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GOA: DEMOGRAPHIC TRANSITION AND POPULATION AGEING: AN INSIGHT FOR FUTURE DEMOGRAPHIC PLANNING

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Abstract

Goa, one of the smallest states of Indian Union, in the recent decades has witnessed rapid socio-economic changes resulting in positive demographic dynamics. Apart from curbing population growth associated with low fertility and improvement in literacy, it has also experienced increase in aged population. Thus, the sole objective of the paper is to analyze the demographic transition of Goa and its increasing proportion of ageing population. The data of crude birth rate and crude death rate of Goa have been collected for various decades to draw the demographic transition curve. Further, a relationship has been established with ageing population and factors influencing the process.

Goa with low fertility and declining mortality has reached the IIIrd stage of demographic transition and the proportion of aged is on the rise. Presently, nearly 8.5 per cent of the population is aged population and it is increasing at an average rate of 35 per cent per decade. The high life expectancy, high literacy and low mortality rates are the main drivers of increasing the population in aged group. To conclude, the trend of population ageing is increasing and this draws attention towards better socio-economic planning.

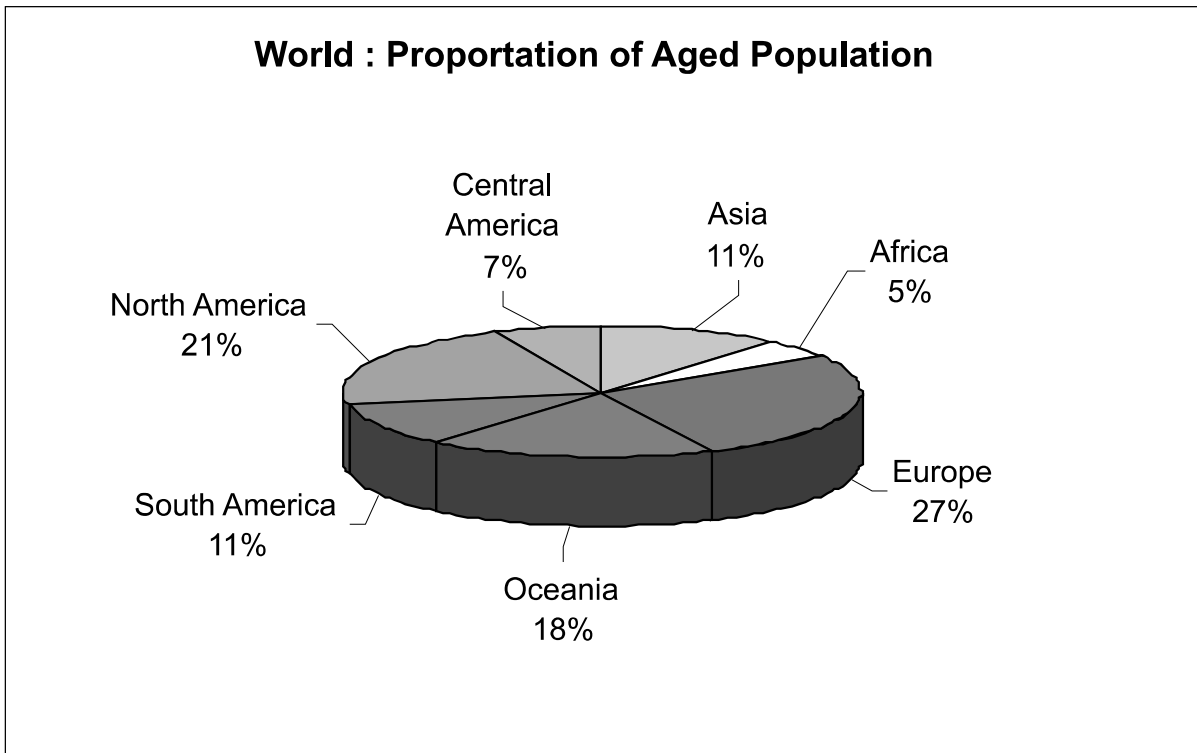
Introduction

Today, especially in the Indian context, the debatable issue is demographic transition and its consequences. Thus, demographers use the term “demographic transition” to refer to a gradual process wherein a society moves from a situation of high rates of fertility and mortality to low rates of fertility and mortality. Thus, the whole population begin to age when fertility and mortality rates decline at all ages. Therefore, demographic transition is an analysis of the principle of population a transition from a biological state of fertility to an economic or socio-cultural state of fertility (Srivastava, 1994). Whereby it becomes a function of changing socio-economic

development and modernization of society in terms of increasing literacy, increasing life expectancy, higher income level, population ageing etc.

Population ageing is defined as the process where by the proportion of children in the population decreases and that of old people increases. The process of population ageing is primarily determined by fertility (birth) rate and secondly by mortality (death) rate. With declining fertility, there is proportional increase in population of older persons.

Today ageing has become an universal phenomenon. All around the world it has been recorded that there is continuous addition of aged population to the existing population.

**Fig. 1**

Source: World Population Data Sheet- 2006, Population Reference Bureau, New York.

Improved infrastructure, availability of medical facilities, better general awareness and healthy dietary habits have increased the life expectancy and there by increasing the proportion of aged population

Goa, in the recent decades has witnessed rapid socio-economic changes resulting in positive demographic dynamics. Apart from curbing population growth, low fertility and increase in literacy, it has also experienced ageing of population. The demographic transition has decreased fertility and increased life expectancy thereby adding population to the aged group. This draws attention and concern to ultimately form the choice of the topic

Objectives

The sole objective of the paper is to analyse the demographic transition for Goa and its population ageing. The sub - objectives can be

streamlined as follows :

- Temporal analysis of population ageing
- Drivers or factors affecting population ageing
- Population ageing and various socio-economic dimensions

Methodology

The data of crude birth rate and crude death rate for India and Goa have been collected for various decades and then the demographic transition has been plotted. A relationship has been established with ageing population by using various indicators viz. birth rate, death rate, literacy, infant mortality rate, life expectancy and medical facilities.

Global Scenario

The global scenario shows that, the world's elderly population is growing in all countries. More developed countries have

relatively high proportions of elderly as they have already attained the post – transition stage where as less developed countries have lesser proportion of ageing population indicating that they still are in the late transition stage. However, the elderly population in these countries is growing at a fast rate.

Presently, on an average, only 7 per cent of the world's people are above 65 years of age implying that ageing process was still slow in case of most of the populous regions of the world. The proportion of the aged (65+) is low (5 per cent) in case of less developed countries whereas, on the other hand, more developed countries have three times more (15 Per cent) aged population. The average life expectancy in most of the less developed countries is below 65 years of age. This could be easily related with the stage of demographic transition of the region. But the fact is that the elderly population is increasing at a faster rate in the developing countries, than in the developed world.

Europe as a whole has the highest proportion of aged population in the world (Fig. 1). By the year 2025, Europe is likely to have maximum aged people and could be said region of the oldest people in the world.

North America and Oceania also have relatively high percentages of elderly population. Likewise, many Caribbean nations have high proportions of elderly population relative to their Central American neighbours. South and East Asia is ageing at the fastest. It has been estimated that every minute 23 Indians attains the age of 60 years (Nusburg, 1993) and the census of 2001 reveals that India is the second largest country in the world having aged population. The rapidity of change in East Asia stands in stark contrast to some European countries. Such rapidly ageing societies are likely to face fractious issues related to health care costs, social security and intergenerational

equity that have emerged in Europe and North America.

Demographic Transition and population ageing in India

The demographic transition for India shows that between 1901- 1921, population growth was stagnant, as birth rate and death rate remained high and equal. From 1951 onwards, there was steady growth in population and it doubled in 1991 (Fig. 2). Decline in mortality, from 15 to 8.7 and simultaneously decline in Infant mortality from 129 per thousand in 1971 to 80 in 2001, has increased the life expectancy from less than 50 years in 1960's to 64 years at present. Increasing survival rate has lead to growing of older people and population ageing. In short, as India moved into second (b) stage of demographic transition there has been increase in life expectancy and proportionate decline in fertility and mortality rates. Though the decline is a recent trend it is limited to few states.(Paul & Tyagi , 1997)

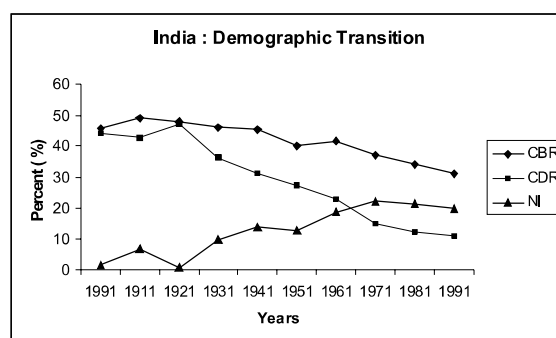


Fig. 2

Source: Census of India, 2001

The data of the aged population in India from 1901-2001 indicate that there has not been consistency in the growth rate of the aged but they have been forming an increasing share of the total population This has been reflected by an increase in the aged population and the decadal growth rate more than 30 per cent per decade since 1971. As per 2001 census the

proportion of the elderly population to the total population is 7.4 per cent and the decadal growth is 35 per cent. (Table 1) This indicates that in India as the fertility and mortality have declined, there is rapid increase in the aged population. The distribution of the elderly population into broad age group is indicative of the concentration of the older population. Expectation of life at birth has increased significantly over the decades. Increasing literacy levels, improvement in medical facilities, control of epidemics and other infectious disease, health and family planning drives, especially in rural India and overall consciousness to limit the family size has paid rich dividends. It is interesting to know that India will have nearly (177million) 10 per cent of its population as senior citizens by 2025. The increase in percentage in ageing population and its enormous absolute size has reached staggering dimensions and is indeed a cause for concern., (D'souza, 1990, Daksha,1997)

Table 1

India: Decadal Growth in Aged Population

India	+60 Population	Growth rate	Share
1901	12059846		5.06
1911	13168787	9.20	5.22
1921	13484764	2.40	5.037
1931	14208391	5.37	5.09
1941	18040000	26.97	5.66
1951	19612270	8.72	5.43
1961	24712109	26.97	5.66
1981	43167388	32.01	6.32
1991	56681654	31.31	6.70
2001	76622321	35.18	7.4

Source: Census of India, 2001

Demographic Transition and Population Ageing in Goa

From 1921 onwards up to 1960, there was continuous fall in death rate while the birth rate remained constant averaging at 30 per

thousand (Fig. 3) indicating Goa in the early second stage of demographic transition. Thereafter, higher birth rate and declining death rates, indicated that Goa was in the early second stage of transition. (Sawant, 2001)

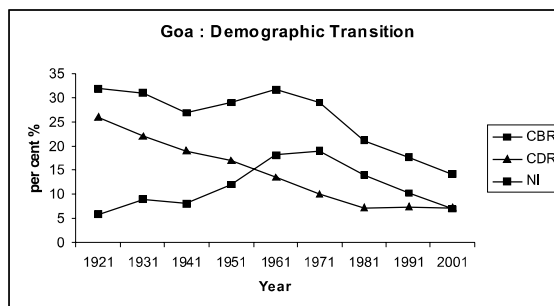


Fig. 3

Source: Census of India, 2001

From 1981 onwards, the death rate had stabilized and the birth rate also showed a downward trend signifying Goa's entry in the third stage of demographic transition. This can be revealed with crude birth rate 14.3/1000 and crude death rate 7.2/1000. Higher level of literacy, better health facilities, improved transport linkage, diversified economic activities etc. have increased the life expectancy and proportion of aged population in Goa.

A comparative analysis of aged population for the last 40 years for India and Goa shows differential equations. In 1961, when India had less than 6 per cent of its population as aged, Goa had above 8 per cent. This was owing to the fact that since Goa was under the Portuguese rule and it experienced severe economic depression, the youth out-migrated and therefore the population that the state had was of the old dependents (Gandhe, 1979). The decade of 1971 and 1981 did not show much variation between India and Goa. Proportionate population of aged in Goa rapidly declined due to various socio-economic developments. As it joined the Indian Union, it experienced voluminous influx of migrants coupled with return back of the native Goans.

(Sawant, 2002). This increase in the proportion of adult population reduced the share of aged groups. This increased the proportion of adult age group thereby resulted decline in the proportion of aged population. Since 1991, there has been gradual increase of aged population and the 2001 census shows more than 8.3 per cent aged population to the total population i.e. 1 per cent higher than India's aged population. The decade 1991-2001 shows remarkable growth rate of the aged with 36 per cent (Table 2) as compared to decadal growth of total population for recent decade i.e. 16 per cent.

Table 2
Goa: Growth of Aged Population

Year	+60 Population	Percentage	Growth Rate
1961	50566	8.07	
1971	56823	6.62	12.37
1981	73743	6.79	29.77
1991	82507	7.05	11.88
2001	112273	8.33	36.07

A sex-wise comparison of age structure of aged population for India and Goa for 2001 shows that since Goa has advanced demographic transition than that of India, the life expectancy is higher and therefore proportionate population in the all the age groups of 60+ for Goa is higher than that of India. Moreover, it is interesting to note that females exceed males for both the regions. (Table3). In Goa, male average life expectancy is 67 years for female its stands at 71 years

Table 3
Goa and India: Sex- wise Distribution of the Aged

Age groups	Goa			India		
	Total	Males	Females	Total	Males	Female
60-65	3.1	2.9	3.3	2.6	2.5	2.8
65-70	2.0	1.8	2.3	1.9	1.7	2.0
70-75	1.5	1.2	1.7	1.4	1.4	1.4
75+	1.5	1.2	1.9	1.3	1.3	1.4

Source: Census of India, 2001

Correlation Matrices

Correlation matrices have been applied to analyse the factors affecting population ageing. The population ageing has been taken as dependent variable while fertility, mortality, infant mortality, literacy and medical facilities have been taken as independent variables. For this analysis decadal data have been collected from 1971 to 2001.

As stated earlier demographic transition is an interplay of fertility and mortality. With the decrease of fertility and mortality, the population ageing increases. The human development indicators for Goa like birth rate, death rate and mortality rate are the best in country, along with Kerala and are comparable with the developed nations in the world (Economic Survey, 2006). Over the decades the fertility and mortality rates have declined to 14.2 and 7 per thousand respectively. Therefore, the correlation for both fertility and mortality with aged is negative but highly significant (-0.86 and -0.70 respectively).

The Infant Mortality Rates (IMR) not only affects the life expectancy but also the proportion of aged population. As IMR has declined from 53 to 12.4 from 1971 to 2001, the life expectancy also increased to 69 years and therefore the correlation (-0.98) shows highly significant value.

Literacy has been considered as an engine of socio-economic transformation. It is an instrument of conscientization that brings about awareness about health and diseases. (Pai Pannadikar and Chaudhari, 1983). This in turn increases life expectancy, controls fertility, decreases IMR and positively responds in increasing the aged population. Since more than 4/5th of the population of Goa is literate, the correlation of literacy with aged population is positive and is highly significant (0.88).

The correlation between the number of hospitals and proportion of aged population

Table 4
Goa: Correlation Matrices

	Aged population	Birth Rate	Death Rate	Natural Increase	Total literacy	Female Literacy	Infant Mortality Rate	Life Expect	Hospitals
Aged Population	1.000								
Birth Rate	-0.907	1.000							
Death Rate	-0.825	0.862	1.000						
Natural Increase	-0.895	0.998	0.862	1.000					
Total Literacy	0.928	-0.997	0.881	-0.996	1.000				
Female Literacy	0.951	-0.987	0.883	-0.988	0.996	1.000			
Infant Mortality Rate	-0.941	0.983	0.927	0.982	-0.993	-0.993	1.000		
Life Expectancy	0.985	-0.894	0.730	0.887	0.914	0.936	-0.908	1.000	
Hospitals	0.926	-0.920	-0.783	-0.927	0.942	0.966	-0.935	0.970	1.000

also shows a positive correlation (0.92). As health facilities increase, mortality rates decline. Presently, doctor- population ratio is 1: 586 and bed - population ratio is 1: 279 and thereby life expectancy has increased.

Conclusions and recommendations

From the preceding discussion, it can be concluded that any region advancing in the stages of demographic transition due to socio - economic transformation experiences population ageing. Increasing literacy, especially female literacy, curbing mortality and provision of medical facilities has played a crucial role in affecting positively the population ageing. Therefore, it shows positive correlation with population ageing. Education has enabled individuals to reduce fertility and mortality thereby the life expectancy has increased. Increase in the

proportion of ageing population group, though a positive indicator of general well being, but the government authorities have to plan for their social and economic benefits. Understanding ageing is more significant in terms of economic insecurity, health care and availability of human services.

The government of Goa has initiated under Twenty Point Programme (TPP) -2006 i.e. integrated Programme for Older persons - Old Age Homes , Day Care Homes and Dayanand Samajik Suraksha Yojana (DSSS) under which the elderly get a sum of Rs. 750 per month. This is to provide social and economic security. In the present day context, when the younger generation in search of employment and better prospect is compelled to move out of their homes leaving back their ageing parents, such schemes hold good. Therefore there is a need to popularize such schemes.

Industrialization, urbanization, complexity of life and growing individualism has changed the traditional concepts of family. The joint family system wherein the young and the old, the employed and the unemployed, the bread winners and the bread consumers, the kith and kin, the near relation and the not so near relations lived in harmony and happiness is gradually dwindling. The old bonds of love and respect for each other are fast disappearing. The problems of elderly in our Indian society are gradually taking the shape of those in western countries where ties and sentimental attachment are gradually disappearing. Therefore, there is a need to bring awareness amongst the youngster about their duties and responsibilities towards the senior citizens.

Happy old age planning before retirement is essential. The role - activity of an individual is important and helps in growing old gracefully. Appropriate role activity and engagement probably help adjustment and sense of psychological well - being. A high degree of regular activity is more highly correlated to successful ageing. Therefore, respective institute/ organization should hold sessions for training, counseling and interaction for their employees for enabling them to plan their retirement.

One needs to understand that the senior citizens have to plan their post retirement for themselves. The senior citizens could take up part time job to keep them active and add to their finances. Many can do social service and render service to various organization. Some activity, a hobby or group activity will avoid isolation and help in keeping good mental and physical health. Regular exercise, balanced diet and regular medical check-up will go long way in graceful ageing.

In order to de-alleviate the pressure of government on financial, health and security, even the NGO's should also come forward to

share responsibility.

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