CHAPTER I

INTRODUCTION

1.1 Introduction

The intense mortality situation have produced a consistent long-term pattern of high unstable death rate that resulted in extremely high attrition at younger ages for the 1,00,000 years that human have inhabited the earth. Historically a small robust subgroup of human population has been able to survive up to older ages (Olshansky and Carnes, 1993). This long-term pattern of high mortality has changed dramatically in the last 100 years due to rapid occurrence of decline in infant, child and maternal death rates – a product of improved living conditions and medical technology. More recently reductions in middle age and old age mortality have been observed with low death rates. This revolution in longevity or length of life is one of the most dramatic, complex and rapidly changing events. In 1900 the average life expectancy at birth in the industrialized world was less than 50 years. By the late twentieth century that figure had risen to about 75 years. In Japan, U.S.A., Germany and Spain over 15 percent of the population is above 65 years of age. Life expectancy in Japan is 86 for female and 77 for male and it is expected that by the year 2025 at least 25 percent of Japanese population will be 65 years of age or older (Butler and Fillit, 1998). In 1995, according to U.N. estimates the Asia Pacific region was home to half of the world’s older persons. By 2005, it is projected that nearly 3 out of 5 older persons
will be in Asia Pacific (Beltran, 2000). However in developing countries high
fertility and declining mortality are the major factors responsible for population
increase (Guralnik and Kaplan, 1989). Longevity has significantly increased in
the last few decades, mainly due to improvement in sanitation and health care,
education and income (Guralnik and Kaplan, 1989; Brody, 1989; Torry, Kinsella
and Tauber, 1987). Population ageing – the process by which older individuals
become a proportionately larger share of the total population – was one of the
most distinctive demographic events of the 20th century. It will surely remain
important throughout the twenty first century. Initially experienced by the more
developed countries, the process has recently become apparent in much of the
developing world as well. For the near future, virtually all countries will face
population ageing, although at varying levels of intensity and in different time
frames (U.N., 2002).

The ageing of population obviously results from the significant changes in
overall age structure. According to the U.N. (1956) the fertility decline is the
major factor leading to the population aging while the mortality decline plays an
insignificant role in the course of population aging. However during the last two
decades, the fertility of developed countries has remained at a basically low level,
i.e. around the replacement level, and the elderly mortality continued to decline,
but the population of these countries continues to ageing. This fact has caused the
concern for the impact of population ageing (Jing, 1990). Even by the end of the
first quarter of the twenty-first century the main factor influencing the size of the
aged in most developing countries will still be mortality (Badry, 1987).

Population aging is a result of fertility and mortality decline (Kuroda, 2001) and since declines are objectives of most less developed countries, aging should be viewed as a by-product of success (Martin, 1990). Nevertheless, there is a concern that, especially in Sri Lanka and India, aging occurred at a lower level of economic development in comparison to the experiences (Jones, 1988). In Sri Lanka life expectancy at birth expected to rise to 78.5 years for females and 73.5 years for males respectively, by 2025 (Abeykoon, 2000). Another factor, migration is also responsible for with population ageing (Jacquat, 1994; Longino, 1990; Meyrson, 2001). External migration may slow the ageing process (Von Hoon, 1994) but internal migration has some impact. Fourier et al, (1988); Von Hagun and Walz (1994) and Jackuat (1994) commented that lower cost of living attract elderly households on fixed incomes while in the same way higher wages attract young members of labour force.

1.2 Concept of Aging:

Ageing is a biological process, experienced by the mankind in all times. However concern for aging of population is a relatively new phenomenon, which has aroused due to significantly large increase in the number and proportion of aged person (Goyel, 1989). The ageing of human population is a concept that originates in several disciplines. It may be viewed as result of biological, sociological, demographic and several other process (Guha Roy, 1985).
aging or ageing has been defined variedly by researchers in different contexts. Tibbits (1952) says “Ageing may be best defined as the survival of growing number of people who have completed the traditional adult roles of making a living and child bearing”. According to Arking (1991) aging can be defined as “those series of cumulative, universal, progressive, intrinsic, functional, and structural changes that usually begin, manifest themselves at reproductive maturity and eventually culminate in death”. Myers (1985) has elaborated the aging of population in the following manner.

(a) Aging may be viewed as a biological process through which an organism is modified from birth to death. In a similar sense, the psychological and social development process of individuals, including social positions, roles, status and characteristics of persons can also be examined.

(b) An extension of this approaches focuses on aging of the family as a social grouping that is modified over the life course of its members in characteristic ways.

(c) On a more aggregate level, change in distribution of population can be examined usually in terms of relative proportions of each age group.

(d) On a more abstract level, there is sense in which aging can be viewed as a crucial index of societal or civilization maturity. If one accepts the proposition that societies follow evolutionary or crucial paths of growth and decline, then the age of societies represent a vital index of this process related to demographic transition and cultural vitality.
Gerontologists classified the problems of aged into two broad categories called primary aging and secondary aging. In primary aging factors related to biological capabilities of the body are included, while secondary aging is brought about by external factors like disease, nutrition, stress and others (Dandekar, 1997). Myers (1990) defined primary aging as aging as individual phenomenon and secondary aging as an aggregative process through which population structure be modified. In this study only the secondary aging has been considered.

It should be understood that the two concepts, aging and old age are very closely related; the old age is the effect, being the result of aging. There is no clear answer when old age begins. The date most commonly used as a starting point of the old age in developed countries is 66th birthday. It is also true that official retirement of age in many developing countries is 60 or less. Old age is determined by the criterion of retirement from labour market (Dandekar, 1997). Although 60th year is regarded as elderly in developing countries, the old-age line is drawn low or high according to job, rural or urban, or intergenerational perception. Bae Hwa Ock (1987) also remarked that perception towards old age is strongly related to socio-cultural environment.

A very different concept of old age being advanced is based on average number of years until death (Ryder, 1975; Jackson, 1980). According to this concept anyone could be called the age of entry into old-age if \( e^0 \approx 10 \) or 15 (Ryder, 1975). However by this concept, groups with lower life expectancies have lower ages for beginning of old age. As the expectations of life vary according to
male and female or different social groups, the age of entry into old age will be different. A chronically ill person could claim benefits of old-age legislation at younger age than a healthy person (Siegal, 1980).

1.3 Importance of Study:

According to Seigal (1980) "The Demography of aging" brings demographers to focus holistically on a population group, the elderly, and a demographic process, aging. In the last few decades increasing attention has been paid to the demography of aging, a sub-field of general demography that relates in important ways to the concerns of social gerontologists (Myers, 1990).

Population aging is gaining increasing recognition as one of the most influential forces. Demographic increase in the population of the aged is an indication of development of a society and as the nations trying to improve their socio-economic condition; the figures of the aged population go up. The shift in age structure associated with population ageing has a profound impact on a broad range of economic, political and social conditions. For example, concerns are growing about long-term validity of intergenerational social support systems, which are crucial for the well-being of both the older and younger generations (U.N., 2001).

The growth of older population poses a considerable challenge to the public policy because our needs go on changing as we age. This growth and expansion of number of older people represent a social phenomenon without
historical precedent, one that is bound to alter previously held stereotypes of older persons (Torry, Kinsella, & Taeuber, 1987). During the last two decades, the international community devoted considerable attention to aging populations. The first United Nations World Assembly on Aging (U.N., 1982) highlighted the issues that have emerged with the rapid growth in the number of older persons and consequent shifting of the population of many of the countries in the world. Many of these issues relate to nations that are able to make commitment to the health, economic and social welfare of the aged population in light of other priorities they face in resource allocation for social and economic development (Treas and Logue, 1987, U.N., 1988). In the second assembly on ageing (U.N., 2002a), it is highlighted that one million people now turn to age 60 every month, and in a demographic revolution the older people will soon outnumber the below 15 year age group for the first time in history. Out of these, 75 percent people of above sixty years age will live in developing countries. In the same assembly, U.N. secretary general Kofi Annan stated that Ageing is no longer a first world issue. He also stated that we should need to recognize that, as more people are better educated, live longer and stay healthy longer, older persons can and do make greater contributions to society than before.

Scholarship on aging continuously evolves because the very phenomena under scrutiny are fluid. Because of deaths and older birthdays every day, the composite of individuals who constitute older population is always fresh. Each cohort of the elderly has some dissimilar characteristics from succeeding ones,
having lived through different periods of history at different ages (Streib and Binstock, 1990). The effects of aging population at the individual level bring into focus the needs related to the provision of physical, economic and social service to the elderly. Besides the need to ensure an adequate and regular post retirement income, access to the basic health-care services and exposure to proper health and nutritional education, it is also necessary to include homes for the aged, personal care services at home for those with physical disabilities, social support in alternative living situations, counseling, and social or leisure-time services and activities (Salas, 1982). It has also implications for the role and functions of the institution of the family. Throughout the world, families are becoming smaller and therefore some of the responsibilities towards the aged may be transferred from families to community (Salas, 1982). Societies will have to cope with the dramatically increasing numbers of older persons in the 21st century. It is essential to prepare for the elderly people's needs through social and individual planning, medical research and alternative in the environment. Butler and Fillit (1998) expressed that there have been little investigation of representative sample of older persons to comprehend the impact of differences in gender and race, among the elderly people and the impact of these factors on the psychology of the later life.

The aging of population has been an issue of concern only for developed countries. Documents from the World Assembly in Aging held in Vienna in 1982 show that there is great concern in developing countries with the welfare of rising
number of older persons in their populations (Heisal, 1984). Indeed according to paper presented by ministry of Social Welfare, Govt. of India for the first World Assembly on aging that there is no problem of the aged in India. In this respect emphasis was laid down on traditional respectability of the aged in India under the joint family system and various kind of state aid for the old people (Bandopadhaya, 1998).

However Heisal(1984) commented that in developing countries there is an assumption that family will look after the aged members. This assumption is no longer valid, mostly because of social conditions resulting from changes in fertility rates and life expectancy and especially because of increased level of migration. There is an increasing awareness that population aging will be an important issue in less developed countries which are currently in the process of social change and economic development (Myers, 1982; Siegal and Hoover, 1982; Torry, Kinsella and Taeuber, 1987; Kinsella, 1988).

India’s large size of population accounts for a significantly large number of people in 60 and above group, even though when compared to developed countries the proportionate size of this sub-group is relatively small. However, due to improvement in the mortality conditions and decline in birth rate, the proportion of people in 60+ age group in the India’s population has been consistently increasing.

According to Table 1.1 the growth of elderly population may be slow in India. But according to the figure of 1991 and 2001 the size of elderly population
is bigger than total population of many countries of the world. And the growth of the absolute numbers is tremendous. The Table also predicts that the proportions of elderly in Assam will reach near to Indian average proportion in 2021.

Demographers have a societal obligation to issue "early warning" on the prospective shifts in the age compositions and the increase in the sheer number of the aged and the concomitant socio-economic and public consequences (Nair, 1985). Social Improvement must be guided by continued research (Baird, 2000). Correct perception and scientific research are essential inputs for policy formulation. Without them, policy maker is like blind men leading the way for rest (Pathe, 1982).

1.4 Literature Review:

The demography of aging is firmly grounded in the theory of growth and structure of population developed by Lotka(1939), Coale(1972), Lopez(1961), Keyfitz(1977), and Polard(1973). The first attention to the population ageing emerged in France at the close of 19th century, where the proportion of population age 65 or more increased gradually from 5 percent in 1800 to 8 percent in 1900 (U.N., 1956). Another country witnessed considerable population aging, which was examined in detail by Sunderbarg (1894) after comparing the population composition of Sweden and number of other countries. Sunderbarg was the first demographer to note the systematic differences in age compositions among countries and, by implication, the shift that takes over time towards an
aging population structure (Myers, 1990). By the 1930's increasing concern was expressed as the fertility decline of the depression period in western countries promised rapid changes in the age structure of the population (Thompson and Whelpton, 1930, 1933; Dublin and Lotka, 1937; Pearl, 1940). After the 2nd world war the literature on aging steadily expanding in developed countries and U.N. demographers. At present there are few countries for which the studies of demographic aspects of aging have not been made (Myers, 1990).

Necessarily, matters of fertility and mortality figure affects heavily on the study of aging. Various studies (Lorimer, 1951; U.N., 1954; Coale, 1956; Coale, 1957; Bourgeois-Pichet, 1979) have shown that population ageing is a concomitant of demographic transition and that, in the aging of populations, fertility tends to be the primary determining factor, overshadowing mortality and net migration, barring unusual circumstances. However according to Jing(1990) the impact of mortality decline on the process of population aging should not be neglected. It has same importance as the fertility decline.

The common measures of population aging are the mean age, the median age, the proportion of aged persons (60 or 65 and over), the proportion of children under 15, and the aged child ratio of a population (Shryock and Siegel, 1976). Preston et.al. (1989) analyzed population aging as measured by mean age of a population as a function of fertility, mortality and migration. Liao(1996) developed this idea by constructing rate of change measure in the common measures stated above. The findings of his study suggested that directly
comparing values of aging measures without considering the levels and patterns of fertility, mortality, and migration will lead to misleading conclusion.

Researchers paying consideration in the field of aging, consider health of elderly population is an important factor to study. The transition from high to low levels of mortality has brought about an increase in morbidity, which has, in-turn significant implications for aging populations. Likewise, it is expected that the number for disabled elderly will increase in the future given the rapid absolute increase in elderly population (Abeykoon, 2000). Demographers have shown considerable attention to the health status of the older populations, the health care delivery system, and the allocation of resources for health, the relation between morbidity and mortality, and particularly, the anticipated demographic changes which would affect the demand for health care and provision of health services (Kover, 1978; Morrison, 1979; Brehm, 1978 and Rice, 1978). Manton (1990) classified the health problems into two categories- the first represents the type of lethal chronic diseases (e.g. heart stroke, cancer) and the second type of diseases which was previously confused with normal aging processes, now scientists have begun to identify and characterize the pathological mechanisms underlying such diseases (e.g. alzheimer’s, osteoporosis, diabetes, rheumatoid arthritis etc.). Verbugge (1984) after studying data from USA concluded that morbidity at advance stage from cardio-vascular diseases, cancer, and diabetes, increased, though mortality dropped and females go more to doctors. U.N. (1988) showed that once a South Asian reaches the age of 65, he or she can expect to live another
ten to fifteen years. The additional ten years of life of elderly South Asians appear to be spent in fairly good health, although the elderly persons suffer from a variety of ailments, such as high blood pressure, digestion problems, and disease of the joints and the respiratory system. There is also evidence that many ailments go untreated due to financial limitations (Soodan, 1982).

The study of Gerontology is still in infancy in India. Recently Rajan et al. (1999) computed various aging measurers for India and its states from census and projected data. Ram and Ram (2002) also have computed the various aging indices from National family health Survey data after 1991 for India as well as its states. Yadava et al. (1997), Rajan et al. (1999), Gurumurthy (1998), Dandekar (1997), Vijoy Kumar (1991), Devi and Premkumari (2000) have made some micro level study on the health and other socio-demographic aspects of the aged in India. National Sample Survey 52nd round (1998) indicated the prevalence of chronic diseases among the aged which was in general seen to be very high and it was higher in the urban areas (55 percent) than in rural areas (52 percent). According to this study ‘Problem of joints’ and ‘cough’ happened to be the most severe diseases of the aged. As India is a populated and diversified country, socio-environmental problems have been found to play a significant role in determining the health condition of aged persons; health hazards of aged people are found to depend on the occupation they had during adulthood, illiteracy and poverty and their impact on the health during old-age (Yadava et al., 1997). Also many researchers (Ne, 1996; Patel, 1995) have pointed that health conditions of
women, especially rural women as very poor and requires special attention. It was also found from the study in the rural Bihar that malnutrition was the fundamental contributor to health problem in rural India (Biswas, 1988).

Increase in the proportion of old in the population will necessarily bring about changes in the economic structure of the society. After studying the economic, familial, health and housing problems with aging in India Kumar and Stanelay Jaya (1996) concluded that about 80 percent of the elderly population would require assistance, with most of the important problems being economic. Kuroda (1987) concerned about socio-economic burden due to population aging in Asia and need to consider the aged as an integral part of society. The direct impact of population aging is to increase the number of people outside the labor force (Channa and Talwar, 1987). Studies by Singh (1994) in Punjab revealed that those areas where only a small portion of the workers in the organized sectors are protected by pensions and insurance benefits, whereas the large majority of the rural landless agricultural workers and others who work in un-organized sector have no social security or social assistance. From the studies of Mishra (1991), Iyyandgalai(1994), Barai(1997), Gurumurthy(1998), Dandekar(1997) it has been concluded that due to structural and cultural change, old-age is emerging as a social problem in Indian society. Many aged persons are unable to solve their problems at the personal and familial levels, and hence look towards social assistance. Gulati and Rajan(1991) stated that future elderly population would likely to literate, but not participating in work.
studying on whether aging results from declining fertility or increasing longevity remarked that when aging results from declining fertility there is a net reduction in the economic burden and when aging results from declining mortality there is usually a net economic burden. In India the aging problem is appeared primarily due to declining mortality. These phenomena coupled with rapid social changes resulting in the gradual breakdown of the traditional family system, are likely to pose serious problems for the elderly. Several computer simulation studies that have examined the “Old Age Support” hypothesis have also come to conclusion that there is a need to have a large number of children so that at least one son grows up to look after his parents when his father becomes old (Heer et. al., 1968). The lack of suitable alternatives to children as a source of security in old age the elderly people perforce to live with their children (Posner, 1995). With several other reasons Indian society may be considered of having strong preference of male child. This preference of may have some serious setbacks for the status of women. For in provisional report of 2001 census it is reported that sex ratio in the 0-4 age group decreased (Govt. of India, 2001). Kanbargi (1985) reported that to minimize this son preference, it is important to try to reduce the reliance of parents on sons as old age security. However in connection with population aging family also undergoes transformation as a result of demographic changes, in other words corresponding to the theory of demographic transition there is also a related theory of family transition (U.N., 1994a, 1994b). The various correlates of population aging like changing age patterns of child bearing, increasing longevity
so that an increasing number of middle age workers will have living children, parents and leaving more widows are yielding new patterns and distribution of family household structures (Zeng Yi et.al, 1997).

1.4 Objectives of the present study

In a single sentence, the objective of the present work is to do a statistical study of socio-demographic profile of elderly population in Assam by (i) analyzing some socio-demographic, economic and some other factors affecting the health status, economic potentiality and their perception about importance of son, (ii) constructing an analytical model to estimate the rate of change measure for the elderly population; and (iii) to develop a model for projecting the future number of families having elderly population.

A sequential arrangement of the objectives of the work done under different chapters has been outlined below.

In chapter III, attempts have been made to study the effect of different socio-demographic, ecological and psychosocial correlates on the reported health status of the elderly population. This analysis identifies the socio-demographic factors affecting the health of the elderly population as: age, sex, place of residence, caste, family type, relation with the head of the household and education. Ecological and psychosocial factors have been located in electricity, sanitation, source of water and sleeping arrangement of the spouse. Two logistic
regression models, one for socio-demographic and other ecological have been employed to study the effect of various co-variates on the reported health status.

Chapter IV portrays the study of health problems of the elderly. To depict a brief picture of the health scenario of the elderly population a few health problem are identified as mobility, vision, cough, joint pain, and hearing problems. Respondents have been also asked to compare their health with others of their same age and their own health during age fifty. The gender differential of some health problems among the elderly also has been checked. The results have been presented in two ways, firstly, descriptive studies of health problems and secondly a logistic regression model considering the likelihood of good health as dependent variable and selected health problems as independent variable.

In chapter V, effort has been made to study the economic potentialities among the elderly in our survey area. As disease free and disability free life expectancy increases, their economic potentiality must also revalued, which is a function of actual age, disabilities, education and others. Logistic regression model has been employed to study the degree of influence of few selected socio-demographic covariates on the reported interest to earn income.

Chapter VI examines whether the elderly people recognize son more important than daughter. The analysis is presented in two ways. Firstly, on the basis of the answers, a description of the study has been presented and secondly, it measures the degree of influences of various socio-demographic factors.
influencing their answers on the basis of odds ratios obtained from logistic regression.

Chapter VII focuses to develope some improved rate of change measure for the population aging. The general measures of population aging are proportion of aged sixty and above, proportion of aged below fifteen, aged child ratio, mean age and median age. While insights from comparing the values of an aging measure between populations may be helpful, results from such comparison may be misleading due to influence of fertility, mortality and migration. Here a rate of change measure for the above mentioned measure have been developed by considering birth, death and migration rates for males and females simultaneously.

As a result of demographic and social transitions in almost all countries of the world, the size and structure of families have been changing. Chapter VIII highlights the potential of a multi-dimensional model for projecting family households having elderly population. This model includes one generation, two generation and three generation families as well as other types of families available in the survey area.

All the findings of chapter III to chapter VI are based on a sample survey entitled “A Statistical Study of Socio-Demographic Profile of Elderly Population in Assam”. The details of the survey described in chapter II.
Table 1.1 The Size and Proportion of Population in 60+ Age group from 1961 to 2021.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total (In million)</th>
<th>Proportion</th>
<th>Total (In million)</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1961</td>
<td>24.7</td>
<td>5.63</td>
<td>.51</td>
<td>4.29</td>
</tr>
<tr>
<td>1971</td>
<td>32.7</td>
<td>5.97</td>
<td>.71</td>
<td>4.72</td>
</tr>
<tr>
<td>1981</td>
<td>41.5</td>
<td>6.28</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>1991</td>
<td>55.6</td>
<td>6.58</td>
<td>1.19</td>
<td>5.29</td>
</tr>
<tr>
<td>2001</td>
<td>71.6</td>
<td>7.08</td>
<td>1.521</td>
<td>5.69</td>
</tr>
<tr>
<td>2011</td>
<td>97.8</td>
<td>8.18</td>
<td>2.19</td>
<td>6.95</td>
</tr>
<tr>
<td>2021</td>
<td>136.4</td>
<td>9.87</td>
<td>3.35</td>
<td>9.34</td>
</tr>
</tbody>
</table>

The data presented in the tables were compiled and calculated on the data available from the 1961 to 1991 Census. For the period 2001 to 2021, the figures have been projected. Source: Rajan, S. I., Mishra, U.S. and P. Ankara Sarma "India’s Elderly - Burden or Challenge?" Sage Publication. New Delhi, 1999.