the entry in the productive (25 years) and reproductive (30 years) life, we tried to answer to some questions that the individual will have to face: what are the charges that parents do represent for a single individual and what are the charges represented by the children that the individual will have; with which handicaps and advantages, therefore, the individual coming from the South starts, nowadays, its adult life.

On this purpose we constructed two indicators that allow us to illustrate the assessment that the average person (in a statistical sense) can do about its situation (Fargues Ph. - Pellicani M.C., 2000):

$$- \text{ascending charge index (a.c.i.)} = 2 * (I_{55}^{g-30} / I_{30}^{g-30}) / (ISF^g * I_{25}^g) \quad (1)$$

$$- \text{descending charge index (d.c.i.)} = ISF^{g+30} / 2 \quad (2)$$

To the past evolution we added a prospect analysis (on the base of the 2010 revision of the United Nations population prospects, medium variant) considering the generations 1960-2030.

4. Generations to the test

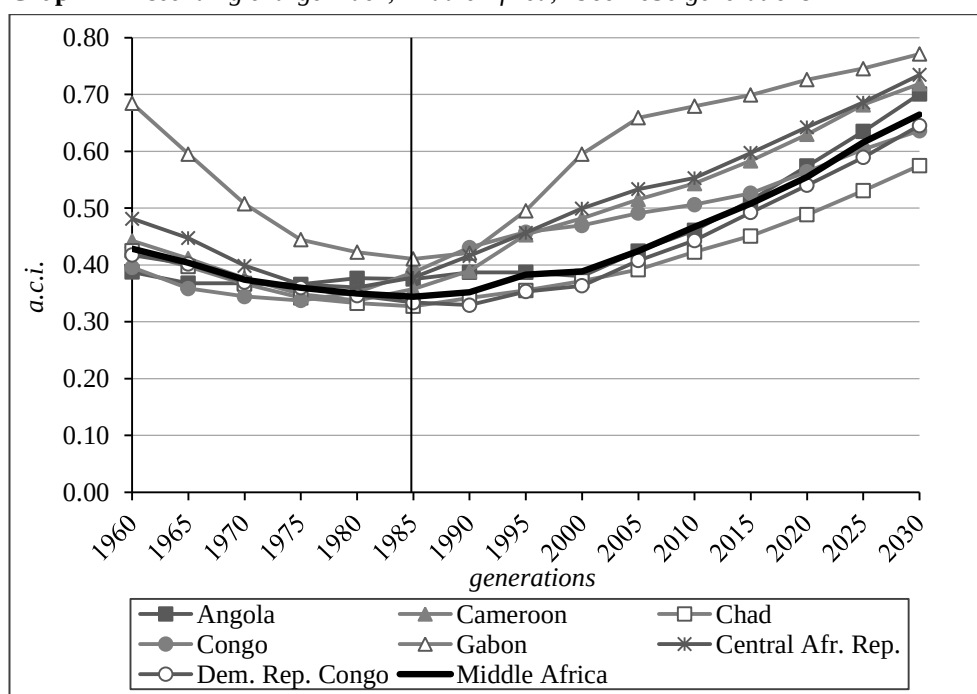
Always bearing in mind the general situation of the region, characterized by a late and generally modest increase in life expectancy and by a still high fertility

⁶ In Angola, the epidemic of HIV/AIDS is more recent than the rest of Africa; it doesn't have, therefore, yet reached its peak (UNAIDS, 2012).

rate, the ascending charge has had a decreasing trend at least till the 1985 generation. In 2010, there are, on average in the considered area, 0.34 surviving parents for each 25-year-old individual (Graph 1).

The combined effect of the reduction in parents fertility and of the increase in their life expectancy will begin to be noted from the 1995 generation, which will be 25 years old in 2020. In the considered period, the index value will increase from 0.43 for the 1960 generation to 0.66 for the 2030 generation. In other words, the ascending charge will become heavier of 53.5%.

Graph 1 – Ascending charge index, Middle Africa, 1960-2030 generations



Source: our processing on UN data (UN, 2011)

In opposition to what we observed for the ascending charge, with regard to the descending charge, there is a clear trend to convergence of the values towards the fateful level of generations replacement⁷.

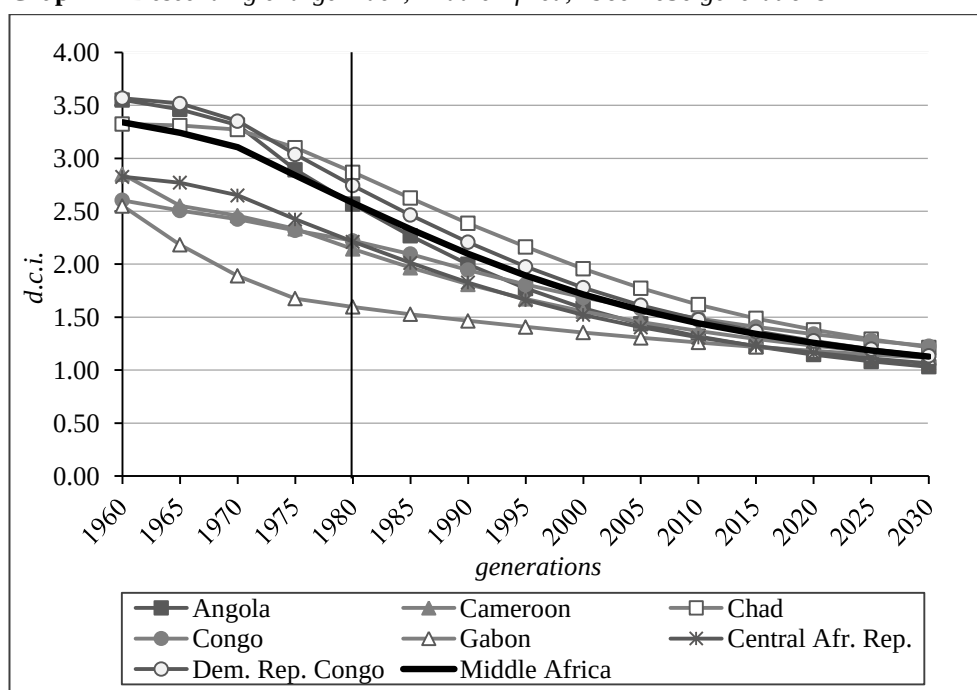
Compared to 3.34 descendants for the 1960 generation, the 1980 generation (the one that is 30 years old in 2010) is exposed to a (still) high charge even if in progressive decline (2.58) to reach the minimum value of 1.13 for the 2030

⁷ The hypothesis, underlying the projections of the United Nations, of the convergence of fertility levels to the threshold value (2.1 children per woman) is, however, yet to be demonstrated.

generation (Graph 2). The latest generations, therefore, will find themselves in a very different context compared to the generations that preceded them.

Even more than the general evolution, the variations by country result very significant, both in terms of intensity and timing of decrease. It is interesting, in this regard, to underline the behaviour of Gabon that, before the other countries of the area, has had a spectacular decrease of mortality and that, starting from the lowest fertility rate⁸ will reach 1.12 descendants for the 2030 generation.

Graph 2 – Descending charge index, Middle Africa, 1960-2030 generations



Source: our processing on UN data (UN, 2011)

Finally considering both indicators we can conclude that the generations 1990-2005 will find themselves in a period of exceptional demographic opportunity in comparison to the generations that immediately preceded them, profiting from a further fertility decrease and from a not (yet) excessive charge represented by the care of their parents.

⁸ In 1960 the total fertility rate of Gabon was equal to 4.3 children per woman compared to 7.4 children per woman of Angola (UN, 2011).

5. Conclusions

As we have had occasion to show, between the overpopulation of yesterday and the stagnation of tomorrow, there is, perhaps, a brief moment during which demography can be neutral, or even, represent an opportunity rather than a burden.

The generations that in the next few years will become adult will have the opportunity, in fact, to invest in their work as a source of personal well-being as well as of increase of the life quality of the future generations, for example in terms larger and better access to health care and education.

Based on the considerations formulated so far, none of considered generations in these countries has experienced or will experience a burden towards the generations that preceded them as heavy as that suffered by populations of other regions, especially the North ones, at the same time there is no doubt that Middle Africa countries must become aware of the implications of their fertility decline.

This phase of major demographic transformations will have as a consequence a substantial change in the amount and, even more relevant, in the population structure, leading to an increasingly long coexistence and inequality between the different generations.

Countries such as those we analysed will, therefore, have to carefully evaluate the significant effects produced by structural changes in order to calibrate the possible interventions. At the same time it will be fundamental to keep in mind that, in the increased demand, for example in terms of education (see *theory of quantity for quality trade-off*), social progress and democratization will play an even more important role than that played by the demographic evolutions.

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SUMMARY

The planet will be threatened, says Rostow, not by overpopulation but by the perspective of the demographic stagnation that constitutes the true challenge not only for the industrialized countries but equally, and perhaps above all, for the countries less developed (that are less prepared to such a change).

This is the case also of the sub-Saharan countries, that have not been sufficiently analyzed under this interesting point of view.

Aware that it is not possible to have accurate data, we used, for our calculations, the data provided by the United Nations in order to have an homogeneity and reliability (as much as possible) for all considered countries.

Our main aim, therefore, is to outline the frame of reference in terms of past and future structural changes of the populations of some sub-Saharan countries through the construction of two indicators that allow us to illustrate the assessment that the average person (in a statistical sense) can do about its situation. We tried to answer some questions that the individual, entering in the productive and reproductive life, will have to face: what are the charges that parents do represent for a single individual and what are the charges represented by the children that the individual will have.

As a result of our analysis, we notice that the considered countries will have to carefully evaluate the significant effects produced by structural changes in order to calibrate the possible interventions. At the same time it will be fundamental to keep in mind that, in the increased demand, for example in terms of education, social progress and democratization will play an even more important role than that played by the demographic evolutions.

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