

]Population and Economics – A Case Study of Mauritius

**Abstract for consideration for the Small Island economies conference –
January 2005, Mauritius**

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Abstract

The objective of the study is to analysis the socio economic links between the rapidly declining population growth rates between 1950's and 1970s and the plateauing after that and economic growth. Mauritius is one of the pioneer countries in Africa, which adopted family planning and as a result reaped the benefits thereof. The paper will present the economic savings, which accrued as a result of the earlier population decline and the economic costs the rapid decline is having on the economy today and will have in the future.

Objective

Methodology

The savings will be based on the reduced costs in terms of the provision of education, health and welfare facilities. The costs will be based on a standard per unit rate for the provision of these services including welfare services. The population data used will be from the Central Statistical Office, including the population projections the medium variant will be adopted. For the cost implications, the budget figures from the Ministry for Finance adjusted to provide an average unit cost would be used. The application of simple regression analysis to estimate correlation among the different variables will be undertaken.

Results and Outputs

The analysis will have important implications on social policy debates. The changing pattern of family structures has profound implications on the type of services, which need to be continued, and those that can be modified or dropped completely.

Full paper

Introduction

The objective of the study is to analysis the socio economic links between changing population growth rates and economic growth. The ‘baby boom’ phenomena of the 1950s occurred in many industrialized as well as some developing countries such as Mauritius. The almost equally steep decline in fertility levels which followed this phenomenon led to either stable or stationary population growth rates. These rapid and unprecedented changes in fertility levels and hence population growth rates have impacted on the age structure of populations and in some countries changed the direction of the transfer of resources among the different age groups. This short paper attempts to apply some of the theories current today and to compare the costs and savings made in successfully curbing in the 1970s, the rapid fertility levels as compared to the costs to the economy today arising from the changing age structure caused by the aging of the population.

There are four basic models of economic and demographic change current today. The oldest - the Malthusian prediction in 1798 - linking excessive population growth with economic stagnation at the subsistence level is still very popular today, as are several variations of the same model. Ester Boserup, in 1965 refuted Malthus pointing out that when confronted with population pressure, societies have usually responded with technological innovations to increase the level of output from its existing resource base. Following on the same argument, Simon (1981; Simon and Khan, 1984) and others have proposed the ‘super optimistic ‘ model of population and development arguing that population size and density actually stimulate scientific invention and make technological innovation profitable. Finally, Kingsley Davis proposed in the 1960s that several alternate and positive ‘multiphasic responses’ are possible (out-migration, overseas colonization, increased intensity of cultivation, technological change and efforts to reduce fertility) when population pressures on resources threaten a nation’s standard of living. These positive “responses “ have been successful in alleviating the pressure on resources that excessive population growth poses.¹

Historical background

Mauritius was an uninhabited island till it was settled first by the Dutch in 1638, followed by the French in 1721 who took over the island soon after the Dutch left and then was handed over to England as part of the Treaty of Amiens in 1810 by the French. Throughout the first 200 years of its settlement Mauritius was peopled by small numbers of French, Indian and Chinese soldiers, sailors or traders who visited Mauritius during the 17 th century, some of whom made it their home. The main increases in population came about from the slaves who were brought in to cultivate the land and provide the labour required for settlement and the indentured labourers brought in to replace the slaves with the abolition of slavery in 1836. The natural increase in the population was negligible because of the high death rate. It was only after the end of the Second World War in 1944 that a spurt in the population growth rate occurred with the fall in the

death rate due to the near eradication of malaria and other epidemics with the introduction of modern medicine and DDT.

The demographic transition in Mauritius

Mauritian demographic history falls into three stages. The first stage from the beginning of colonization to 1940s of high birth rates and high death rates, the second stage between 1940s to 1970s of high birth rates and low death rates and the third stage as from 1970s when birth rates began to fall reaching a plateau in the mid 1980s.

The fifties were a period of high fertility. After being around 35 percent for most of the time after 1926, it shot up to 44.7 in the 1946-50 period and 44.3 per thousand live births in the 1954 –55 period, the highest levels recorded in Mauritius. The 1950s were truly the baby boom years for Mauritius as it was in many other parts of the world. The population had been increasing at less than 1 % since the beginning of the century shot up to 2.26 % between 1944 and 1952 and to the highest ever reached in Mauritius of 3.12 % between 1952 and 1962, and has been on the decline since then. Since 1960s, fertility levels began a downward trend as can be seen from Table 1: Birth and Death Rates in Mauritius, Census Years and Table 2: Population growth in intercensal periods, Island of Mauritius, 1952 - 2000

The effective solution to the high fertility level was the introduction of family planning, which was done by a group of interested and active Mauritians who were sensitive to the sufferings of the people. This group crystallized as the local NGO – the Mauritius Family Planning Association (MFPA) in 1957 and another association, approved by the Catholic church - the Action Familiale - was set up. Both these organizations obtained a small subvention from government and some financing from international organizations such as the International Planned Parenthood Fund. With the integration of the services, family planning centers and about 80 % of the staff of the MFPA with the Ministry of Health in 1972, the subvention to the MFPA was reduced although the MFPA continued to provide its services in the two centers which it retained. Mauritius thus, is one of the pioneer countries in Africa, which adopted family planning and as a result reaped the benefits thereof.

The direct impact of the activities of these associations and government was on the reduction in the crude birth rate and the population growth rate.

Population Projections, 1957 –1982

The sudden spurt in the population growth rates to around 3% over the 1952 to 1962 period resulted in an unprecedented increase in population numbers. The economy was in the doldrums in the 1950s and was growing at a rate of less than 2 %. With the population growing at about the same rate, there was a decline in the per capita income in the 1960s. As part of the exercise to prepare a strategy for government to quick start the economy and to increase the Gross Domestic Product (GDP) growth, three sets of possible population projections covering the 1957 to 1982 period were made.

The main assumptions of mortality, fertility and family planning acceptance used for the population projections to 1982 were continuing 1957 fertility levels and declining mortality levels leading to a population of 1,365,000 (Pessimistic Projection), fertility levels declining to 1952 levels by 1967 and remaining constant after that and constant mortality rates leading to a population of 999,900 (Moderate Projection) and fertility levels reaching 3 births per woman by 1972 and with no further reduction after that and same mortality decline as the Pessimistic projection giving a population of 983,300 (Optimistic projection). Nil out migration was assumed for all three projections. The details are given in Table 3.

Because of the introduction of the family planning programmes, the population was 961,000 in 1982, which was even lower than the Optimistic option that had forecasted a population of 983,300. The internal and external cost savings for government resulting from the reduction in fertility levels based on the three sets of population growth rates had been estimated as part of a study for the Mauritius Family Planning Association²¹ - the pioneer organization for bringing formal contraceptive technology to Mauritian couples. The internal cost savings refer to the reduction in the resource use for the provision of education, health and community services. The costs of providing these services are directly related to population size which facilitated working out the cost savings. The cost of providing economic infrastructure to a larger population has not been included in this exercise. The cost of providing additional jobs is also not included among internal cost savings. The external costs relates to the cost of increased imports because of a larger population.

The calculations under the three scenarios have been based on simple per capita 1982 costs and the savings shown as a percentage of the actual 1982 recurrent expenditure for each item. The cost savings for the education, health sectors and for the provision of social welfare and imports as a percentage of the cost of providing Education, Health and Community services and Imports in 1982 were almost the same at around 42 % for the Pessimistic Projection, 19 % for the Moderate Projection and 2.3 % for the Optimistic Projection. The savings under the three population projections are given in Table 4.

When compared to the benefits achieved or the savings made because of a lower rate of population increase, the cost of providing family planning service has been **dericesory CHECK**. The total annual expenditure of the Mauritius Family Planning Association (MFPA) was around Rs 0.72 million in 1969 as compared to the Rs 255.4 million that was the actual health budget in 1982. The running cost of the organization Action Familiale was also very low.

Government for its part took measures to energize the economy. The focus was on employment creation so as to bring incomes to a majority of households, as around 20% of the working age population was unemployed. The full impact of the measures to improve economic performance became evident in the mid 1990s when the GDP grew by an average of over 10 % over the 1985 to 1995 period; unemployment fell to less than 9 % by 1995 and export earnings increased.

The new Conundrum – the Aging Phenomena

The Aging process –the international scenario

‘The process of aging goes beyond academic and didactic spheres, particularly demography, and will soon ply all societies, of which we are part, in a very pervading and impressive way.’ Aging is a silent process, which remains hidden in the vicissitudes of a population with no external and noisy display, as for example in the case of unemployment. It manifests itself as a completely new issue in the history of mankind, upsetting age-old balances, and there is not temporal, territory, political or operative elements and parameters to make references to.³

The demographic ‘machinery’ of aging

Frank W. Notestein wrote fifty years ago, ‘Viewed as a whole the problem of aging is no problem at all. It is only the pessimistic way of looking at a great triumph of civilization’ namely control over unwanted births and early mortality⁴. The problem arises from the speed and intensity with which it takes place. In terms of the ‘machinery of aging’ there is a complex interplay between annual total fertility rate (TFR) the ‘average cohort size’ of fertile women and births on the one hand, and population aging and growth on the other which comprises the ‘population momentum’.

The aging phenomena in Mauritius

Mauritius has been one of the countries where the demographic transition had been completed in a very short lapse of time. The aging process has and will continue to be almost equally precipitous and dramatic. The two determining factors have been the decline in the fertility levels, which took place principally between 1962 to 1973 and which is still continuing and the improvement in the health of the population that is measured by the increase in life expectancy. The main improvements in life expectancy set in as from 1960’s and are still continuing. They increased from 60.8 years for males and 65.89 years for females in 1971-73 to 67.37 years for males and 74.62 years for females in 1998-2000.

The most important impact of both these phenomena - the decline in fertility rates and the improvement in life expectancy – has been on the age structure of the population, and is having significant implications on the economy and the government budget. The age structure of the population the Republic of Mauritius has been changing as from 1962. The population below 15 and above 60 as a percentage of the total population fell from 50.7 in 1962 to 37.7% in 1990 and 34.5% in 2000. As from 2020, this trend will be reversed and the percentage will increase to 36.3% in 2020 to reach 42.0 % in 2040. The dependency ratio will follow a similar trend.

Thus in Mauritius for example because of falling fertility rates in the past decades and the decline in the size of women in the fertile age, the population will continue to age. This is further accentuated by the rising survivor rates and

because of the male/female differences in survivor rates the aging of female populations has and will continue to be more intense than for males.

The full implications of the change in age structure of the population are not fully understood. As stated by Kofi Annan, Secretary General of the United Nations, at the launching of the International Year of Older Persons on 1 October 1998, ‘We are in the midst of a silent revolution that extends well beyond demographics, with major economic, social, cultural, psychological and spiritual implications.’⁵

The impact of this silent revolution will be felt on many aspects of local life and could be devastating on a small island economy like Mauritius. As with many European countries, which have put in place wide spread social welfare schemes for the population, the aging issue is mainly linked to the payment of pensions to the increasing number of pensioners, which is becoming dramatic. At the same time the impact on other aspects of life such family structures and the provision of services e.g. health, to the aged are equally important concerns which are not being given the same attention.

Cost to the Economy of the Aging Phenomena in Mauritius

(i) Rising Cost of Pensions: Mauritius has a wide spread system of social welfare accounting for about 20.3% of total government expenditure. The main component (37%) on government expenditure on social security and welfare (GESSW) is the Basic Retirement Pension (BRP). The BRP (which is about one third the minimum wage) was being paid to all Mauritians or over 60 years of age, which is the legal age for retirement, till August 2004, when a means test was introduced by which less than 1 % of 60 year olds are no longer eligible for BRP. In 2001, 109 180 Mauritians were receiving BRP (9.10% of total population). This number is expected to increase to 228,212 by 2021 (16.32 % of the total population) The Pensioner Support ratio, which is the number of persons of working age (15-59 years) per old age pensioner (60 years and over) will decline from 7.2 % to 3.9 % over the same period. The heavy financial burden of the BRP on the government budget is extremely worrying as the percentage of the BRP on the total government recurrent budget will become to the public budget.

Table 5: Projections of BRP Beneficiaries

Among the other welfare schemes for the aged, the two most important are the Public Service pensions and Basic Widows pension. Public Service pensions accounts for about 27 % of government expenditure on Social Security and Welfare (GESSW) will increase with the aging of government servants Public servants account for about 13 % of the working population and although steps are being taken to reduce the absolute size of the civil service, the actual numbers is not expected to change much. Data on government servants has not organized by age, grade, salary level and promotion prospects so as to be able to make projections on the size of Public Service pensions.

Basic widows pensions account for 7 % of GESSW. According to the 2000 Census, 13 % of the Female population aged over 15 years were widows of which 60 % were over 60 years. By 2023, the percentage of widows will increase together with an increase in the outlay for widows.

A Contributory Retirement Pension (CRP) is operational in Mauritius; but the number of beneficiaries (32,747) is around 30.1% of the BRP and the cost implications are also limited.

(ii) Health expenditure: In Mauritius as in most European countries, life expectancy has been increasing over the past two decades and the focus is moving to achieving a better quality as well as quantity or length of life. 'Health expectancies provide a means of dividing life expectancy into life spent in various states of good and bad health, thus extending the concept of life expectancy to morbidity and disability. Health expectancy measures disability-free life expectancy. The main objective of calculating disability-free life expectancy is to estimate whether the gains in life expectancy are being accompanied by an increase in time spent in bad health (the scenario of a pandemic of chronic diseases and disabilities) or by better health.⁶ When discussing 'aging' the difference between 'aging' and 'senescence' has to be understood. "Aging refers specifically to processes of growing older regardless of the chronological age, the definition of senescence includes a progressive increase in age-specific death rates, even under ideal conditions. However there is some evidence that death rates may not be monotonically increasing with all senescing organisms.

Since detailed data on the demand on health services among the aged population is not available, the expected increases in the demand for health services among the aged are difficult to calculate. But it is evident that health costs will increase as the size of the over-60 years grows as well as because of the care required becomes more sophisticated and expensive. In 2003, 20.6 % of cases treated in hospital were over 60 years and were suffering from diabetes, hypertension, and cardio vascular diseases. At present, health services are free at government hospitals, health centers and dispensaries. The health budget is around 10 % of total government expenditure and this will increase as the population ages.

(iii) Other cost implications of Aging: There are several other implications especially in terms of organization and the provision of care which are difficult to cost as adequate data is unavailable. Some of these issues are taken up in the next section of this paper.

Multi – pronged Strategy to Meet the Aging Problem

The process of aging – provoked by the fall in births and the reduction in the age specific mortality rates – impacts on all aspects of a nation's life. It impacts on

Individuals: Because of improvements in life expectancy, people have greater probability of becoming elderly, old, and oldest old.

Families: Multigenerational families becomes more widespread with increase in number of co-existing generations. As family lengthens and becomes increasingly 'vertical' and less and less horizontal ' given the smaller number of siblings and cousins, family ties weaken and 'peer relationships' are formed outside the family. The number of 'Lone person households' increase - frequently of older women.

Populations: The proportions of older population increases while that of children and young persons declines, modifying however the equilibrium between the different population groups and intergeneration balance

Sub-populations: The aging process is reproduced within each segment of the population. Thus aging occurs within all sub population e.g. within those in the working age, or even among groups such as public servants.

Given the wide-ranging ramifications of the aging phenomenon, particular aspects that need public discussion so as to lead to changes in the policy approach and/or policies are taken up below.

(i) *Deforming the Age structure*

The aging phenomenon ‘deforms’ the age structure of a population in such a way, which require adequate and timely answers from the economy, the social structures and the collective psychology and culture. The most drastic case is where the deformation of the age structure is extremely accentuated and reaches a reversed pyramid. This process can be extremely swift and emphasized in small communities, which do not attract much immigration. At an extreme case, aging can create a vicious circle to a point of no return and the disappearance of the population. Mauritius may not face this situation but it could be reality for some other micro island states with very small populations.

Nonetheless, is it time to consider for Mauritius a ‘population policy’ to regain a ‘suitable’ fertility?⁷ In 2000, the average number of children born to a woman (Total Fertility Rate) was 2 from 2.36 in 1992. What should be a ‘suitable’ fertility. In countries with very low fertility, it could mean that the number of women with 0-1 child should fall and those with at least 3 children should rise. It should be recognized that increasing fertility could be unattainable in many developed and some developing countries because it could clash with women’s interests. Generally, fertility policies succeed when they coincide with the wishes of women (and the couple). In western countries, increasing education and gender equality is at the base of the growth of individualism, and that is why it was said that a recovery has to necessarily go thorough a cultural change.

(ii) *Data collection*

One of the most important lacunas as regards aging is data collection and research. Several areas of the socio cultural change that the phenomena brings up need to be researched. Some of these areas are

Health: Omran in 1971, formulated three phrases model of the epidemiological transition based on the demographic transition. These were the Age of Pestilence and Famine, which was exemplified by conditions in the Middle Ages when famines and epidemics were common in today’s developed countries. These conditions still exist in some of the least developed countries. The second stage was the ‘Age of Receding Pandemics’ when the mortality rats declined under the influence of the general progress initiated by the industrial revolution. The ‘Age of Degenerative Diseases’ or the third stage was reached with the end of

the epidemiological transition with a halt in the mortality decline. Henceforth the causes of death were essentially degenerative – cardiovascular diseases and cancers – and originated in behavioral and lifestyle factors, mostly over-eating that accompanies affluence, and work conditions, stress, pollution, lack of exercise, smoking and road traffic accidents. A fourth stage was introduced by Olshansky and Ault in 1986, 'The Age of Delayed Degenerative Diseases' in which mortality fell because of the delay to older ages in the onset of chronic diseases.

Mauritius reached the second stage during the Second World War when with the introduction of DDT malaria was near eradicated. It is now at the third stage of Degenerative Diseases and broaching into the fourth stage. It is necessary to undertake cost implication studies so as to be able to better plan for the health sector to meet the needs of the aged in the new setting.

Senescence and Longevity theories: According to the current Theory of Longevity, most sexually reproducing species show signs of senescence with age, so the post-reproductive span of life should be short, because there is no selection against mutations that are not expressed until ages when reproduction and nurturing have ceased. It should be increasingly difficult to reduce mortality rates with age as reproductive activity reduces. This hypothesis can and is being questioned; so there is a need to rethink the theory of longevity. While immortality seems unattainable, life spans of 100 to 150 years seems to be attainable. The implications of a life expectancy of 100 years would appear to be catastrophic for Mauritius.

Life expectancies and health expectancies: In addition to life expectancies, there is a need to look at health expectancies which helps to monitor the health of the population and to 'divide life expectancy into life spent in various states of good and bad health, thus extending the concept of life expectancy to morbidity and disability.'⁸ Although the methodology for measuring disability –free life expectancy is still being perfected, steps should be taken in Mauritius to include disability data as part of the next continuous multipurpose household survey.

Income and wealth: Older people represent the weakest strata of society not only for their physical, psychological and cognitive conditions in general but in a broader sense also for their lower income (and education) in respect to the rest of the population. Aging also involves important changes in consumption structures, characterized by a propensity to save against consumption and an increase in the share occupied by health expenses over total expenses, excluding food. On the other hand, old people may have more assets - such as a business; many may live in their own mortgage –free homes and have cars and other durables - that their children may not be able to afford. The longer the life span, the longer the time that children have to wait to take control of assets that could eventually be theirs. The implications of the property and other transfers between one generation and another is another issue that needs to be studied.

(iii) Social Contract

Several factors are contributing to an increasing social, cultural, professional and psychological distance among generations, very likely the widest registered in the history of mankind. There is a need to look for a different ‘social contract’ between members of a family, and between different generations and between government and the aged, which should be more intra-generational and less inter-generational, even if in no case should we renounce maintaining, to some extent, ‘traditional’ relations and duties among generations.

(iv) *Institutional aspects*

Most governments are not prepared either from an organizational or structural point of view to face all aspects of aging. In Mauritius as in most countries there are two ministries dealing with the problem of the elderly. As aging is increasing the number of chronic illnesses and the spread of disability also increases. In order to better cope with problems and policy actions required it would be better to have a single institution for health and social affairs. While policy making will continue to be made at a central level, some amount of flexibility at the local level may be required. In Mauritius, social welfare is well decentralized and health care for the aged will also need to be organized to allow for greater flexibility at the local level. Although families remain the main care providers and within families the women, little has been done to evaluate the needs of families – in terms of physical, economic and even emotional and psychological support - to provide this care. The challenge is to find solutions that divide the care between the family, the state, and private organizations in an effective way. The setting up of a National Institute of Aging to study all the aspects – individual and collective, bio-sanitary and socio-economic –relating to aging needs to be given serious consideration. The Mauritius Institute of Health could have a unit devoted to geriatric issues to start with.

(v) *Family structures*

In Mauritius because marriage is still the norm for most people, the majority of old people live within the family but as the tendency is for families to become more and more vertical and less and less horizontal the number of old people living alone could increase. As the life expectancy is higher for women, there are more elderly women. The vulnerability experienced by the majority of elderly women has its genesis in the unequal conditions in which they have lived. Although women’s life expectancy is higher the gender gap in expectation of disability-free years is much narrower. This coupled with the age difference in marriage means that women are not only more likely to be widowed than men, but are also more reliant on wider kin networks and the state for assistance. There is greater vulnerability among the aged and in particular among women. This is a situation that needs to be studied so that both the aged and the families looking after them can be helped.

Conclusions

Over the years, in Mauritius the over 60s will constitute an increasing share of the total population as the baby boomers reach retirement age and because of higher survival rates. The fiscal headache that the aging phenomenon causes is the one

that is catching the attention of policy makers. Non-contributory pension is almost universal while other pensions schemes as Pay as you go (PAYG) and privately funded pensions schemes affect only a minority of the population. So the shift to some form of private pre-funded and sustainable pension scheme may not be the immediate answer but could provide a long-term solution. The ‘parametric’ reforms that boost revenue (such as increasing pension contribution or the number of contributors) or cutting pension spending (reducing benefits or the number of pensioners) could help. Some of these measures could be difficult to implement as it ‘would require a graying electorate to accept an erosion of its promised benefits. Resolving pension would require gradually building a private pension component so that it will eventually help to compensate for the unavoidable future cutbacks in public pensions benefits without pitting younger and older generations against each other.

While accepting the fiscal aspects of the graying population, the social implications are more important and definitely more difficult to resolve. In fact, what appeared to be an ideal solution to an over populated world may bring an unwelcome old age to a large segment of the population. But the ingenuity of the human race is unlimited. Just as over population has been managed, diseases have been conquered so that human life span has been extended, solutions to cope with the new enigma will be found. But it is necessary to take stock of the situation at every level. Individuals, families, organizations, state planners and policy makers will all have to work together. This is a situation where the solution cannot be wholly ‘top down’ or ‘bottom up’.

As stated earlier, fertility control in Mauritius was pioneered by groups of concerned individuals with the support of the international expatriates and organizations. In the case of ‘aging’, leadership seems to be diffused and/ or lacking. The solution appears to be piece meal. International support also does not appear to be dynamic enough to make much headway. Much strengthening is required to what is already on the pipeline to have the same impact as the efforts of the early pioneers who introduced family planning in Mauritius.

Table 1
Birth and Death Rates in Mauritius, Census Years

Period	Population At Mid Period	Crude Birth Rate	Crude Death Rate	Infant Mortality Rate
Average 1926-30	403,248	35.2	28.8	140.9
Average 1946-50	438,797	44.7	20.8	119.6*
1951-55	522,577	44.3	14.7	81.3
1962	681,619	38.5	9.3	60.1
1972	850,968	25.3	7.9	65.1
1983	1,001,691	21.0	6.5	27.0
1990	1,058,775	21.3	6.6	20.4
2000				

Source: Yearbook of Statistics 1957, Digest of Demographic Statistics, several years

* Refers to period 1946-50; reached 186.2 in 1948 when there was an epidemic of whooping cough, ** Refers to period 1951-55, *** Refers to period 1956-60

Table 2
Population growth in intercensal periods, Island of Mauritius, 1952 - 2000

Item	Unit	1952	1962	1972	1983	1990	2000
Population density per km ²	Numbers	269	366	443	518	548	
Average annual growth rate of population increase	%	2.26	3.12	1.94	1.44	0.80	

Source: Central Statistical Office, Digest of Demographic Statistics, several years

Table 3: Population Projections

Variables	Projection A (Pessimistic)	Projection B (Moderate)	Projection C (Optimistic)
Fertility	Age specific fertility Constant at 1956-58 level	Age specific fertility rates assumed to decline to pre 1952 level by 1967 remaining constant after that	Age specific fertility rate to reach by 1972 levels calculated on the basis of three births for each woman with no further reduction in fertility after that
Mortality	Declining; an annual gain of half year in life expectancy	Assumed to remain constant	Same as Projection A
Year	Projections of populations under different assumptions (000)		
	Projection A	Projection B	Projection C

1957	594.3	594.3	594.3
1972	950.9	876.3	829.6
1982	1,365.9	999.9	983.3
Average annual % increase 1957-1982	3.38	2.65	2.03

Source: Titmuss R, et al, *Social Policies and Population Growth in Mauritius*, Macmillan 1966
 Taken from Hanoomanjee, *Catalytic Role of MFPA*, 1999

Table 4: Cost savings 1982

Cost saving(%)	Projection A (Pessimistic)	Projection B (Moderate)	Projection C (Optimistic)
Education	42	18.9	2.4
Community services	41.9	18.8	2.3
Health	41.9	18.8	2.3
Imports	42	19	2

Author's estimates reproduced from, Hanoomanjee, *Catalytic Role of MFPA*, 1999

Table 5: Projection of BRP Pensioners and Widows

BRP Pensioners, over 60 years	2001	2021
Total	109 180	228 212
No. of beneficiaries as % of total population	9.10	16.32
Pensioner support ratio*	7.2	3.9

Source: Central Statistical Office, *Economic and Social Indicators*, Issue No. 450, 05 May, 2004

* No of persons of working age(15-59) per old age pensioner (60 years and over)

Footnotes

¹ ROBINE J., Redefining the Stages of the Epidemiological Transition by a Study of the Dispersion of Life Spans: The Case of France, appearing in POPULATION, Volume 13-1, 2001, Institut National d'Etudes Demographic, INED

² HANOOMANJEE Esther, The catalytic role of the Mauritius Family Planning Association in the Socio economic Development of Mauritius, unpublished, Mauritius 1999

³ GOLINI A, Teaching Demography of Aging, appearing in GENUS, Volume LVIII, No. 3-4, July – December 2002, Rome

⁴ Ibid GOLINI (3)

⁵ Ibid GOLINI (3)

⁶ VAUPEL J, Demographic Insights into Longevity, appearing in POPULATION Vol 13-1, 2001, Institut National d'Etudes Demographic, INED

⁷ Ibid GOLINI (3) Page 191

⁸ ROBINE J, et al, Disability-free Life Expectancies in the European Union countries, Calculation and Comparison, appearing in GENUS, Volume LVII, No. 2, April – June 2001, Rome