The Delay in the Demographic Transition Perpetuates Rural Poverty in Madagascar

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Abstract: In several Asian and African countries, economy and demography have not evolved in parallel over the last hundred and fifty years: the second having gone much faster than the first, and JP Guengnat stipulates that population issues are still insufficiently integrated into the public policies of States, but, accelerating the demographic transition and controlling fertility should be one of the major priorities for countries. As for Madagascar, the island began its demographic transition, like many French colonies, with a decline in mortality during the 1930s and 1940s or immediately after the Second World War. Unfortunately, progress during the second half of the century was rather limited. Given the various aspects they take, the relations between the economy and the population are complex. However, the demographic weight in Madagascar has regressive effects for the moment. The economic system with the current crisis has not been able to mobilize human resources in rural areas. It should be noted that the Malagasy agricultural population is young with 56% under 20 years of age. The migratory movement is very low. So, this article first discusses an overview of the demographic transition, on the one hand, and rural poverty in Madagascar, on the other. With regard to these two themes, rural poverty in Madagascar often makes headlines as soon as the rural development process is discussed. On the other hand, the demographic transition deserves to be further explained since demography itself is a science discreet according to Dominique Tibautin, and does not have enough visibility within the Administration, and yet the science of population, demography, and rural poverty in Madagascar are two complementary constituents, confirming the principle of Malthusianism of poverty, linked to the precariousness of economic and social life. Also, the objective of this study is to evaluate the current phase of the demographic transition in the District of Antsirabe II, and this through the demographic behaviors of the different households within the 20 components municipalities, and also to evaluate the possible links between this transition profile and rural poverty by determining the level of development of this locality (Human Development Indices) (HDI).

Keywords: Demographic Transition, Rural Poverty, Human Development Indices, Science of the Population, Malthusianism of Poverty, Demographic Behaviors, Human Development Indices

1. Introduction

The Malthusian model and the theory of demographic transition are still at the center of economic and social demography. [18]. However, the theorization of the demographic transition has not yet been expressed with solid foundations. Drawn up by induction, proposals drawn up before 1950, marked by low fertility and low mortality regimes, appeared exclusively in European countries, their historical basis is more or less -almost limited to two centuries of evolution on a single continent, highlighting the precocity of Europe, the generalization of the Demographic Transition in the twentieth century, and the backwardness of Africa. [19], in the world place.

However, for twenty years in East Asia, particularly in Japan, Korea, China and Taiwan, information suggests that the phases experienced during the demographic transition have been very different from those hence difficulties on the degree of generality that can be assimilated to European history and on the possibility of transposing its principles, in particular to the developing countries today and also to Madagascar.

Thus, it is important to compare information on the level and disparities of age-specific fertility and mortality in

Europe and East Asia, to highlight the similarities and main differences between a three-stage evolution in; between a three-stage evolution in Europe and a four-stage evolution in East Asia, and Madagascar;

Also, in the Asian context, the future of the world population depends on Asia, by 2050, five of the ten most populous countries (India, China, Pakistan, Indonesia, Bangladesh) are located in this area, with diversified situations, depending on the country [21]., illustrated by China, which is facing a rapid acceleration in the aging of its population.

However, demography is heterogeneous between Asian countries, with diversified phases, too fast in some countries (China, Thailand), uncontrolled in others (Philippines, Indonesia, Pakistan), the demographic transition returns economies to their structural weaknesses and questions them about the sustainability of their growth model, so a plethora of challenges are still to be met for these still emerging economies, in which the role and fails to raise the resources needed to meet the needs of an ever-growing population.

In several Asian and African countries, economy and demography have not evolved in parallel over the last hundred and fifty years: the second having gone much faster than the first, and the population issues are still insufficiently integrated into policies [20].

However, population issues are still insufficiently integrated into the public policies of States, and accelerating the demographic transition and controlling fertility should be one of the major priorities of countries. [23]

Also, in countries that were subjected to colonial rule, this phenomenon is illustrated by internal peace, providing the country with a good administration capable of mitigating the consequences of natural disasters (famines and epidemics), improving public hygiene, hence decreases in mortality rates, while the birth rate remained high.

As for Madagascar, the island began its demographic transition, like many French colonies, with a decline in mortality during the 1930s and 1940s or immediately after the Second World War. Unfortunately, progress during the second half of the century was rather limited. [22]

According to J. Chesnais, given the various aspects they take, the relations between the economy and the population are complex [24]. However, the demographic weight in Madagascar has regressive effects for the moment. The economic system with the current crisis has not been able to mobilize human resources in rural areas. Note that the Malagasy agricultural population is young with 56% under 20 years old. Migration is very limited. The importance of the land of the ancestors, the lack of roads, the absence of the attraction of employment in the city curb the rural exodus. The Malthusians seem to be right. All the hypotheses put forward, on the high rate of population growth (about 3%) neutralizing economic growth (also 3%), the age structure (45% under 15 years) of the population. would be justified.

The ineffectiveness and insufficiency of adequate resources for the implementation of population policy in each rural locality negatively impacts the rural development process [15, 25]. But considerable efforts still have to be made in the economic and social field if the conditions are to be needed for a faster demographic transition so that rural communities can benefit from the demographic dividend and reduce rural poverty. [10, 16]

Indeed, the demographic transition, although ongoing, seems to be losing momentum, especially in rural areas [12]. Fortunately, there are recent signs of change that the development process could accelerate in the future, leading to a faster demographic and health transition. Let's look at these elements, and their potential impact on Madagascar's demographic transition. (mortality-fertility-contraceptive rate)

Faced with these contradictory realities, the issue focuses on "How to reconcile rural local development and demographic transition to benefit from the demographic dividend ?"

The objective of this study is to evaluate the current phase of the demographic transition in the District of Antsirabe II, through the demographic behavior of the different households within the 20 component municipalities, and also to evaluate the possible links between this transition profile and rural poverty by determining the level of development of this locality (Human Development Indices (HDI)).

The specific objectives:

1. Analyze the demographic behavior of the district in order to determine the profile of the demographic transition.
2. To determine the level of development in the district of Antsirabe II, through the Human Development Indices (HDI).
3. Analyse the possible links between the current phase of demographic transition and poverty (level of development) in this district.

The research questions with their respective variations are presented as follows:

1. How is the profile of the demographic transition in the District of Antsirabe II characterized?
2. To what extent could the demographic transition become a lever to fight rural poverty?

Therefore, the assumption is formulated as follows:

1. The delay of the demographic transition in the rural world perpetuates poverty.
2. The expected results of this research are as follows:
3. The profile of the demographic transition in the District of Antsirabe II is well defined.
4. The main factors of the demographic transition affecting rural poverty.

2. Materials and Methods

2.1. Delimitation

The District of Antsirabe II, whose office is located in Andranomanelatra (17 km north of Antsirabe-ville) is one of the seven districts making up the Prefecture of Antsirabe; Vakinankaratra region (Madagascar). It is bounded to the North by the District of Faratsiho, to the West by the District

of Betafo, to the East by the District of Antanifotsy and to the South by the Districts of Fandriana and Ambositra. It enclaves the Urban Commune of Antsirabe, District of Antsirabe I.

2.2. Area

2,769 km^2.

2.3. Relief

The District of Antsirabe II is located on the crystalline rocks of highlands having undergone tectonic and seismic movements, hence the richness of the subsoil (from crystalline rocks to volcanic, sedimentary and metamorphic rocks) and the existence of plains of high altitude and peneplain (Ambohibary, Manandona…).

Highest point: Ampamoizankova: 2,366 m.

2.4. Hydrography

The District has a fairly dense hydrological network, in particular the sources and tributaries of the ONIVE, the Manandona River and Lake Andranobe.

2.5. Climate

The District benefits from a tropical climate of semi-temperate altitude, quite strong, harsh and seasonal amplitude, hence the interest of temperate crops. (Wheat, vines, vegetable crops, etc.)

1. Average annual rainfall: 1,200 mm
2. Temperature: maximum: 29°C; - minimum: 0°C (And this district has an area of 2241km^2 for an estimated population of about 520183 inhabitants.).

Figure 1. District map of Antsirabe II.

3. Methods

Approach to verify hypothesis 2: "the delay in the demographic transition perpetuates rural poverty"

Assessment of the impact of the delay in the demographic transition on rural poverty: approach and tools used. In accordance with the model of the demographic transition, all the countries of the world follow the same evolution towards a fall in mortality and a fall in the birth rate, "Demographic transition designates the passage, during a process of global "modernization", and after a certain period of time, from a traditional regime of demographic "balance" with high mortality and fertility, to a modern "equilibrium" regime with "... low mortality and fertility. It is therefore necessary to analyze the demographic stage where a given room is located, taking into account the different phases of the demographic transition, and the consequences caused by this stage on the socio-economic context possibly illustrating poverty with the Development Indices human, thus, this transition is linked to the economy.

3.1. Indicators of the Demographic Transition

The analysis of the demographic transition process is based on a few indicators. Also, it is focused on the study and analysis of the demographic behavior of a country, or a given locality, among others, on the fertility indices (ISF), child fertility, infato-mortality juveniles, age at first marriage, HDI, GDP per capita, unmet contraceptive needs, (capacities of municipalities to achieve the objectives of the different stages of demographic transition. These indicators are useful for determining the characteristics of a country's demographic transition, which can be classified into:

1. beginner transition.
2. moderate evolution.
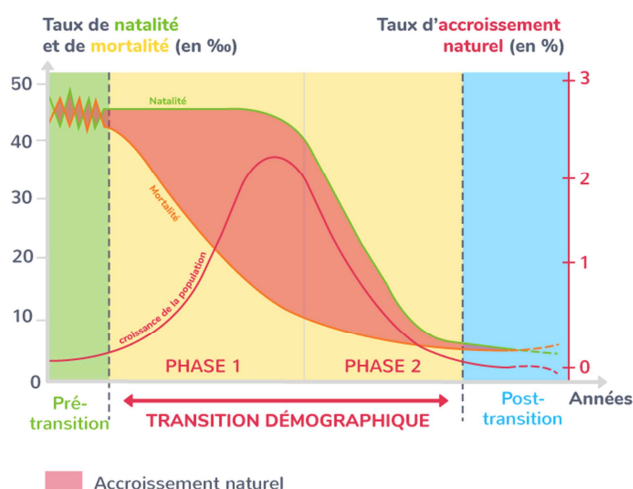3. mid transition.
4. advanced/completed.
5. post transient.

Figure 2. DemographicTransition.

3.2. Characteristics of the indicators of the Demographic Transition

They are linked to the Human Development Indicators (HDI), which was created in 1990 by the United Nations Development Program, this index classifies all countries according to three distinct criteria:

1. standard of living: measured by GDP per capita;
2. health: measured by life expectancy at birth;
3. and education: measured by the adult literacy rate and the gross enrollment rate.(The index ranks countries on a scale from 0 to 1 (0 being the worst and 1 being the best).

In this study, the objective is to demonstrate, if the delay of the demographic transition perpetuates poverty since "Poverty is a manifestation of the weak development, and is also a factor of blocking this one, also, a very strong link between poverty indicators and the HDI exists.

Evaluation of the stage of demographic transition: variables used.

The variables used call upon ranges of indicators including:

1. annual population growth.
2. The synthetic fertility index (ISF) is the most commonly used measure of period fertility at the aggregate level.
3. Child fertility, infato-juvenile mortality, HDI, GDP per capita,

The total fertility rate:

The synthetic fertility index is the sum of the general fertility rates by age during a period. In practice, it is synonymous with the total fertility rate or average number of children per woman.

Teenage fertility (‰):

Adolescent fertility has shown that early fertility in Asia and Africa is associated with very heterogeneous profiles of young mothers. Generally primiparous, teenage mothers are mostly uneducated and reside in rural areas in rather poor households.

Adolescent pregnancies are a global problem found in high, low and middle income countries. Worldwide, however, teenage pregnancies are more likely to occur in marginalized communities, and are usually due to poverty and lack of education and employment opportunities.

Several factors contribute to teen pregnancies and births. In many societies, girls face pressure to marry and have children early. In less developed countries, at least 39% of girls marry before the age of 18 and 12% of them before the age of 15.

Infant and Child mortality:

Infant and child mortality is a statistic corresponding to the mortality of children under five. It should not be confused with infant mortality (mortality before the age of one year) or with child mortality (mortality between 1 and 5 years old).

GDP per capita:

GDP per capita is used to assess improvements in living standards. GDP per capita is equal to the ratio of GDP to the total population of the country.

GDP per capita is an economic indicator that allows you to compare the levels of wealth created by different countries, because it calculates the ratio between the value of the final production of the country and its population over a given period.

In this study, in the absence of GDP data at the regional level (Region of Vakinankaratra and District of Antsirabe II, national data in national GDP per capita must be used.

Evaluation of the delay in the demographic transition over the duration of poverty: variables used.

The variables used refer to a few ranges of HDI indicators:

A-percentage of individuals whose life expectancy does not exceed 40 years:

Human life expectancy is one of the most widely used statistical indicators in the field of forecasting and demographic projections 1, 2, 3, and to assess the level of development and the human development index of a State or region of the world. It makes it possible to quantify the mortality conditions for a given year: life expectancy at birth is equal to the average lifespan of a fictitious population that would live its entire existence under the mortality conditions of the year considered.

B-percentage of illiterate adults:

According to Unesco, the illiteracy rate is the "proportion of people in a given population, unable to read and write, with understanding, a simple and brief statement of facts related to their daily life" 1.

The estimated illiteracy rate is the estimated number of illiterates aged 15 and over, expressed as a percentage of the population in the corresponding age group.

C-percentage of individuals not accessing health services:

Access to care can be defined as the greater or lesser ease with which a population can apply for the health services it needs.

Access is related to the potential presence (or absence) of economic, physical, cultural, geographic or other barriers when using these services.

D-percentage of people deprived of drinking water:

Access to drinking water is an indicator representing the share of the population with reasonable access to an adequate quantity of drinking water. According to the WHO, the adequate quantity of drinking water represents at least 20 liters of water per inhabitant per day, whereas we generally mean by "reasonable access", drinking water available within a fifteen-minute walk 1, 2.

Access to drinking water can technically be separated into several phases which will be traversed by a drop of water from the water resource to the consumer, then to the return of this consumed water (wastewater) to the environment.. To this are added more and more often "social" phases aimed at rational use, hygiene education and sustainable exploitation of the means of access and possibly the resource.

Since July 28, 2010, access to drinking water has been recognized as a fundamental right by the UN3. The UN has recognized that access to clean, quality drinking water and sanitation facilities is a human right and calls for technological and financial assistance from Member States.

[14].

E-% of children < 5 years underweight:

This indicator gives the percentage of children under five considered underweight. Underweight means that weight-for-age is about 2 kg lower than the norm at one year of age, 3 kg lower than the norm for two- and three-year-olds, and 4 kg to the norm for children of four and five years. This statistic is an indicator of the nutritional status of a community.

F-Estimation method:

The estimation method used to estimate our model is the R software.

G-Source of data and statistical characteristics of variables:

The data was provided through surveys established in the various rural municipalities of the District of Antsirabe II, and also from the databases of the Instat (National Institute of Statistics) (2015-2020) [4] and various Documents (Diagnosis of Vakinankaratra, Monographs of Antsirabe II [7], 2011-2016 and 2018, DRAE…).

These data are then compiled in EXCEL and imported into econometric software (R software) to be processed using the appropriate statistical tools.

3.3. Step 1

In order to be able to verify the scope and relevance of this hypothesis stipulating that "the delay in the demographic transition perpetuates rural poverty in Madagascar", we will first use the composite indices of the Idh and the statistical data of the District of Antsirabe. (under which strategy or which methods).

3.4. Step 2

1) RESULTS:
2) DESCRIPTIVESTATISTICS:
3) TABLEA: DISTRCITOFANTSIRABEII:
4) Highlighting the correlations between the population, access to health services and the percentages of people deprived of drinking water:

First part:

Table 1. Evolution of key transition and development in dicators.

	2009	2010	2011	2012	2013	2014
ISF fertility	4,97	4,90	4,481			
Teenage fertility (‰)						
Infant and child mortality (‰)	-	-	48			
Age at first marriage (girls)						
GDP per capita (US$)		412,7	454,9	443,9	461,7	452,4
HDI		0,504	0,505	0,507	0,508	0,510

The analysis of these two tables has made it possible to have some indicators of the evolution of the demographic transition in this District where the fertility ISF is obtained the quotient (in thousandth) between the number of annual births and the number of women between 15 and 45 years.

GDP per capita and the Human Development Index are similar to those of Madagascar [9].

Second part:

Table 2. Distrcit of antsirabe II: – Highlighting the correlations between the population, access to health services and the percentages of people deprived of drinking water.

ANNEES	2010	2011	2012	2013	2014	2016	2018
Total population	428451	444438	447930	458501	472781	489248	520183
%age growth	2,59	3,59	0,77	2,305	3,020	3,365	5,49
IFS							
%age of individuals not accessing the services of health	81,8	81,5	83,9	83,5	82,5		
%age of people deprived of water Drinkable						84,392373	82,4025391

	Ecart type	Max	Min	Moyenne
Total population	31037,1412	520183	428451	465933,143
%agegrowth	1,43198206	5,49	0,77	3,01857143
%age of individuals not accessing health services	1,04307238	83,9	81,5	82,64
% age of people deprived of drinking water	1,40702504	84,39	82,4	83,3974561

Situation of the data from the nineteen rural Communes (sampling) of the District of Antsirabe II, between the constant demographic growth (the delay of the demographic transition) and the indices of human development, among others: the rates for the life expectancy under 40, the rate of illiterate adults and the rate of underweight children under five.

Table 3. Descriptive statistics.

	2018				2019			
	Population	% life expectancy at 40	% illiterate adults	children under 5 years	Population	-% life expectancy at	% illiterate adults	children under 5 years
Ambano	54.028	42	33	15	54.345	40	34	13
Andranomanelatra	42,507	5	20	15	43.425	5	21	15,4
Sambaina	68.953	30	23,5	5,2	69.832	32	24,4	5,8
Faravohitra	-	-	-	-	13985	13,9	11	11,31
Mandrosohasina	-	-	-	-	16.920	0,38	24	32
Ambohibary	-	-	-	-	63.832	25,4	28	12,7
Atsoatany	-	-	-	-	16.920	0,12	50	50
Antanimandry	-	-	-	-	14.003	18	12,7	1,5
Ambohidrinandriana	-	-	-	-	16.100	8,71	7,54	0,14
Mangarano	-	-	-	-	11.656	0,07	0,17	33
Belazao	-	-	-	-	13.985	30	45	82
Ibity	-	-	-	-	18.231	8,53	11	1,26
Sahanivotry	-	-	-	-	14.363	0,16	6	0,034
Manadona	-	-	-	-	18.395	0,12	4,5	8,2
Vinaninkarena	-	-	-	-	16.131	8	10	20
Ambatomena	-	-	-	-	27770	0,29	12,35	1,23
Alakamisy	-	-	-	-	32923	0,87	2,99	0,16
Ambohitsimanova	-	-	-	-	21900	0,03	1,82	22,83
Soanidrariny	-	-	-	-	34235	62	23	72

Table 3. Continued.

	2020				2021			
	Population	-% life expectancy at	% illiterate adults	children under 5 years	Population	-% life expectancy at	% illiterate adults	children under 5 years
Ambano	54.682	41	32	14				
Andranomanelatra	44.317	9	21,5	16				
Sambaina	71.283	32	31	8,5				
Faravohitra	14.503	14,5	5	5,01	14.942	14,9	5	5,01
Mandrosohasina	17.215	0,4	27	45	17.910	0,36	30	50
Ambohibary	64.829	25,4	29,5	15,07	71.282	32	31	18,5
Atsoatany	17.215	0,12	27	46,8	17.622	0,28	15	28
Antanimandry	14.136	17,5	11,5	2	14.225	19	19	2
Ambohidrinandriana	17.282	7,99	5,39	0,27	19.962	6,66	4,45	0,17
Mangarano	11.640	0,29	0,18	25	11.720	0,16	0,18	31
Belazao	15.413	17	38	80	16.111	20	40	85
Ibity	18.994	8,25	10	1,18	19.501	8,18	10	1,23
Sahanivotry	14.638	0,1	4	0,1	14.814	0,21	2	0,135
Manadona	18.999	0,11	4	8	19.500	0,17	3,75	7,75
Vinaninkarena	17.372	13	9	15	17.605	10	8	9
Ambatomena	29 292	0,17	12,19	1,15	30 814	0,23	11,23	0,93
Alakamisy	33 705	0,82	2,99	0,14	33 976	1,25	2,99	0,11
Ambohitsimanova	22700	0,04	1,62	22,46	23 600	0,03	1,56	21,82
Soanidrariny	35081	73	20,5	74,5	35 871	68	21	69

Table 4. Correlation coefficient.

	Total population	%without access to services health	%without access to water drinkable
Totalpopulation	1	0,376	-1
%Donothaveaccesstohealthservices	0,376	1	
%withoutaccesstowaterdrinkable	-1		1

Table 5. Correlation coefficient.

population	-% life expectancy at Under 40 old	% illiterate adults	- children under 5 year underweight
Ambano	-0,866	0,865	-0,866
Andranomanelatra	0,86	0,98	0,99
Sambaina	0,84	0,92	0,95
Faravohitra	0,99	-0,88	-0,88
Mandrosohasina	0,63	0,97	0,88
Ambohibary	0,99	0,92	0,95
Atsoatany	0,9	-0,96	-0,95
Antanimandry	0,56	-0,98	0,91
Ambohidrinandriana	-0,99	-0,9	0,001

population	-% life expectancy at Under 40 old	% illiterate adults	- children under 5 year underweight
Mangarano	-0,29	0,32	0,45
Belazao	-0,85	-0,82	0,42
Ibity	-0,97	-0,91	-0,47
Sahanivotry	0,33	-0,99	0,99
Manadona	0,74	-0,99	-0,98
Vinaninkarena	0,9	-0,73	-0,7
Ambatomena	-0,5	-0,92	-0,96
Alakamisy	-0,92		-0,69
Ambohitsimanova	-0,03	-0,94	-0,99
Soanindrariny	0,56	-0,76	-0,52

4. Results and Discussions

Evolution of the demographic transition in the DISTRCIT of Antsirabe II:

1. From the analysis of the fertility rate, in this locality, it is necessary to note a downward trend, illustrated by a decrease, certainly moderate, but very significant, from 4.91 to 4.48 from 2009 to 2011, however, the non-existence " of reliable data of recent years does not allow to affirm whether this trend is confirmed.

2. -Moreover, this situation is almost in line at the national level, so the fertility transition in the District of Antsirabe II is considered "moderate", which means that it is in an intermediate phase, before reaching the three higher stages among others "full evolution, advanced and post-transition", requiring a fairly significant amount of time.

Infato juvenile mortality index:

The lack of data in this heading did not make it possible to determine the evolution of the infato juvenile mortality index in this district, however, the only available reference (instat2002) is 48 per mile in 2002 [5], which means that the transition from fatal child mortality is very advanced in the District of Antsirabe II.

NB: The analysis of these two indices is very useful for the rest of the research, since it has made it possible to determine that the Demographic Transition in the District of Antsirabe II is still in moderate evolution, after having passed the stages "Pre-Transition" and "beginners" and..., and the other three phases to be covered are respectively:

1. mid transition.
2. advanced/completed.
3. post transient.

Percentage of the population without access to health services:

The results show a positive and quite significant relationship. The coefficient relating to the percentage of the population without access to the health service is 0.376.

Also, an increase of one percent of the population, due to the delay of the demographic transition, in general also leads to an increase of 0.376 percent of the population who do not have access to the health service. This means all the difficulties of a majority of the rural population to benefit the provision of health services due to several reasons, including the insufficiencies of the medical personnel or infrastructure (dysfunction or remoteness, etc.).

This result also highlights that inequalities in access to health services are at the root of the life expectancy gap (WHO), hence the use of good quality disaggregated data to to improve the health and well-being of populations, and with a view to improving health policy and health practices..

Percentage of the population deprived of drinking water:

This drop in the percentage of people who do not have access to drinking water in the District of Antsirabe II can find various explanations, including the existence of projects such as the "Rano Wash" project, in partnership with USAID [3]. in, the Ministry of Water, Sanitation and Hygiene (MEAH), intends to improve access to drinking water in the Vakinankaratra region, for 34,200 people in 33 rural communes in the districts of 'Antsirabe II, Antanifotsy and Betafo. (source).

Admittedly, a population growth of 1% corresponds to a percentage decrease of 0.366 of people without access to health services, but the number of people who do not benefit from this type of health service remains very high (more 80 percent in 2019).

Percentageofilliterateadults:

The results in the 20 rural communes in the District show heterogenies in the efforts made to reduce the number of analphabet adults, while eight localities all show positive and quite significant signs, which mean that the number of illiterate adults increases with the years of delay of the demographic transition or one percent of the constant population growth (1%) negatively impacts the cognitive capacity of the population (between 0.86 and 0.97)) promoting their social exclusion, which is the opposite of what is happening at the global level, where illiteracy has declined for 20 years, from 826 million people in 2000 to 773 million in 2019, but the District of Antsirabe II is, therefore, in some regions that, have experienced an increase in the number of illiterates, in particular, sub-Saharan Africa, whose figure rose from 156 million in 2000 to 210 million in 2019.

On the other hand, in the remaining 12 communes, there is a clear improvement in the results confirming the decline in illiterate adults including three of them three communes Antsoatany, Faravohitra and Antanimandry, or there is a significant decrease in illiterate adults, these localities do not exceed 20,000 inhabitants.

Percentage of life expectancies at less than 40 years:

The results show an alarming situation in so far as among the 20 municipalities analyzed in the District of Antsirabe II, 12 show positive correlations meaning that population growth (1 percent) reduces the life expectancy of the

population by about 0.33-0.99 percent, which illustrates the difficulties of access of the majority of the population to basic health services**.**

- On the other hand, in 7 the other Communes, there is a palpable improvement in the situation since the growth of the population positively influences the life expectancy of the population of the order of 0.13%-0.99%, which is quite consistent with the study of Statista research department which stipulates a constant growth in life expectancy in Madagascar of the order of 62.08 years -66.31 years between 2007-2017 (ref: Statista research department).

Percentage of children under five with underweight:

The results recorded are a little mixed since if in the majority of the Communes (10 out of 09), the signs are largely positive and significant between 0.85 and 0.95, children under five years old with a lack of weight, corresponding, to the increase of one percent of the population, on the other hand, they are negative in the other three municipalities such as Ambano, Sahanivotry and Atsoatany, about nine at all.

This difference would be explained by the fact that Ambano is close to the District of Antsirabe, benefiting from the privileges of the required socio-economic assistance, while Faravohitra and Antsoatany, the total population does not even exceed 20,000 inhabitants.

5. Conclusions and Policy Recommendations

This article aimed to assess whether the delay in the implementation of the demographic transition will also perpetuate rural poverty [11], for lack of structural reform of rural development. (Strict population policy).

To do this, the analysis of indicators related to the evolution of this transition, in order to be able to situate the demographic stage in which the District of Antsirabe II finds itself, and to measure the gap and the efforts to be undertaken to finalize this transition.

Then, we refer to the poverty indices (HDI), with a view to analyzing the consequences of a delay in the demographic transition on poverty in this District The theoretical predilections according to which the delay in the implementation of the transition population perpetuates poverty, have been partially verified [10], in the majority of rural Communes in the District of Antsirabe [15], but one rural Commune has made an exception because, like the rural Commune of Ambano which records a decrease in percentage children, less than five years old, with underweight, and also, the decrease in the rate of life expectancy to less than 40 years.

Also, as the estimates show, the coefficient relating to access to medical care is positive and highly significant, illustrating the difficulties of the rural population in obtaining appropriate medical care, and even if that relating to access to drinking water registers a negative coefficient, illustrating a slight improvement of around 1% (for a 1% growth in the population).

However, this low rate of improvement remains worrying, especially since access to this material is considered a fundamental right of each individual.

Also, in order to alleviate the precarious, socio-economic situation of the district, it is necessary to accelerate the demographic process to glimpse the demographic dividend:

1. Wide dissemination of this theory developed in the middle of the 20th century, which is defined as the passage, during a process of global modernization and after a certain time, from a traditional regime of demographic equilibrium with strong mortality and fertility to a modern equilibrium regime with low mortality and fertility and which is accompanied during.
2. this process by an increase in the size of the population.
3. Highlighting the essential role played at the individual and family level in terms of changing ideals, the fact that it now becomes the theory of demographic and family transition, as well as the transition from nuptiality by the increase in age at first previous union from that of fertility. [6]
4. The modernization of demographic behavior is necessary and consists of reducing fertility, in order to achieve beneficial economic effects of this decline illustrated by a better standard of living and low mortality. [13]
5. Good control of population growth, through appropriate planning of the fertility, makes it possible to glimpse a "demographic window of opportunity" by the reduction in the number of dependents (children), and consequently the growth in the number of young people., having as a corollary the modification of the age structure of the population, favoring young people of working age, creating savings, productive investment and investment in human capital., with beneficial effects for economic growth and for the standard of living of the general population, hence the interest of the demographic dividend. [8]
6. However, this process should be accompanied by appropriate economic and institutional measures relating to job creation and a population policy that guarantees health and education [1], so very complex [17], hence the application of the roadmap initiated by the Ministry Finance and Economy. [2]

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