5

CHANGE IN AGE STRUCTURE
AND DEVELOPMENT IN CAMEROON

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Abstract

This article examines past and future evolutions of the age structure of the population in Cameroon by showing its implications for economic and social development. The past evolution is traced on the basis of census data (1976 and 1987) of the Demographic and Health Survey of 1998. The future evolution is simulated on a time span of 35 years, taking as base the population structure and demographic indicators of 1998. The projections are made according to two scenarios: in the absence of, and taking into account, the HIV/AIDS pandemic, which is spreading with unprecedented rapidity. The past evolution of the age structure is characterized, according to the results, by a demographic malus generated by an increased economic dependency of the non-working population on the working population, with the corollary growth of social investment needs to the disadvantage of wealth-creating economic investments. Despite acknowledged efforts, the economic and social response of the state was not equal to the needs inherent in the change in age structure. In 1998, nearly one child out of three between 6 and 14 years was not provided with education, nearly one person out of three was unemployed, and 64% of the children from 12 to 23 months were not completely vaccinated. The future would have been more optimistically envisioned, because of the assumed emergence of a modest demographic bonus characterized by a gradual diminution of the proportion of the young population to the advantage of a steady increase in the working population and a con-

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tinuous decrease in terms of economic dependence. But this modest demographic bonus would have been inhibited, counterbalanced or jeopardized by HIV/AIDS and a pronatalist response to this pandemic, the control of which is difficult to envision in the projection period 1998-2033. In this epidemiological context, it will be difficult to reach the Millennium Development Goals.

1. Introduction

Cameroon belongs to the forty-six African countries south of the Sahara in which demographic transition has begun. According to the results of national demographic surveys, the synthetic fertility index decreases on average 0.87 every ten years. Between 1950-1955 and 1990-2000, the decrease in mortality was spectacular, causing life expectancy to increase from 36 years to 50 years, which is a gain of 15 years in roughly 45 years (United Nations 2002). The consequences of such evolutions on the age structure of the population and the economy of the country are ineluctable. On the level of age structure, the decrease in fertility reduces the proportion of children, while the decrease in mortality prolongs life expectancy. On the economic plane, this evolution is translated by an increase in the economically active population and a decrease in the economic dependency of non-working persons respective of working persons, this last point being considerably sustained by the subpopulation of children. These trends determine economic and social development policies, in particular as regards the production and creation of wealth, and the support of children and of the elderly.

The continued decline in fertility and in mortality would have allowed one to foresee what has been called the "demographic bonus" (Bloom et al. 2003) or "window of opportunity" (see Wong and Carvalho, chapter 7 of this work), engendered by the continuous preponderance of the economically active population combined with a continuous decrease in the economic dependence of non-working persons on working persons. But, the emergence of HIV/AIDS and the unprecedented rapidity with which it spreads could call this optimism into question, or at least appreciably moderate it.

This chapter attempts to show this by examining the past and future evolution of the age structure of the population in Cameroon and its implications for economic and social development.

2. The past evolution of the age structure of the population and its implications for economic and social development

The past evolution of the age structure of the population of Cameroon is traced on the basis of census data (1976 and 1987) and of the Demographic and Health Survey of 1998. According to these data, the Cameroonian population increased from more than 7.5 million in 1976 to 10.5 million in 1987 and to 14.3 million in 1998, which represents an average decennial increase of 37%. This increase is in large part due to a high natural growth estimated at 3%, resulting from a continuously decreasing mortality and an always high fertility, despite a few signs of decline. In fact, life expectancy at birth went from 48 years in 1976 to 51 years in 1987 and to 55 years in 1998, while the synthetic fertility index went from 6.7 to 5.8 and to 5.2 children per woman in the course of the same respective periods. The effect of these changes on the age structure of the population has political implications for the young population, the working population and the elderly.

2.1. Implications for the young population

The demographic structure in Cameroon has remained for the most part young. The proportion of young people under 15 years went from 43% in 1976 to 46% in 1987 and 1998, which represents an increase of three percentage points (Figure 1). The proportion of young children (under 5 years) went from 17% in 1976 to 18% in 1987, while that of 5-14 years increased from 26% to 28% in the same period. This increase is the combined result of a high birth rate and a spectacular fall in the mortality of young people and in particular of children under five years, which, according to data from national demographic surveys, went from 200 ‰ in 1976 to 165 ‰ in 1987. In 1998, the proportion of children under five years fell to 16%, while that of 5-14 years rose to 30%. The proportion of 15-24 years varied but little between 1976 and 1998, having stabilized at around 18% (Figure 1).

Figure 1
Age structure of the population in Cameroon in 1976, 1987 and 1998
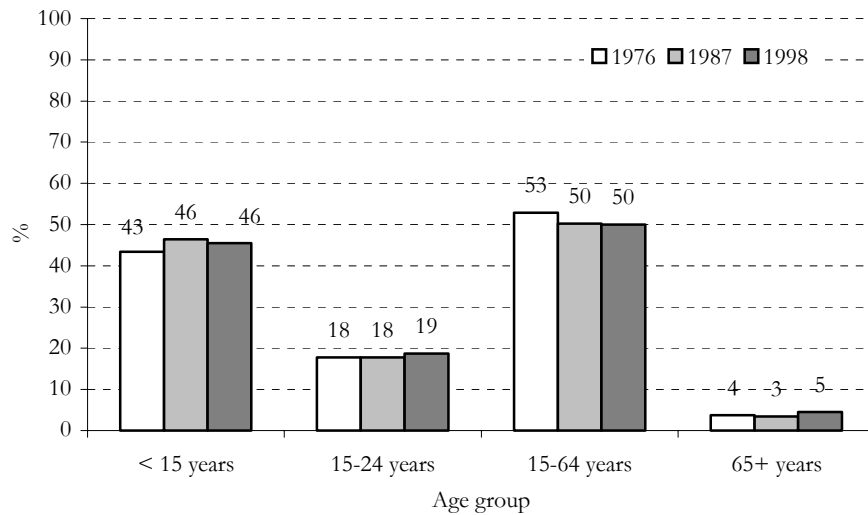
The increase in the relative size of the young population can be detrimental to economic and social development (Nizamuddin, 1994). In fact, the relatively high proportion of young people (under 15 years) not yet of working age tends to reduce the labour contribution per inhabitant and, consequently, all other things being equal, the income per inhabitant. Furthermore, it requires that a larger part of the limited available resources would be allocated to social investments to the detriment of wealth-creating economic investments. These social investments concern above all education and health.

In the area of education, the school-age population of under 15 years rose from 3 326 748 persons in 1976 to 4 870 491 in 1987 and to 6 594 100 in 1998, which represents an average growth of more than 140 000 young people to be theoretically provided with education every year in nursery school, primary school and lower secondary school. The school-age population of 15-24 years went from 1 331 411 persons in 1976 to 1 864 283 in 1987, which is an additional 48 443 young people to be theoretically provided with education every year in upper secondary school and higher education. In 1998, this subpopulation

amounted to more than 2.7 million, which represents an annual in-crease of nearly 72 000 persons during the period 1987-1998.

To what extent was the Cameroon government capable of meet-ing these educational needs? The schooling rate of children from 6-14 years went from 65% in 1976 to 81% in 1987 (Figure 2), which testifies to the efforts made in terms of access to education, leaving aside the quality of the education. But this trend reversed between 1987 and 1998 and a fall in the schooling rate from 81% to 73% is to be observed. This decrease is attributable to the particularly unfavourable economic situation in the 1990s, which, through austerity programmes (structural adjustment, wage reductions, monetary devaluation), significantly eroded the purchasing power of households and their financial ability to provide their children with an education. Assuming that access to education is a fundamental need of children, it emerges that the extent of unsatisfied needs as regards schooling, in the subpopulation of 6-14 years, is 35% in 1976, 19% in 1987 and 27% in 1998.

Figure 2
Schooling rate of children from 6-14 years in Cameroon
in 1976, 1987 and 1998
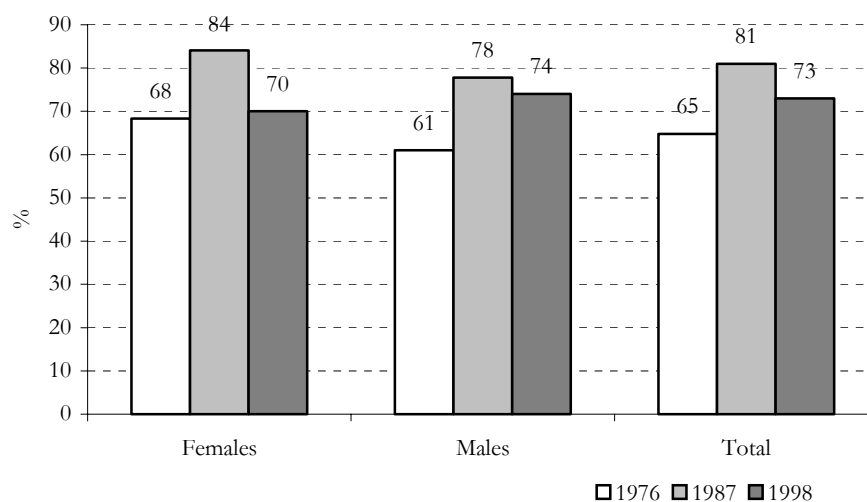
In the area of health, the subpopulation of under 5 years makes it possible to evaluate needs in terms of services and protective healthcare of children. Confining ourselves to vaccinal coverage, it is seen that the immense needs remain unsatisfied. The percentage of children of 12-23 months who have received all the vaccines in the Expanded Vaccination Programme (EVP) fell from 41% in 1991 to 36% in 1998 (Fotso et al. 1999), which is a drop of 12%, also attributable to the economic situation in the 1990s.

2.2. Implications for the elderly

The population aged 65 years and older, much more limited than the young population, has varied little over time. It went from 4% in 1976 to 3% in 1987 and to 5% in 199 (Figure 1). The ageing process of the population did not begin during this period, probably because of the still high levels of fertility and adult mortality. Demographic ageing is therefore still awaited, but no doubt with a long delay in time as Cameroon is still in the beginnings of its demographic transition. It is thus not surprising that demographic ageing and its implications in terms of the support of elderly persons would not be a political preoccupation in Cameroon. In fact, the protection and support of elderly persons do not yet benefit from a specific juridico-legislative framework.

2.3. Implications for the working-age population

The increase in the young population of less than 15 years has had as corollary a reduction in the weight of the working population. The proportion of persons of 15-64 years decreased from 53% in 1976 to 50% in 1987 (Figure 1), which represents a fall of 3 percentage points. One of the consequences of the reduction in the proportion of the working population is the increase in economic dependency of non-working persons respective of working persons. This situation is illustrated by the economic dependency ratio, which is the sum of the under 15 years and those aged 65 years and older compared to the working population (15 to 64 years). The economic dependency ratio went from 0.89 in 1976 to 0.99 in 1987. In other words, in 1976, a working person supported on average less than one non-working person, whereas in 1987, one person was supported. Between 1991 and

1998, the weight of the working population and the economic dependency ratio stabilized. The potential economic burden of the working population is mainly due to the under 15 years. In fact, the dependency ratios of under 15 years and of 65 years and older are, respectively, 0.82 and 0.06 in 1976, 0.92 and 0.07 in 1987 and 0.9 and 0.1 in 1998 (Figure 3). Only the economic dependency ratio of the under 15 years increased between 1976 and 1987, but was stable between 1987 and 1998.

Figure 3
Economic Dependency Ratio (EDR) of the population of Cameroon in 1976, 1987 and 1998
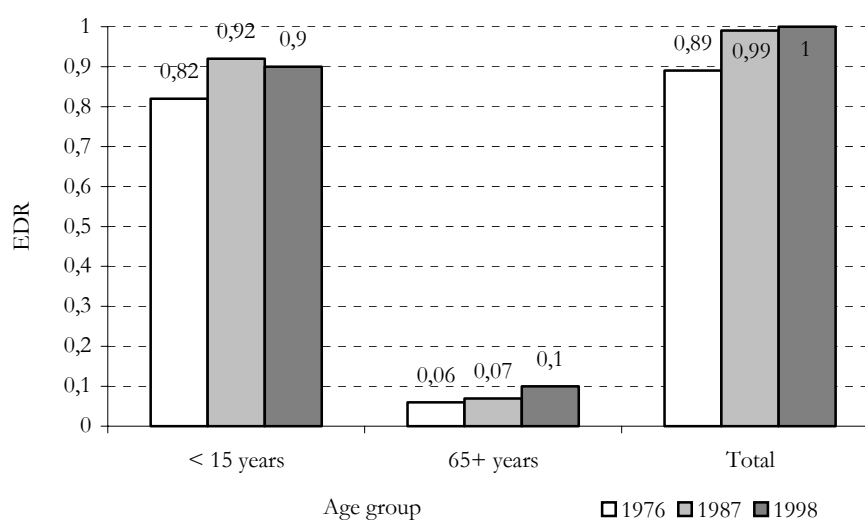
Figures 4a and 4b illustrate the degree of satisfaction of economic needs linked with employment, in other words, the ability of the labour market to absorb the labour force. It emerges that the rate of economic activity varied little between 1976 and 1998, situated at around 65% (Figure 4a). It is also seen that 35% of the working population is inactive. But the unemployment rate increases during this period, going from 6% in 1976 to 9% in 1987 and to 30% in 1998. The significant

increase in unemployment between 1987 and 1998 clearly illustrates the economic difficulties in the 1990s.

Figure 4a
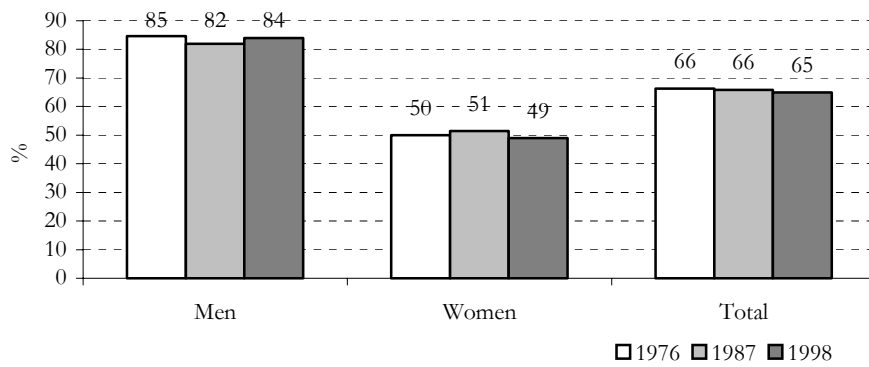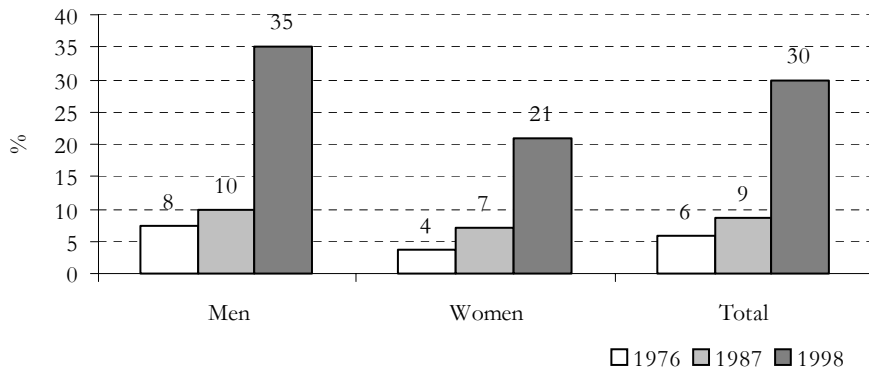Employment rate according to sex in Cameroon in 1976, 1987 and 1998

Figure 4b
Unemployment rate according to sex in Cameroon in 1976, 1987 and 1998

2.4. Assessment of the past evolution: a demographic malus associated with an insufficient economic and social response

In the final analysis, the past evolution of the age structure of the population of Cameroon over the period 1976-1998 is characterized mainly by an increase in the proportion of young people under 15 years, sustained by a still high fertility and a substantially decreasing mortality, above all in the subpopulation of children under five years. This increase has entailed a diminution of the proportion of the working population and is reinforced by the economic dependency of young people on the working population. Far from a demographic bonus, Cameroon has rather experienced a demographic malus characterized by an increased economic dependency of the non-working on the working population, with the corollary growth of social investment needs to the detriment of wealth-creating economic investments. But the economic and social response was not sufficient because, notwithstanding acknowledged efforts, the state of Cameroon was not able to cover all the social and economic needs inherent in the modification of the age structure of the population. In 1998, nearly one child in three was not attending school, 35% of the working population was inactive, nearly one person out of three was unemployed and 64% of the children between 12-23 months had not received all the vaccinations foreseen in the EVP. The ageing process of the population has not really begun, the decrease in fertility still being insufficient to appreciably reduce the base of the pyramid. On the basis of these changes, how are the future evolution of the age pyramid in Cameroon and its implications for future social and economic development to be seen? In the following, a few elements will be given in response to this question.

3. Projected evolution of the age structure of the population and its implications for economic and social development

3.1. Methodology

On the basis of the population structure and the demographic indicators from the Demographic and Health Survey of 1998, we have simulated the future evolution of the age pyramid until 2033, repre-

senting a time span of 35 years. The predictions are made according to two scenarios: in the absence of, and taking into account, the HIV/AIDS pandemic. The second scenario thus takes the impact of HIV/AIDS into consideration, the unprecedented rapidity with which it is spreading. In fact, from less than 1% in 1989, the seroprevalence of HIV/AIDS reached 5% in 1997, 7% in 1999 and nearly 12% in 2001 (UNAIDS/WHO/UNICEF 2002). The predictions are made by means of SPECTRUM software of "Policy Project", a tool for projecting the data necessary for implementing population and reproductive health policies and programmes, and rely on demographic parameters and on epidemiological data concerning HIV/AIDS.

3.1.1. The demographic parameters

These parameters are concerned with the hypotheses of the evolution of life expectancy at birth, the synthetic fertility index and international migration.

- *Evolution of life expectancy at birth.* As postulated by the United Nations (United Nations 2002) in the case of Cameroon, life expectancy at birth would have been situated at around 59 years for the period 2000-2005, in the absence of HIV/AIDS. In this hypothesis, life expectancy would increase by 2.5 years per five-year period over the period of projection. But, given the presence of this pandemic, life expectancy would be appreciably reduced, in view of the direct impact of HIV/AIDS on the structure of mortality, generated by the epidemiological parameters that we will briefly describe below.
- *Evolution of the synthetic fertility index (SFI).* The SFI is supposed to steadily decrease between 1998 and 2033, falling from 5.2 children per woman to 3 children per woman.
- *Evolution of international migration.* We have put forward the hypothesis of a migratory balance of nil and of the independence of international migration vis-à-vis the age structure of the population.
- *The mortality and fertility models.* The fertility model chosen is the United Nations model of sub-Saharan Africa. The mortality model is the general model of tables-types of the United Nations.

3.1.2. The epidemiological parameters of HIV/AIDS

The epidemiological parameters are primarily concerned with the hypotheses of the evolution of the prevalence of HIV/AIDS, the model of the spread of the infection, the structural parameters, the supposed impact of HIV/AIDS on fertility, and the parameters of support.

- *Evolution of the prevalence of HIV/AIDS.* We take into consideration the estimate of the United Nations (United Nations 2002) according to which it would be difficult for heavily affected countries to control the HIV/AIDS epidemic before 2050. Consequently, we simulate for the projection period (1998-2033) a continuous evolution of the prevalence of HIV/AIDS on the basis of its actual model.

- *Model of spread of the infection.* As the transmission of HIV is largely of heterosexual origin, we have chosen the heterosexual model associated with the software package.

- *The structural parameters.* They concern the year when the epidemic began, estimated to be 1980, life expectancy subsequent to the appearance of AIDS, estimated to be one year, the rate of mother-to-child transmission, estimated at 35%.

- *The supposed impact of HIV/AIDS on fertility.* The impact of HIV/AIDS on fertility is not well known. We have accepted the default option of the software package, which considers, on the basis of a few empirical studies in Africa, that the fertility of young women of 15 to 19 years would be 50% higher among the sero-positive than among the sero-negative women. Among the women of 20 to 49 years, the fertility of sero-positives would be 20% lower than that of their sero-negative counterparts.

- *The parameters of support.* This is a question of access to antiretroviral treatment. We do not avail of any empirical estimate of the proportion of infected persons who receive antiretroviral treatment. Consequently, our projections do not take this variable into account.

3.2. *Evolution of the basic demographic indicators*

3.2.1. Projected evolution of fertility

Fertility, through births, is the principal determinant of the base of the age pyramid. A moderate decline is projected for the evolution of fertility. In the presence, or in the absence, of HIV/AIDS, the synthetic fertility index (SFI) would go from 5.2 children per woman in 1998 to 3 children in 2033 (Appendix 1). In the presence, as in the absence, of HIV/AIDS, the essential reproductive factor would be more or less the same, because the net rate of reproduction would largely remain above the unit. The effect of HIV/AIDS on fertility is not apparent. Consequently, fertility would continue to sustain the base of the age pyramid (see Appendix 2).

3.2.2. Projected evolution of mortality

The impact of HIV/AIDS on mortality is catastrophic. In the absence of this pathology, child mortality would decline in a continuous and appreciable manner, going from 122 ‰ in 1998 to 31 ‰ in 2033 (Appendix 1). In the presence of HIV/AIDS, the levels would be appreciably higher, 4% in 1998 and 200% in 2033, with a clearly lower rate of decline. Without the HIV/AIDS pandemic, life expectancy at birth would steadily increase, going from 57 years in 1998 to 75 years in 2033. But HIV/AIDS lowers life expectancy by 2 years in 1998 and by 37 years in 2033.

3.2.3. Projected natural growth

The age pyramid is modified by the effect of structure associated with demographic transition, of which natural growth is the main derivative. Consequently, the evolutions of birth rate and mortality rate and natural growth (the difference between the gross birth rate and the gross mortality rate) would fall more rapidly in the presence of HIV/AIDS, with levels below 1% starting in 2028 (Figure 5). This decline in natural growth would sustain the base of the pyramid more than the top (Appendix 2), which could slow down the ageing process, in particular because of the high mortality caused by HIV/AIDS.

3.3. Evolution of the age structure of the population

3.3.1. Projected evolution of the young population

With the reduction of the natural growth of the population, the proportion of young people under 15 years would begin a steady decline as of 2003, but with a rate that is less rapid in the presence of HIV/AIDS and very often with higher levels (Figures 6a and 6b). In fact, from 46% in 1998, this proportion would reach 35% in 2003 in the absence of HIV/AIDS, and 37% in the presence of the pandemic.

Figure 5
Projected evolution of the natural growth rate of the population
of Cameroon, 1998-2033
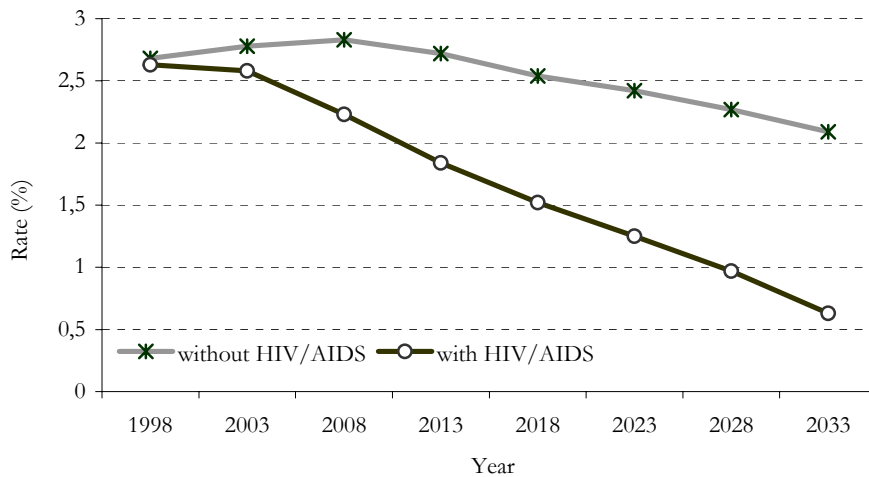
The projected evolution of the decline of the young population thus allows of the prediction of a lessening of the social pressure exerted by young people through future social investments. But this abatement would be slowed down by the HIV/AIDS pandemic.

3.3.2. Projected evolution of the elderly

The decline in the proportion of the young population does not seem to be able to set a sustained and continuous process of ageing in motion, at least from now until 2033. The forecasts do not reveal an increase in the proportion of persons 65 years and older. In the presence, as in the absence, of HIV/AIDS, this proportion would fluctuate between 3% and 5% (Figures 6a and 6b). There are good reasons to think that as long as fertility remains above the replacement threshold, and in the presence of the HIV/AIDS pandemic, uncontrolled both in terms of prevention and access to treatment, a sustained and continuous process of ageing of the population will originate only with difficulty in Cameroon. And even if a significant decline in fertility would begin (below the replacement threshold of generations) and an adequate health response to HIV/AIDS be put in place, a certain time

Figure 6a
Evolution of the proportions of age groups between 1998 and 2033
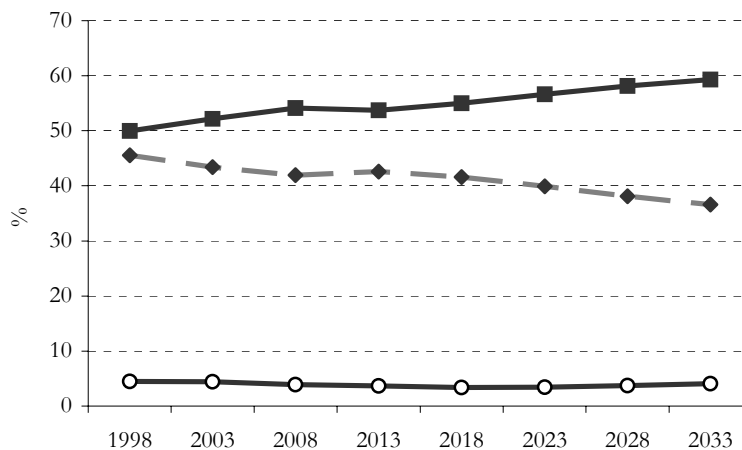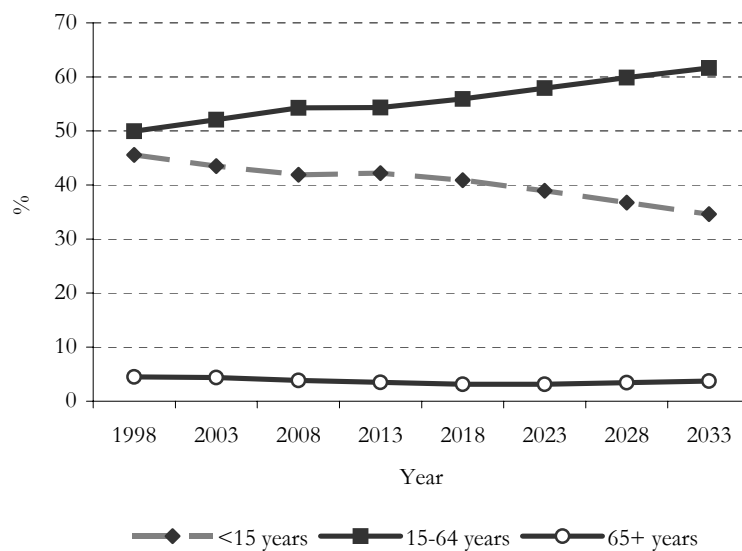in the presence of HIV/AIDS

Figure 6b
Evolution of the proportions of age groups between 1998 and 2033
in the absence of HIV/AIDS

interval will probably be necessary before demographic ageing is seen to emerge, in view of the effect of structural inertia[3].

3.3.3. Projected evolution of the working population

The continuous decline in the proportion of young people under 15 years and the stagnation of the proportion of elderly persons would take place to the advantage of the working population. The proportion of 15-64 years would increase steadily as of 2003, but at a slower rate in the presence of HIV/AIDS and very often with lower levels (Figures 6a and 6b). This increase in the proportion of the working population, favourable to the productive system and to the creation of wealth, is expressed, as of 2003, by a continuous diminution of the economic dependency ratio. But in the presence of HIV/AIDS, the dependency ratios would be, as of 2013, above the foreseeable levels in the absence of the pandemic. In fact, from its unit value in 1998, the economic dependency ratio falls to 0.6 and 0.7 in 2033, respectively, in the absence and in the presence of HIV/AIDS (Figure 7). The HIV/AIDS pandemic would in fact inhibit the process of emergence of the demographic bonus.

3.3.4.   Assessment of the future evolution of the age structure: the emergence of a demographic bonus, but with an inhibiting and jeopardizing effect of HIV/AIDS

What is to be retained from the projected evolution of the age structure of the population of Cameroon? The future trend of the age structure over the period to 2033 is young, sustained by a fertility that is certainly declining but still largely above the replacement threshold, and by a mortality, the steady decline of which is impeded by the HIV/AIDS pandemic. This evolution of the age structure is nevertheless characterized by a gradual diminution of the proportion of children younger than 15 years to the advantage of a steady increase in the proportion of 15-64 years, which makes a slackening of the pressure exerted on social investments and reinforcement of the productive

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[3] The effect of structural inertia means here the time that is required for the necessary conditions of demographic ageing, when attained, to effectively set the process in motion.

Figure 7
Evolution of the dependency ratios between 1998 and 2033,
with or without HIV/AIDS
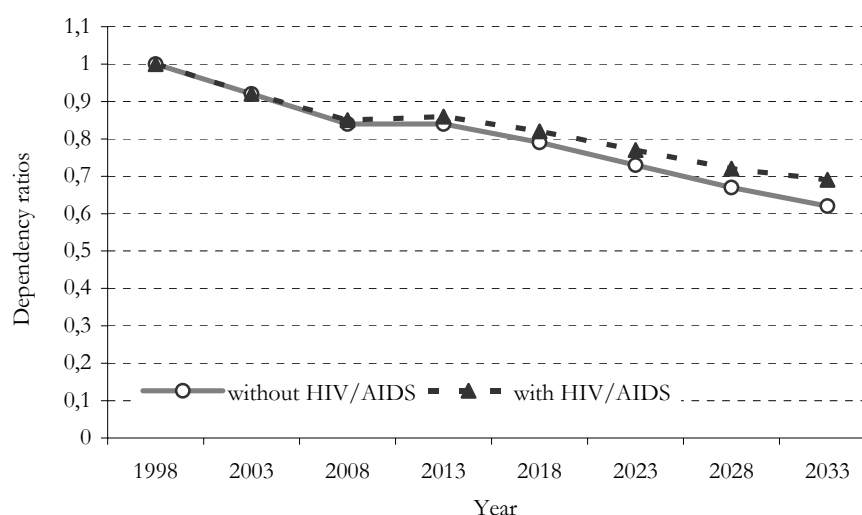
potential and of wealth creation foreseeable. It will also entail a diminu-
tion of the economic dependency of the non-working population on
the working population. This would allow the emergence of a modest
demographic bonus to be foreseen, but on which the HIV/AIDS pan-
demic would have an inhibiting and jeopardizing effect. The effect
would be inhibiting because the preponderance of the active popula-
tion and the decline in economic dependency would have a decelerat-
ing tendency in the presence of the pandemic. The effect would be
jeopardizing because the emergence of a demographic bonus would
occur with a loss of labour productivity due to HIV/AIDS. Moreover,
this modest demographic bonus would be counterbalanced by a "mo-
mentum" effect[4], in particular by a pronatalist response to the
HIV/AIDS pandemic, provoking an upturn of fertility and of popula-
tion growth. The ageing process, that is, the gradual increase in the
proportion of 65 years and older, is not very probable from now until
2033. Without being completely ruled out, demographic ageing would

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[4] For a definition of the "momentum" effect, read chapter 2 of this book by Ian
Pool.

require a significant fall in reproductive potential, an adequate response to the HIV/AIDS pandemic and a greater time interval.

3.3.5.   Implications for realizing the Millennium
         Development Goals

The demographic bonus, defined here as a continuous process of preponderance of the economically active population and decline in the economic dependency of non-working persons on working persons, cannot be effective if it is not supported by adequate policies in the areas of health, human capital and economy. All this contributes to the realization of the Millennium Development Goals (MDG). What are the implications for the realization of the MDG suggested by the projected evolution of the age structure of the population of Cameroon? What path will be taken until 2015, the date chosen for the midway evaluation of the MDG? In the following we offer a few elements in response to these questions.

In the area of health. The major challenge will be to provide an efficacious response as regards sexual and reproductive health. It will be difficult to stop the spread of HIV/AIDS by 2015, because the prevalence in the adult population would amount to 20% (Appendix 2). In 2015, and in the absence of effective prevention and support, an annual incidence of 208 000 cases can be expected, among which will be 52 000 births of sero-positive children. This incidence would also constitute a major threat for labour productivity. In 2015, AIDS will have killed approximately 1.65 million individuals in Cameroon. In the same year, the level of child mortality of the 1990s (approximately 147 ‰) will not have been reduced by two thirds in conformity with the MDG expectations, because it would be around 96% (Appendix 2). A substantial improvement in the access to reproductive health services (contraception and maternity with fewer risks), as determinant of an appreciable decline in both fertility and economic dependency, also constitutes one of the challenges to be taken up in order to derive greater advantage from the demographic bonus. This challenge necessarily involves policies promoting the status of women. The present state of reproductive health services, taking into account an appreciable worsening of the situation during the 1990s (Beninguissé 2003), does not

allow of optimism as regards the reduction of maternal mortality by three quarters between now and 2015.

In the area of human capital. The main challenge will be to provide the population with the necessary qualifications for access to employment, and education is the key for achieving this. In 2015, it will be necessary to provide primary schooling for nearly 9 million children under 15 years. Should the downward movement in schooling rate recorded in the 1990s continue in future, it would be difficult to reach the goal of universal primary education by 2015.

In the area of economy. The implementation of an economic policy favourable to the creation of jobs and a policy of good governance constitute the decisive keys to effectively derive advantage from the demographic bonus. If the present context of bad governance (rising corruption) and of economic sluggishness (large debt burden, weak purchasing power, low capacity to mobilize savings, limited access to credit, etc.), with its corollaries in terms of increased unemployment, continue in the near future, it will be difficult to appreciably reduce poverty between now and 2015.

4. Conclusion

The change in the age structure of the population is an ineluctable process of demographic dynamics, in particular of fertility and mortality trends and, in certain cases, migrations (Sala-Diakanda 1992). The stakes for economic and social development are enormous and, in the case of the developing countries (Africa in particular), the lack of economic dynamism represents the crucial challenge to the satisfaction of the basic needs inherent in the transitions of the age pyramids. We have attempted in this chapter to assess the magnitude and the implications of this for the economic and social development in Cameroon. From the past evolution, measured between 1976 and 1998, characterized by a decreasing average age of the population, which reinforces the base of the pyramid, and an increase in economic dependency, the emergence of a modest demographic bonus is postulated for the future, characterized by a gradual diminution of the proportion of the young population to the advantage of a steady increase in the working

population and a continuous fall in economic dependency. But the HIV/AIDS pandemic, the control of which is difficult to foresee over the period of projection 1998-2033, will have an inhibiting and jeopardizing effect on the demographic bonus. Moreover, this demographic bonus could be counterbalanced by a pronatalist response to the HIV/AIDS pandemic. In this epidemiological context, it will be difficult to attain the Millennium Development Goals. The major challenges thus call out to the state authorities for the establishment of adequate policies in the areas of health, education and economy.

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Appendix 1 — Demographic and epidemiological indicators in Cameroon

Demographic indicators, estimates from 1998 to 2033, in the absence of HIV/AIDS

	1998	2003	2008	2013	**2015**	2018	2023	2028	2033
Fertility									
Synthetic Fertility Index	5.2	4.89	4.57	4.26	**4.13**	3.94	3.63	3.31	3
Gross reproduction rate	2.54	2.39	2.23	2.08	**2.01**	1.92	1.77	1.61	1.46
Net reproduction rate	2.09	2.02	1.94	1.85	**1.81**	1.75	1.64	1.52	1.4
Average childbearing age	27.9	27.9	28.0	28.0	**28.0**	28.0	27.7	27.3	27.0
Child-woman ratio	0.69	0.70	0.66	0.64	**0.62**	0.59	0.54	0.50	0.46
Fertility table: model "sub-Saharan Africa", UN									
Mortality									
e° males	56.0	58.5	61.0	63.5	**64.5**	66.0	68.5	71.0	73.5
e° females	58.0	60.5	63.0	65.5	**66.5**	68.0	70.5	73.0	75.5
e° total	57.0	59.5	62.0	64.5	**65.5**	67.0	69.5	72.0	74,5
Child mortality rate	84.6	75.0	65.7	56.7	**53.1**	48.1	39.9	32.3	25.2
Mortality rate 0-4 years	122.4	106.2	91.0	76.6	**71.2**	63.5	51.3	40.5	30.9
Mortality table: general UN model									
Gross rates									
Gross birth rate (‰)	39.3	38.7	37.7	35.1	**33.9**	32.1	29.8	27.5	25.2
Gross mortality rate (‰)	12.5	10.9	9.4	7.9	**7.4**	6.7	5.6	4.8	4.3
Natural growth rate (%)	2.68	2.78	2.83	2.72	**2.66**	2.54	2.41	2.26	2.09
Doubling time	26.2	25.3	24.8	25.9	**26.4**	27.6	29.1	30.9	33.5
Annual births and deaths (thousands)									
Births	562.7	637	716.4	767.8	**783.8**	800.5	841.6	874.9	893.7
Deaths	179.0	179.7	178.9	173.5	**170.6**	166.1	159.1	154.2	150.9
Population (millions)									
Total population	14.34	16.47	18.99	21.87	**23.09**	24.97	28.29	31.82	35.5
Male population	6.88	7.98	9.29	10.78	**11.41**	12.39	14.11	15.94	17.83
Female population	7.45	8.48	9.7	11.09	**11.67**	12.58	14.18	15.88	17.67
Percentage 0-4 years	15.5	16.59	16.49	15.93	**15.5**	14.84	13.84	13.00	12.11
Percentage 5-14	30.04	26.91	25.43	26.26	**26.26**	26.06	25.1	23.73	22.53
Percentage 15-49	42.38	45.8	48.15	48.11	**48.58**	49.39	50.72	51.94	52.87
Percentage 15-64	49.96	52.1	54.25	54.32	**54.89**	55.94	57.91	59.86	61.63
Percentage 65 years and older	4.50	4.40	3.84	3.50	**3.34**	3.16	3.15	3.41	3.74
Percentage females 15-49	43.00	46.23	48.63	48.76	**49.08**	49.7	50.75	51.66	52.41
Sex ratio	92.31	94.14	95.8	97.25	**97.77**	98.49	99.5	100.32	100.95
Dependency rate	1.00	0.92	0.84	0.84	**0.82**	0.79	0.73	0.67	0.62
Average age	17	18	18	19	**19**	19	20	21	23

Demographic indicators, estimates from 1998 to 2033, in the presence of HIV/AIDS

	1998	2003	2008	2013	**2015**	2018	2023	2028	2033
Fertility									
Synthetic Fertility Index saisi	5.2	4.89	4.57	4.26	**4.13**	3.94	3.63	3.31	3
Calculated SFI	5.2	4.89	4.57	4.26	**4.13**	3.94	3.63	3.31	3
Gross reproduction rate	2.54	2.39	2.23	2.08	**2.01**	1.92	1.77	1.61	1.46
Net reproduction rate	2.09	2.02	1.94	1.85	**1.81**	1.75	1.64	1.52	1.4
Average childbearing age	27.9	27.9	28	28	**28.0**	28.0	27.7	27.3	27
Child-woman ratio	0.69	0.69	0.66	0.64	**0.63**	0.6	0.56	0.52	0.49
Fertility table: model "sub- Saharan Africa", UN									
Mortality									
e° males	54.2	50.9	44.9	42.8	**43.0**	42.1	40.9	39.3	38.0
e° females	56.4	53.7	46.6	43.7	**43.7**	42.5	40.8	39	37.4
e° total	55.4	52.3	45.8	43.3	**43.3**	42.3	40.8	39.2	37.7
Child mortality rate	86.3	85.0	79.3	73.2	**70.7**	67.4	61.8	56.9	52.6
Mortality rate 0-4 years	127.0	119.1	109.3	99.5	**95.5**	90.3	81.9	75.2	69.6
Mortality table: general UN model									
Gross rates									
Gross birth rate (‰)	39.3	38.8	37.8	35.2	**34.1**	32.3	30.4	28.7	26.7
Gross mortality rate (‰)	13.0	13.0	15.5	16.8	**16.9**	17.1	17.9	19.0	20.4
Natural growth rate (%)	2.62	2.58	2.23	1.84	**1.72**	1.51	1.26	0.97	0.63
Doubling time	26.8	27.2	31.4	38.1	**40.7**	46.1	55.5	72.1	110.2
Annual births and deaths(thousands)									
Births	562.73	634.59	697	717.95	**720.3**	716.05	722.63	719.47	697
Deaths	186.62	212.8	285.4	342.89	**356.78**	380.29	424.12	477.27	532.45
Population (millions)									
Total population	14.34	16.36	18.46	20.41	**21.15**	22.18	23.75	25.08	26.07
Male population	6.88	7.93	9.02	10.06	**10.46**	11.02	11.88	12.62	13.18
Female population	7.45	8.43	9.44	10.35	**10.69**	11.16	11.87	12.46	12.89
Percentage 0-4 years	15.50	16.38	16.25	15.68	**15.26**	14.61	13.74	13.10	12.40
Percentage 5-14	30.04	27.01	25.69	26.9	**27.04**	27.00	26.18	25.01	24.19
Percentage 15-49	42.38	45.89	48.08	47.71	**48.07**	48.80	50.18	51.53	52.58
Percentage 15-64	49.96	52.18	54.14	53.75	**54.16**	55.00	56.65	58.15	59.34
Percentage 65 years and older	4.50	4.42	3.92	3.66	**3.53**	3.38	3.44	3.74	4.06
Percentage females 15-49	43.00	46.3	48.48	48.13	**48.25**	48.66	49.51	50.36	51.04
Sex ratio	92.31	94.02	95.57	97.18	**97.82**	98.74	100.12	101.32	102.29
Dependency ratio	1.00	0.92	0.85	0.86	**0.85**	0.82	0.77	0.72	0.69
Average age	17	18	18	19	**19**	19	19	20	21

Epidemiological indicators related to HIV/AIDS

	1998	2003	2008	2013	**2015**	2018	2023	2028	2033
HIV population (millions)									
Total	0.41	1.10	1.60	2.08	**2.29**	2.64	3.28	3.96	4.61
Males	0.34	0.58	0.77	0.95	**1.06**	1.23	1.55	1.90	2.24
Females	0.06	0.51	0.83	1.12	**1.23**	1.41	1.73	2.06	2.37
Adult prevalence	6.00	13.11	15.91	18.72	**19.84**	21.52	24.34	27.15	29.95
New cases of AIDS (thousands)									
Total	7.91	43.9	124.05	188.39	**208.00**	239.76	298.81	364.69	430.74
Males	4.31	22.93	60.70	90.62	**100.57**	116.19	146.31	180.86	215.59
Females	3.60	20.96	63.34	97.76	**107.43**	123.57	152.5	183.83	215.15
Annual sero-positive births (thousands)									
Total	3.85	26.29	39.19	49.24	**52.4**	57.24	65.68	73.66	79.02
Percentage	0.68	4.14	5.62	6.86	**7.28**	7.99	9.09	10.24	11.34
Annual deaths due to AIDS (thousands)									
Total	7.48	33.86	110.34	178.8	**198.18**	230.01	287.30	352.41	418.67
Males	4.07	18.14	54.69	86.88	**95.61**	111.17	140.34	174.38	209.23
Females	3.41	15.73	55.65	91.92	**102.57**	118.84	146.96	178.04	209.44
By thousand	0.52	2.07	5.98	8.76	**9.37**	10.37	12.10	14.05	16.06
Cumulative deaths due to AIDS (millions)									
Total	0.01	0.11	0.49	1.26	**1.65**	2.31	3.62	5.25	7.22
Males	0.00	0.06	0.25	0.62	**0.81**	1.13	1.77	2.57	3.55
Females	0.00	0.05	0.24	0.64	**0.84**	1.18	1.85	2.68	3.67

Appendix 2
Age pyramids in Cameroon, 1988-2033,
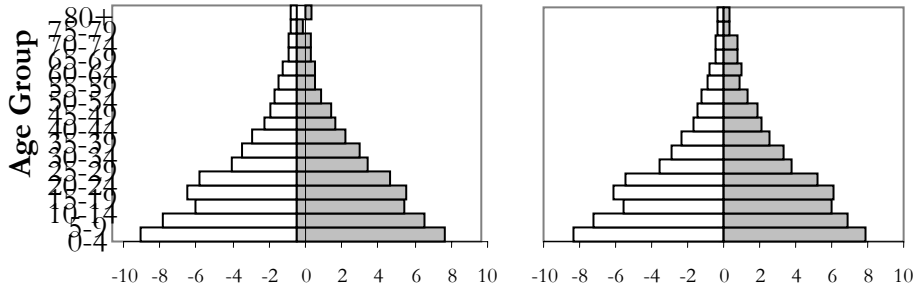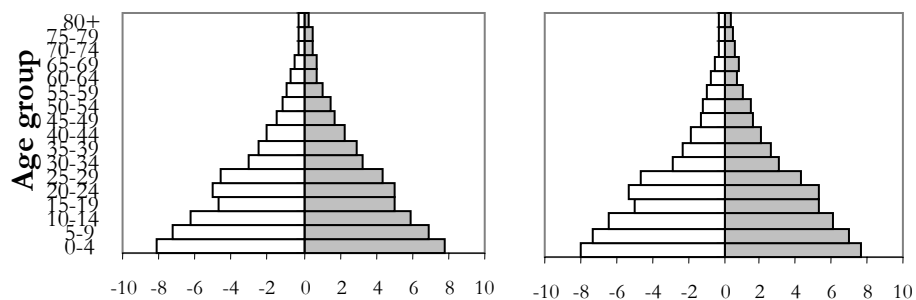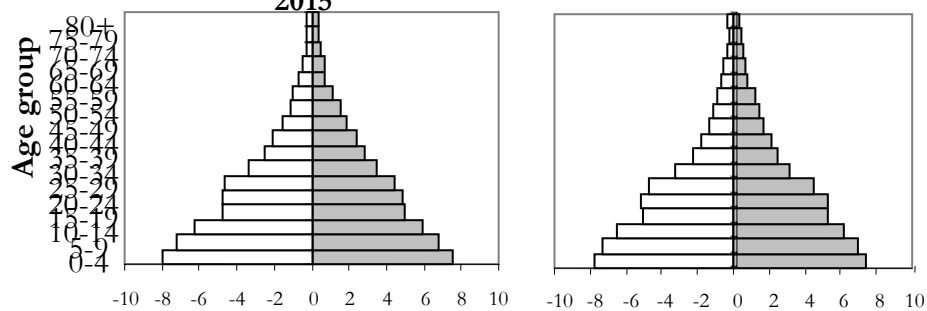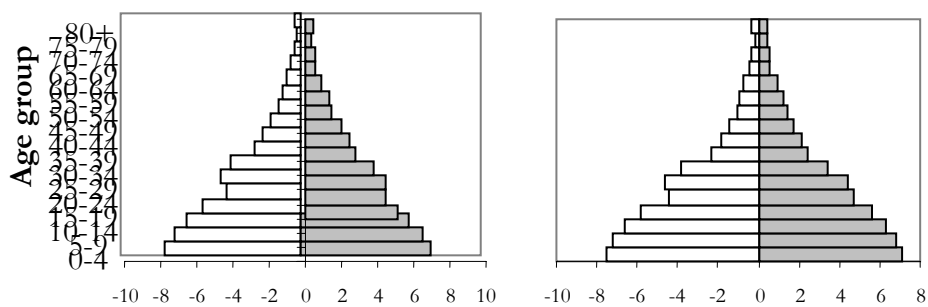without HIV/AIDS (left) and with HIV/AIDS (right)

1998

2003

2008

2013

2015

2018

2023

2028

2033