

Demographic Transition in Japan, China, India and South Africa and their economic impacts - A comparison and the way Ahead for India

Dr. B. B. Dave

Member Postal Services Board (R), Government of India, AT- Jodhpur.

1. Abstract

Keywords

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In his book, "Wealth of Nations", Adam Smith in 1776 had first raised the question of why some countries are rich and other countries are poor. The prominent explanation with the economists for the phenomenon has been the differences in physical capital and technological knowhow. Here physical capital includes population of a country also among many other components.

The differences in wealth of nations have been in existence historically. The extent of inequalities has been very large and even today they do exist and hence the phenomenon is disturbing. It is an undisputed fact that population of a country does have some effect on economic growth of a country but the extent to which the population size and composition affects the economy has been a subject matter of study with many researchers. This paper studies the demographic transition of the four countries, selected on the basis of their different start/threshold state, differential variation in birth and death rates and also differences in occurrences of diseases like HIV etc. like South Africa, which had started with lesser threshold of population but could not follow the expected demographic transition as the death rates have not decreased as expected due to higher incidences of HIV/AIDS and as a result could not achieve that much of economic growth as was expected. Another reason for choosing South Africa is that this country is a current regional leader in Africa in terms of its institutional quality. The paper puts in perspective the major factors responsible for such differential economic growth across the countries in the world with specific reference to India. In the end the paper will examine the lessons to be drawn for India in order to capitalize fully the demographic dividend available to India.

2. Literature Review

On one extreme, there is a pessimistic view, originally propagated by Malthus that population growth tends to depress income growth, as a growing population is a drain on the national resources. On the other extreme is an optimistic view that population growth creates opportunities for development by optimum productive exploitation of the available resources that result in capital formation and income growth. However, the empirical evidence sets aside both the pessimistic and optimistic views (Bloom, D., Canning, D., & Sevilla, J. (2003)) on the effect of population growth on per capita income, which is a good indicator for measuring economic well-being of nations. The view called "Population Neutralism" started emerging since 1980s. However, it took two decades to expel the belief that population growth was the sole important indicator for demographic change. Since the beginning of the 21st. Century, people have pointed out that population age structure is perhaps the most important a factor than the total population.

Less developed countries have a large proportion of their population in the younger age groups as fertility rates are high and life expectancy is low. More developed countries have lower fertility rates and higher life expectancy and hence a large portion of their population is at higher ages. Lees (2003) and Weil (1999) examined the projected demographic transition and the effect of this transition on economic outcomes respectively. Africa stands as an outlier. Given these trends, Bongaarts and Bulatao (1999) have argued that Sub-Saharan African countries are not likely to earn the demographic dividend. Lee, Lee and Mason (2006) along with Bloom *et al.* (2003) acknowledge the ineffectiveness of the demographic transition in realizing the demographic dividend when

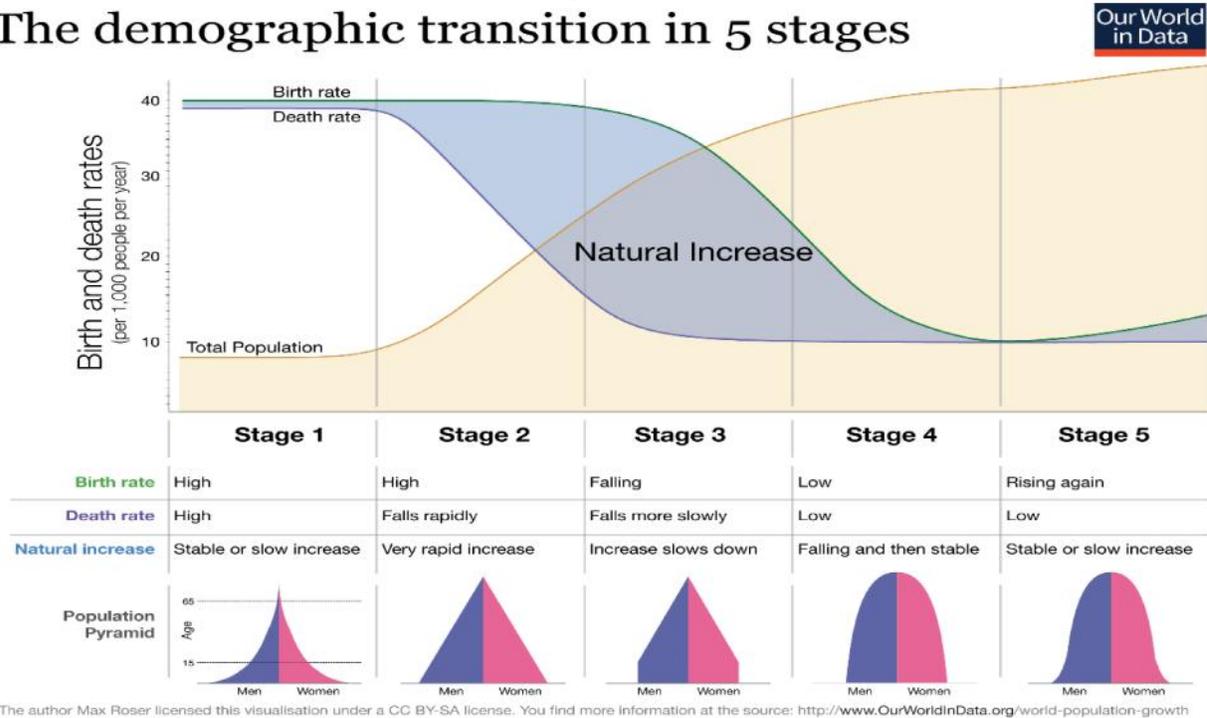
quality institutions are not in place. The institutions include law, efficiency of the bureaucracy, corruption, political freedom and expropriation risk, openness (political system, trade barriers, black market premium etc.), freedom of speech etc. Despite this list of institutions, a broader measure will include infrastructure (healthcare systems, schooling, roads, transport) etc. Sach and Warner (1997) find that the determinants of economic growth in Africa are no different from the rest of the world. Moreover, they find that the lack of openness and poor economic policies are at the root of Africa's dismal economic performance within 1956-1990, a sample period used by them. It is important to note that after publishing of the above work, many African countries including South Africa have improved their institutional quality and fertility rates have also started falling. David E. Bloom, David Canning, Gunther Fink and Jocelyn Finlay (2007) also conclude that their growth outlook is also positive for South Africa and Botswana as current regional leaders in terms of their institutional quality, even though their prospects for profiting from a demographic dividend over the next two decades are rather small.

3. The Demographic Transition Phases and their impact on the growth

The twentieth century witnessed the maximum demographic change in the World. The world added 5 billion people in a single century. However, since last three decades, we are adding one billion people every 12 to 14 years, which indicates that the population growth rate of the world has considerably slowed down. This slowing down is simplistically explained by the popular theory called "Demographic Transition Model" shown below graphically in Figure-1.

Figure-1¹

The demographic transition in 5 stages



This simplistic model assumes that the difference between the Birth Rate and Death Rate is the natural rate of population growth. Each country's demographic transition typically involves several major phases, whose duration depends on their timing and pace of changes in mortality and fertility. A brief explanation of the events observed in stages 1 to 5 have also been explained in the above figure. However, the major impacts of the above demographic transitions on economy are expected as follows:

- When the infant mortality declines and population growth takes off, the country's population tends to grow younger, and the child share of the population expands. The burden of raising large number of children tends to restrain other types of savings and investments and thus the economic growth tends to restrain.
- Later as birth rates decline, the child share of the population contracts and the working age share expands. With fewer children to care for, the adult population can work, save and invest more, all of which tend to enhance economic growth. When the work force is relatively young, the country is likely to have relatively low saving and comparatively high

rates of return. However, as a large portion of labor force reaches middle age, saving may rise and the demand for investment may fall, a phenomenon that tends to reduce the rate of return.

- Still later, as birth rates remain low and adults continue to live longer, the elder lies' share of the population in a country rises. As a result, working age adults may not have as many children to raise, but they have many old people to support and care for. In addition, the rate of savings comes down as retirees run down their savings.
- Other developments such as wars, epidemics, natural disasters, disruptions in the political, economic and policy environment can profoundly change the age-structure of a country's population in similar ways as well.

However, the data don't look as neat as this. For example, India and China started quite similarly on demographic front, but today China is far ahead of India in terms of GDP growth whereas Japan has long been in the group of top 10 developed countries. In

¹ 'Demographic Transition', 2020 (Wikipedia)

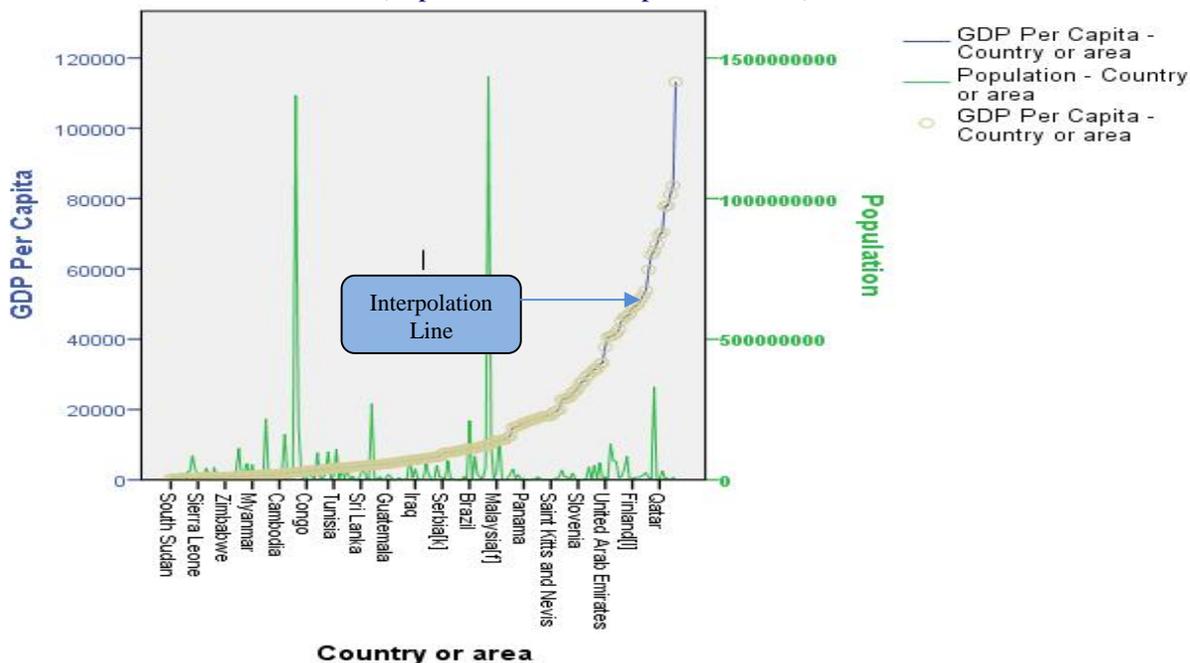
fact, China had lower GDP per capita than India in 1960 and it continued up to late 1980s until which time India was ahead of China in terms of GDP per capita. In 1990s, China surged ahead India considerably and it has per Capita GDP almost five times that of India. Similarly, the population as a whole and the age-structure of Africa is quite favorable in demographic terms; even then, its economic growth forecast in the next 45 years is not promising. The purpose of this paper is to examine and compare the demographic transitions of all the four countries that are at different states of demographic transition - **Japan, China, India and South Africa**. This paper also examines the effects of demographic changes on their economic growth and the challenges faced by them. I will try to put in perspective the major factors responsible for such differential economic growth across the countries in the world with specific reference to India. In the end the paper will examine the lessons drawn.

4. Population Neutralism

Let us now examine the ‘population neutralism’ viewpoint regarding the relationship between population and per Capita GDP of various countries of the world based on empirical data. The data on population (2019) were regressed with the data on

GDP per capita (IMF, 2019) and it was observed that the correlation coefficient was only 0.046 which shows that population and per capita income are not at all correlated. The same conclusion can be drawn from the figure-2^{2,3} below, which has been prepared on SPSS. As discussed, demographic transition refers to the transition from high mortality and high fertility to low mortality and low fertility. Mortality declines first which is concentrated among the younger ages (up to 5 years) leading to higher infant survival mostly due to sanitary measures and medical advancement and extension of medical facilities. This declining mortality produces the so-called “Baby Boom” as more children survive to adulthood. This results in increase in population. They reproduce further and a second generation is produced. In the meanwhile, if the fertility rate does not fall sufficiently, the baby boom may continue itself (becoming smaller and smaller) a few numbers of times until the fertility reduces to the replacement level (i.e. 2.1 children per woman). This rise in population is sometimes called ‘momentum effect’ which can last for generations depending on the rate at which the fertility decline is taking place

Figure-2
(Population v/s Per Capita GDP in \$)



²Data obtained from UNICEF Basic Indicators and IMF.

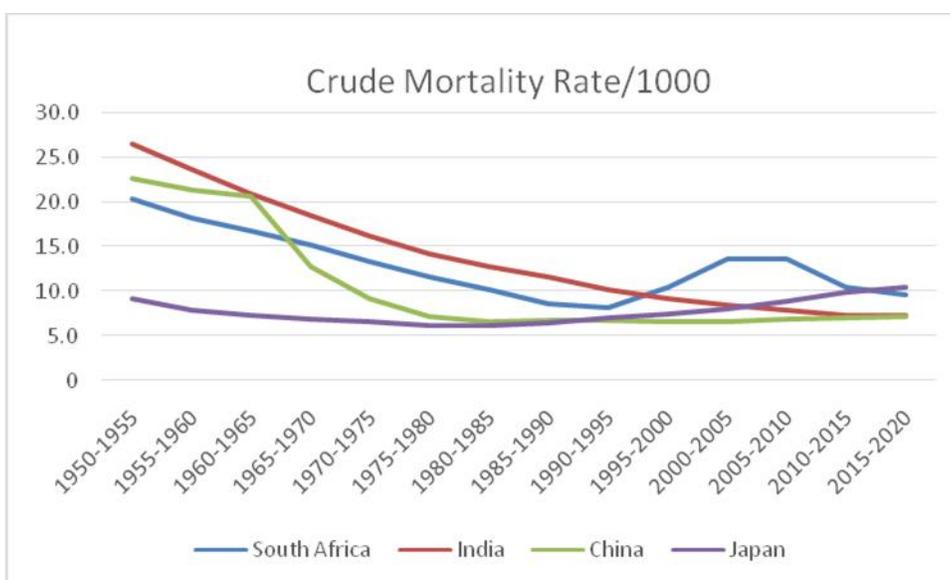
³ ‘Distribution of Wealth’ 2020 (Wikipedia)

In the countries with the higher initial base of population, fertility and mortality, the boom is higher and larger in duration than the countries that have lower initial levels of population, mortality and fertility. Most of the developing countries fall under the first category whereas most of the developed nations fall under the second category. In developed countries, the baby boom followed the second World War but was immediately followed by sharp decline in fertility rates.

(i) Crude Mortality Rates

Japan started to decline the mortality rate in 1950-55 from 9.1 per 1000 and reached 6.9 per 1000 in 1990-95, which again increased to 10.4 per 1000 in 2015-2020. In India the death rate declined from 26.4 to 7.2 per 1000 in 2015-2020. China's decline was from 22.6 to 7.1 during the period from 1950-55 to 2015-2020. South Africa also followed a trajectory where the crude death rate started with 20.3 in 1950-55 and reached 9.5 in 2015-2020 while it was 8.7 and 8.3 in 1985-90 and 1990-95; it again rose to 13.8 in 2000-05 and 2005-10.

Figure-3⁴



Hence, as far as initial Base Level is concerned, Japan holds the position of benefit among all four and China holds the benefit in terms of the steepest decline in the first 40 years and further consistent decline in comparison to other countries.

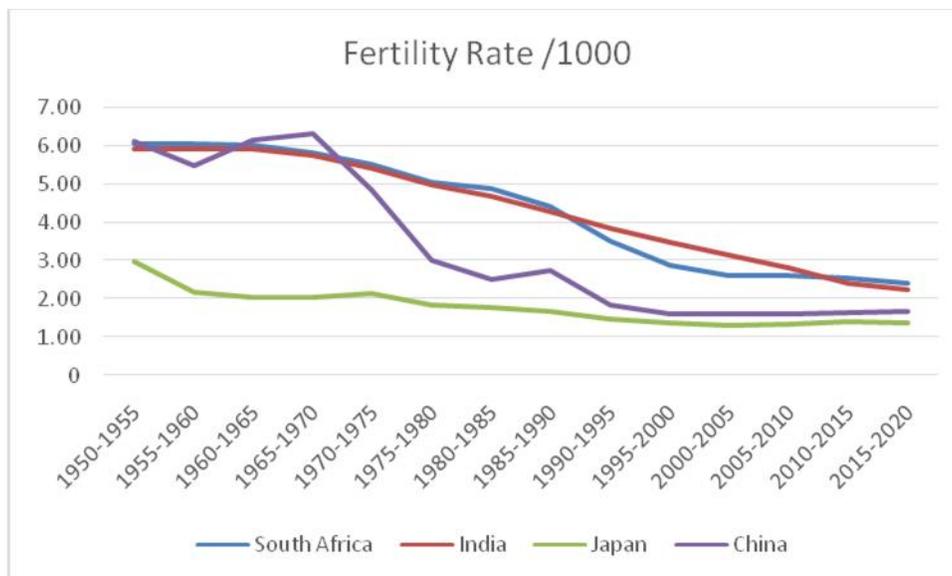
(ii) Crude Fertility Rates

In the case of fertility rates also, Japan and China are presently in a better position as compared to India and

South Africa. Japan started from the fertility of 2.96 children per woman in 1950-55 and the rate declined to 1.37 (below replacement level i.e. 2.1) by 2020. China, on the other hand started with an initial high fertility rate of 6.11 children per woman in 1950-55, but by means of certain policies of the state, it achieved the level of 1.69 by 2015-2020, which is below the replacement level of 2.1.

⁴ United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects, 2019, Online Edition. Rev. 1.

Figure-4⁵

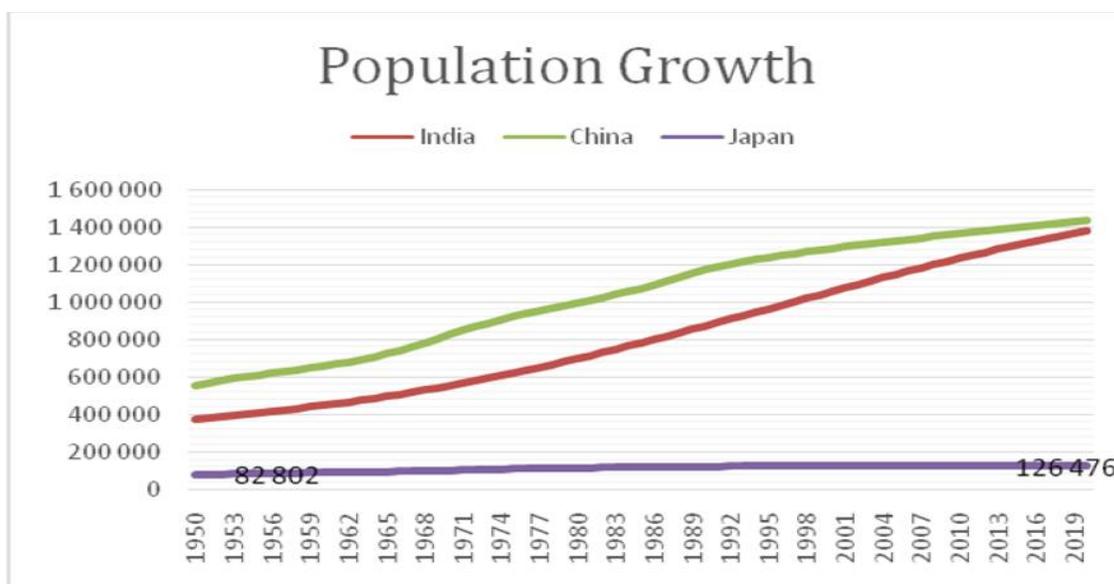


In case of India and South Africa, their initial bases were high but the decline was not as pronounced as that of China. In 2015-2020, India has the fertility level of 2.24 children per woman whereas South Africa has 2.50. Hence the population growth in these countries is expected to be high due to ‘momentum effect’ unless some strict policy measures are taken and it may extend by 10-20 years when the rates reach the replacement level.

(iii) Total Population Growth

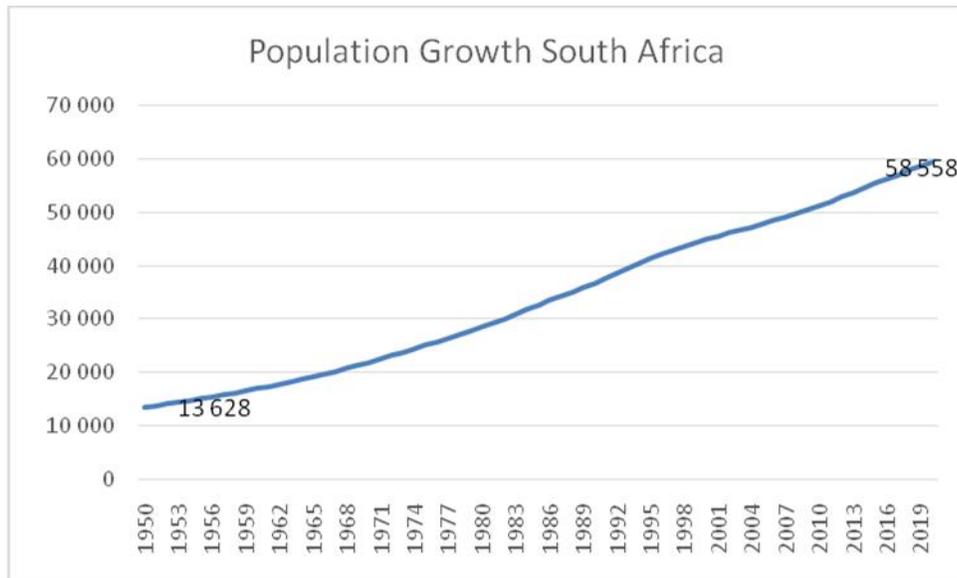
The initial base of total population during the period was again in favor of Japan. It started its journey through the demographic transition with the lowest base level of total population among all the four countries. The trajectory of population growth in all the four countries is shown below in figure-5 and 6.

Figure-5¹



⁵ United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, online Edition Rev.1.

Figure-6⁶



The following facts can be observed: -

1. Japan population started with lower base than the other three and increased very marginally due to the advantage it got in decline in mortality rate and fertility rates.
2. Africa, although had lower base, but still increase was sharp and hence lost the opportunity. In other words, despite being in relatively advantageous position as compared to China & India as well as Japan in the initial base level, due to high initial fertility and very slow decline in fertility rate put it to disadvantage.
3. Similarly, India was much below China in Base Level, but because of failure to curb fertility rate effectively & bringing to replacement level, population increase has been sharp.
4. In case of China, despite initial high population base in 1950-55, due to drastic reduction in fertility rate, it could avoid very explosive situation in population growth. Hence, with continuing lower than the replacement rate of fertility, China's population can be surpassed by India's very soon, unless effective steps are taken.

5. Demographic Dividend

As mortality declines, the proportion of children in the population eventually starts declining and the cohort initially benefitting from declining mortality keep the population of working age growing, setting the stage for an increased productive capacity of the economy on per capita basis. This creates a potential for growth but actual growth varies from country to country as a number of factors affect this conversion of potential into real growth in terms of per capita income. Another important factor is related to the behavioral aspect. During this period when the proportion of children and old age dependency taken together is low, it is expected that a country's output will grow because the working ages are the prime years for saving and investment along with technological innovation. Savings get further boost when longevity increases in the later phases of demographic transition. People save more in anticipation of longer periods of retirement, promoting further accumulation and economic growth. This process is referred to as the **"Demographic Dividend"**. There is some empirical evidence that demographic dividend has had a major positive effect on the economic growth of some developing and developed countries. When women begin having fewer children, their employment rate increases and the overall labor participation increases. This is true at least in theory.

⁶ United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, online Edition Rev.1.

However, demographic dividend doesn't always result in increase in productivity even if two countries are passing through the same phase of transition. For example, East Asia and Africa were two regions among the low- and middle-income countries, which were passing through the same demographic dividend phase during 1965 to 1990. But they are extreme examples. During this period a large group of countries in East Asia witnessed an unprecedented annual growth (almost 6%) in their income per capita for a long period of time, which is often referred to as "**East Asian Miracle**". On the other extreme, economic performance in sub-Sahara Africa was dismally low of the order of 1% per year growth in per capita income.

The mortality rate came down while the fertility rates were essentially still flat and eventually fertility rates came down. If one has a look at the data from Japan, one sees it turned out that Japan had a baby boom after World War-II, but most importantly it lasted hardly "five years" from 1946-51. In 1951, abortion was legalized in Japan and the rate of abortions increased, resulting in fewer births. That bump in 1970 would be the echo of the earlier baby boom in Japan. This 'short lived' baby boom was the main factor responsible for rapid growth when the 1946-51 baby crops reached the working age during the period from 1965 to 1990. The favorable policy environment led to the East Asia Miracle. China followed the suit and within one generation, it attained the replacement levels of fertility. On the contrary, in India, this stage of demographic transition is expected to last longer until the fertility rate reaches the replacement level.

6. Policy Implications

Due to difference in the population of various age-groups, mortality and fertility rates, the policy implications for the concerned countries vary. One of the major indicators is to determine the various dependency ratios i.e. ratio of child population, elder population and the proportion of the population in the working age group. The premise is that greater is the population of the working age group population, more productivity can be obtained by proper policy initiatives. They are also called dependency ratios. Dependency ratios are a measure of the age structure of a population. They relate to the number of individuals that are likely to be economically "dependent" on the support of others. Dependency ratios contrast the ratio of children (age 0-14) and the elderly (ages 65+) to those in the working age group

(ages 15-64). As fertility levels continue to decline, dependency ratios eventually increase because the proportion of working age population starts to decline and the proportion of elderly persons continues to increase.

Total Dependency Ratio

The total dependency ratio is the ratio of combined child population (ages 0-14) and elderly population (ages 65+) per 100 people of working age (ages 15-64). A high total dependency ratio indicates the working age population and the economy face a greater burden to support and provide social services to the child and the elderly persons, who are often economically dependent.

Child Dependency Ratio

The child dependency ratio is the ratio of the child population (ages 0-14) per 100 people of working age (ages 15-64). A high child dependency ratio indicates that a greater investment needs to be made in schooling and other services for the children.

Elderly Dependency Ratio

The elderly dependency ratio is the ratio of the elderly population (ages 65+) per 100 people of working age (ages 15-64). Increased elderly dependency ratio puts added pressure on governments to fund pensions and healthcare.

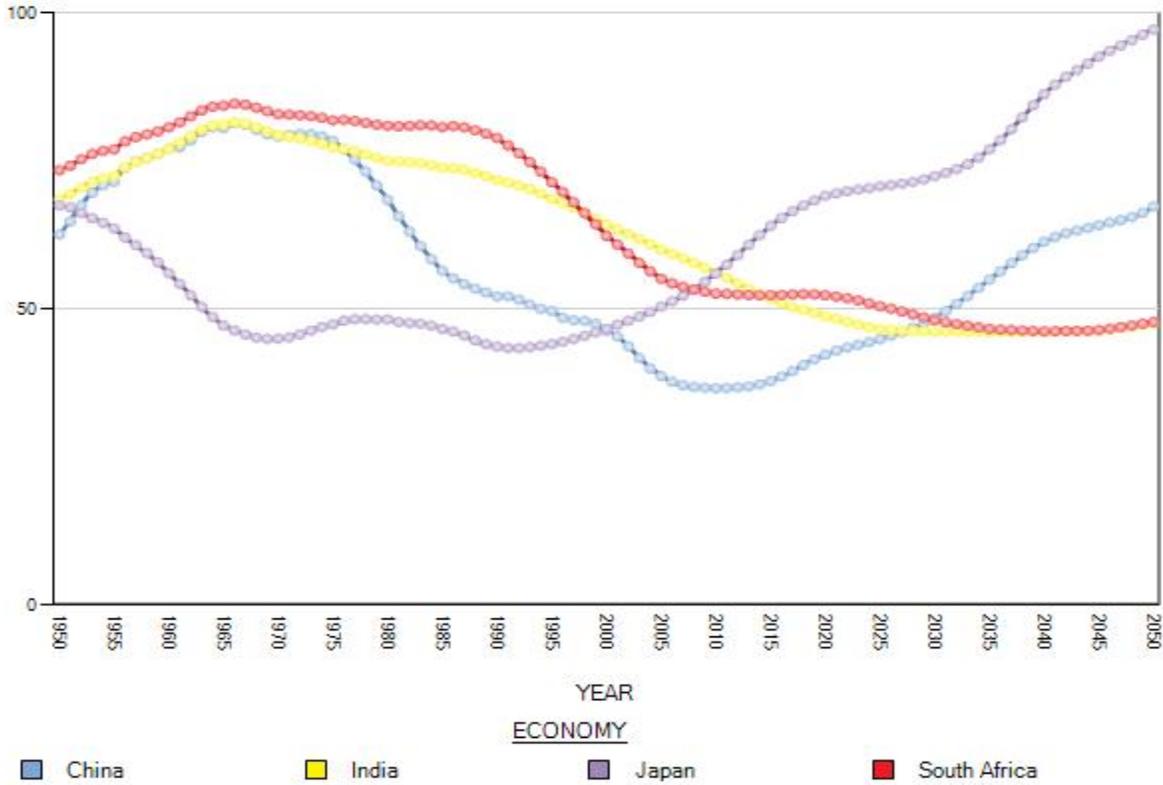
Potential Support Ratio

The potential support ratio is the number of working age people (ages 15-64) per one elderly person (ages 65+). As the population ages, the potential support ratio tends to fall.

Dependency Ratios in Japan

It can be seen from the figures 7&8 that in case of Japan, the elderly dependency had overtaken the child dependency at around 1995 and the gap between the two is increasing. Due to below-replacement level fertility rate, the child dependency is coming down further and elderly dependency is rising. In other words, the burden of dependencies will increase on the decreasing number of the working age population. Naturally, the policy priorities are different for Japan. They have to spend more on old-age population than the younger population i.e. pension, health etc.

Figure-7

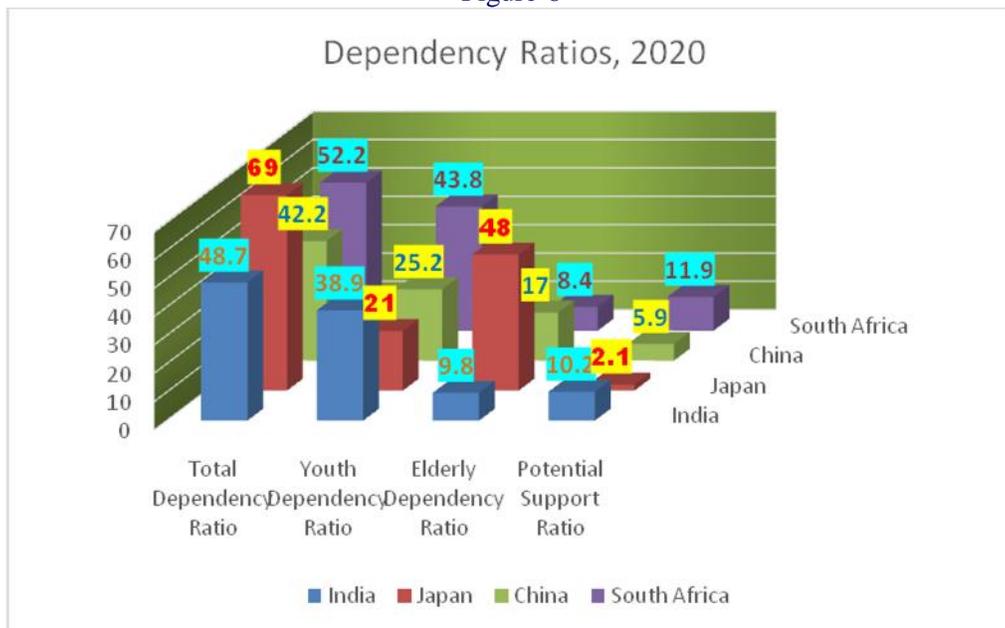


Total Dependency Ratio, annual 1950-2050 (projected)

Different countries facing similar problems are formulating different strategies to deal with them and there are a number of ways to tackle the situation e.g. increasing age of retirement, increasing taxes on working population, decreasing pension benefits, replacing public pension system with private pension benefits, allowing immigration from other countries

etc. Nevertheless, all these alternatives are attendant to different problems too and each country's political economy has a key role to play. An interesting fact is that the potential dependency ratio in Japan is just 2.1, i.e. there are only 2.1 people in working age per one elderly (age 65+) people.

Figure-8



Source: CIA World Factbook

Dependency Ratios in China

In China the child dependency ratio is still greater than the elderly dependency ratio, although the difference between the ratios has lessened overtime. However, the potential dependency ratio is 5.9. This shows that presently, the main burden is of the child dependency as well as of the growing elderly population. Hence, it has to set priorities accordingly. Therefore, different paces of decline in child dependency and rise of elderly dependency, it is expected that elderly dependency may surpass the child dependency much earlier than India.

Dependency Ratios in India

In case of India, the overall dependency is more than what China has (48.7% against China's 42.2%). Out of 48.7%, the child dependency is 38.9% whereas elderly dependency is 9.8%. Rate of fall of child dependency since 1950 is slower than China because of slower decline in the fertility rates.

Dependency Ratios in South Africa

Here the child dependency ratio is much higher than the elderly dependence ratio. With very weak macroeconomic indicators and with the smallest proportion of working-age population among all the four cases discussed, there can be reasonable apprehensions about its ability to take full advantage of the demographic dividend and convert it into real economic growth in form of per Capita GDP in near future. However, working age population will grow over-time so also the old age dependency, though slowly. Moreover, other factors like prevailing diseases like HIV/AIDS etc. will also affect the dependency factors. South Africa has to ensure through proper policies that the growth-rate increases with increase in productivity of work-force-age population.

7. Is economic growth dependent on other factors too?

By shifting the age-structure of a population, a country's demographic transition can contribute to significant changes in its economy. Those changes occur because of peoples' economic behavior—savings and investment tend to vary predictably over their lifetimes. This is also called life-cycle theory model. But there are evidences that there is nothing automatic about the link between the demographic

change and the economic growth of a country. Age distribution may merely create a potential for economic growth. Whether or not this potential is converted into real growth depends on many factors including quality of governmental institutions, labor legislation, macroeconomic management, openness to trade, education policy etc. But other factors which, in my view, are also very important are: Base-Level development state in terms of population, fertility & mortality, health, education, labor law reforms, land reforms and reforms in laws of inheritance. In addition, infrastructure & trade, communication & technology, employment opportunities, rates of prevalent unemployment in the country and culture and traditions of the county, natural resources, present national income per capita, existing level of poverty, political commitments, political instability, international environment, peace etc. also substantially contribute in realizing the potential presented by the demographic dividend in terms of per Capita GDP. Had the behavior of people been so predictive once demographic model is superimposed on economic model, the solutions would have been straight forward and simple, specially it is not so in the developing countries and the least developed countries.

8. The Indian Context

(1) Base-Level Position of Population, Rate of Fertility and Mortality

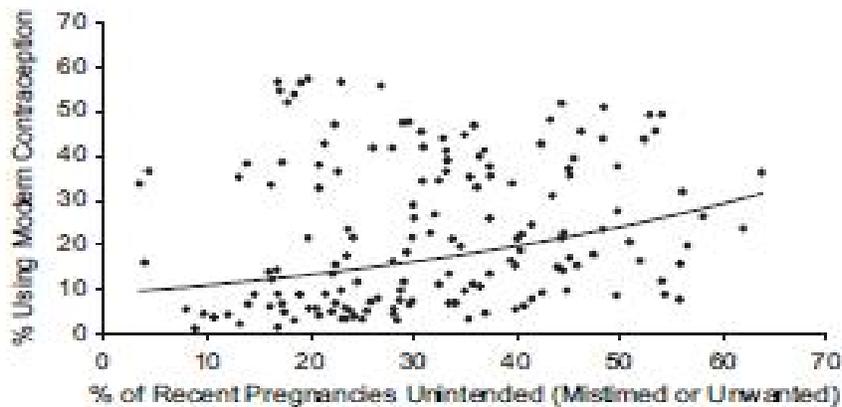
In the discussions about differences in the development status of the four countries examined, it has noticed that base-level advantage to a country on any of these accounts has benefited the country in the long run. But this rule can also not be generalized. India started on better population front than China but due to proper and timely intervention China's fertility rate plunged below replacement level within 40 years whereas India could not achieve significantly on this front. India is a democratic country and the biggest democracy in the world. The forced sterilizations in 1970s and the target-oriented family planning programs failed to yield results as the former became very unpopular among the citizens and the latter programs were reduced to achieving targets, which gave rise to a number of immoral practices to achieve the targets. Hence, some couples were sterilized twice and even children and old-age people not in reproductive age were subjected to sterilization. In all these programs, public participation was lacking.

Moreover, more importantly, after the sterilization operations the subjects were not afforded post-operative care. In India, the fertility rate consists of two parts. Behaviorally, the couples want to limit fertility to two children in many places, but still there exists a large unwanted fertility in various states of the country, especially in rural areas and less developed states. Most of the unwanted fertility^{7&8} is due to (i) undersupply of family planning measures at village levels; (ii) lack of medical staff to ensure female health; (iii) lack of female education; (iv) lesser importance to reproductive health in many places in the country; (v) predominantly, male-dominated society where the decision to bear children is made by the male members rather than female members. If this unwanted fertility is reduced by various policy measures, the rate of fertility may decline as desired and India may be able to enjoy the full fruits of the so called ‘**demographic dividend**’. There is a huge difference between the Total Fertility Rate (TFR) and the Unwanted Fertility Rate (UFR). Measures are required to be taken to eliminate the UFR so that India can achieve the replacement rate quickly. UNFPA’s report published in 2014 also reports that decades of research have shown that women in developing countries generally have more children than they

desire. One explanation for the inconsistency between desired and actual family size is the lack of access to a reliable supply of quality contraceptives and voluntary family planning services. Access has been limited for a range of economic, social and geographic reasons.

Empowering the women folk to freely decide on child bearing requires a set of policies that respect human rights and freedoms, and assure access to sexual and reproductive healthcare, education beyond the primary level (UNFPA, 2012). Lower fertility is also linked to labor -participation of women and earnings in order to contribute to demographic dividend (Bloom et al.2009; Schultz 2009; Joshi and Schultz, 2013). Lower fertility is also associated with improvements in maternal health. Maternal mortality is a major cause of death for women in young age in high fertility settings (WHO, 2011). Gakidou, Emmanuela & Vayena, Effy. (2007) analyzed demographic and health surveys of 55 countries using wealth indices and derived the relation between use of modern contraceptives and unwanted pregnancy. The results in graphical form are shown in the following figure-9.

Figure-9¹



⁷ PMC, US National Library of Medicine, National Institutes of Health, 2018.

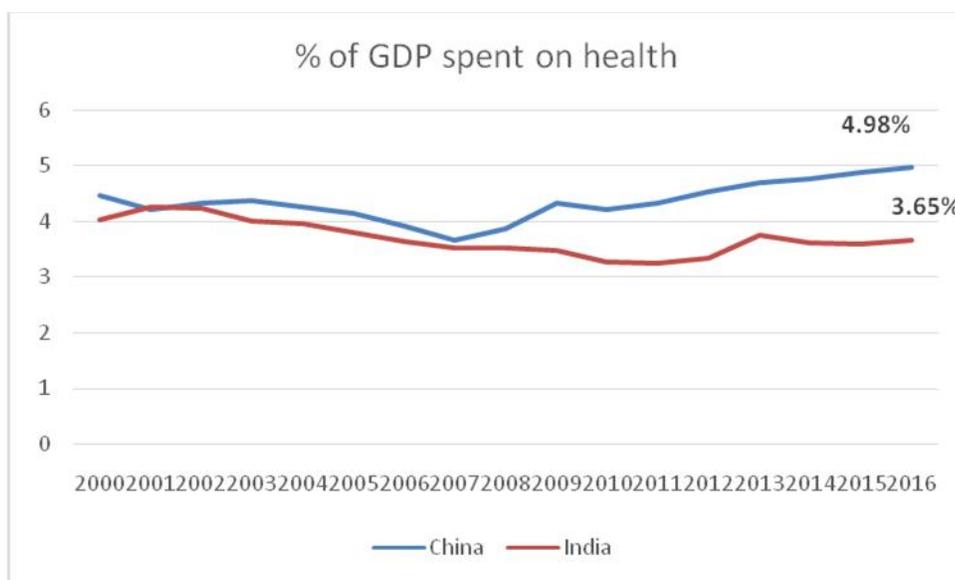
⁸State of World Population, 2018: “United Nations Population Fund data”

This exhibits that unintended pregnancies increase with lesser access to the modern contraceptives.

(2) Health

Although the total expenditure on health in India is 3.65% of GDP (2016), the government share is too low (~1.3% of GDP). Hence there is very large out-of-pocket expenditure, which is not only ineffective but also economically sub-optimal and inequitable.

Figure-10⁹



The health outcomes are very poor. Health has major effects on age structures and on labor output, income, savings, retirement age etc. that cumulatively affect the overall productivity and may have a very large influence on the proper exploitation of the potential produced by the demographic transition in the form of demographic dividend. Hence, mere extended period of high working age population is not enough a condition to ensure taking full advantage of demographic dividend and India lags behind many other developing countries on this front. This is another sector that needs extensive reforms. As Health itself forms a very wide area of study, I would not like to go into detailed issues involved.

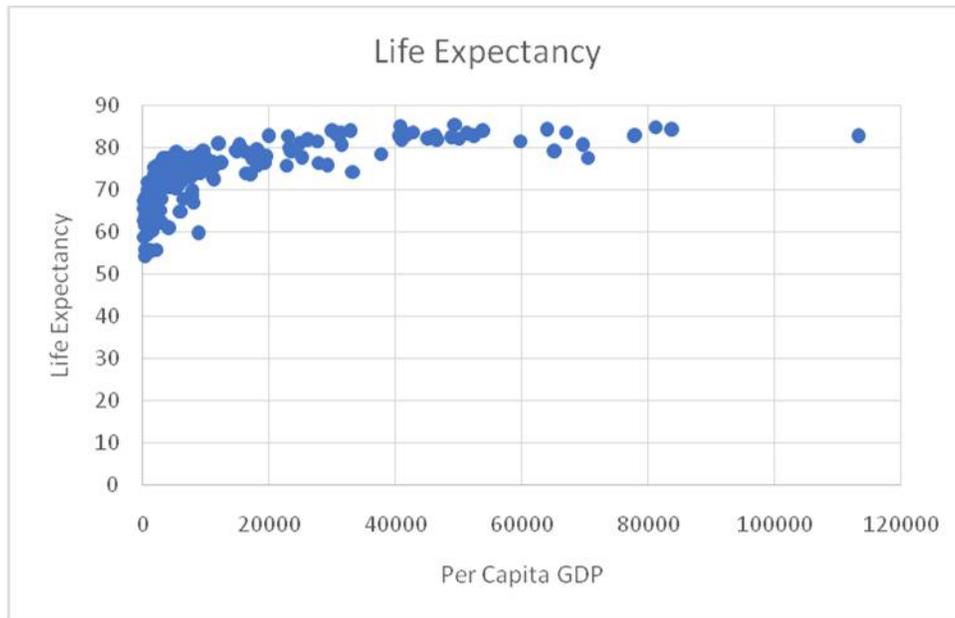
However, I would just like to introduce another concept about the relationship between health and

income. The following curve shows relation between per Capita GNP and Life Expectancy. This shows a causality between income and life expectancy, which is a good proxy of 'Health'. It is a two-way causality. There is evidence both ways. Increased expectancy causes health to improve and better health helps in increasing income.

Health is therefore, a very important factor not only for triggering and accelerating demographic transition but also in realizing the potential created by 'demographic dividend' in the form of real growth in per capita income. Health influences productivity of labor & may also increase the working years of older people in economic activity. Both of these effects will help in increasing savings, accumulation of capital and investment, which results in growth per capita income.

⁹ OECD Health Statistics 2017.

Figure-11¹⁰



Moreover, as per capita income increases, people have better access to health facilities. The relation between income and health is shown in the above figure, which according to me has two-way causality, viz.



Health has a very important role to play in reducing fertility rates. Better reproductive health facilities in all the rural and backward areas can help eliminate the UFR and also can help to reduce both the wanted and unwanted fertility.

(3) Education

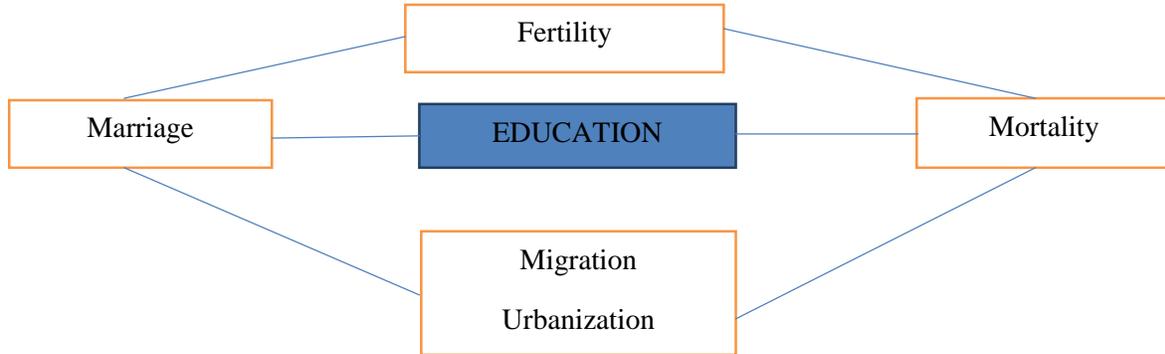
Female literacy is a major pathway to human development and for reduction in the rate of fertility. Women’s empowerment and the meeting of reproductive and sexual rights depend on literacy. Literacy is also important for maintaining sex-ratio in the society. Literacy levels considerably influence

income and employment. Through more literacy, labor participation can be increased and with increased participation, investment and savings rates among the working age population and consequently, the economic growth can be stimulated. During the said demographic dividend phase, if more of the working age population is not literate, the participation rate will come down which will put drain on the growth in per Capita income.

Therefore, level of education and participation in economic activities affect the timing as well as the pace of the demographic change. The relation between education and population can be represented as below. The relationship between education and fertility has been studied more than any other researchers around the world. It is too complex in nature and hinges on influence on factors like marital patterns. Education not only raises age of marriage but it also changes the value systems leading individuals to have lesser children

¹⁰ OECD Health Statistics 2017.

Figure-12



(4) Openness of the economy

There is empirical evidence that open economies, with good institutions and homogeneous populations have higher rates of economic growth. Openness to trade, good governance, and good macro-economic management seem to be very important to realizing the demographic dividend. India is still one of the most conservative countries and needs to open up its various markets and allow foreign investment to take place in order to stimulate growth. Reforms in various sectors, disinvestments, privatizations etc. are the measures, which are required to be taken at fast pace to maximize our gain on the demographic dividend; otherwise, it will again be a lost opportunity.

(5) Policy Environment

Policy environment is the most important factor responsible for taking full advantage of the demographic change. The so-called dividend available to India must be exploited in full to convert the potential into real growth. This requires favorable political environment in the country and political will. We have to find out ways even in the times of coalition politics for reforms to be carried out. Any shortfall on any front affecting the economic growth during this period will have long-term effect. If the per Capita Income does not rise drastically, employment does not increase substantially by opening up inflow channels of foreign investment, if international trade does not increase insufficient quantity, the demographic dividend may not yield the desired result in terms of per capita GDP. This is urgent in nature because, with the passage of time, the total dependency will increase. India may get greater percentage of population in working-age group, but mere numbers are not important. Quality of the working age population is more important than the sheer numbers. Hence, without substantial achievement in the areas of

health and education, the quality of the working-age population may decline and consequently, the growth will be adversely affected despite having larger proportion of working age population. Moreover, in future, there will be competition among countries for emigration to developed countries that are facing the problem of population ageing. They may require certain skills in the immigrants. From that point of view also reforms in education becomes very important. Since 1991, India has carried out certain reforms in some sectors but the agenda is highly unfinished on many fronts. Already there is enough literature on the same. What is required to be done is also known. There are also enough success stories available elsewhere in the world in every field. The only point I would like to emphasize is that all the unfinished reforms agenda should be implemented at the earliest so that our country can harvest the fruits of demographic dividend fully. Health, Unemployment, Poverty, and Illiteracy are the biggest road blocks still lying in our road towards sustainable growth and smooth transition to the next stage of demographic transition.

9. Conclusions and Lessons Drawn for India

From the above discussion, inferences can be drawn for India that the fertility rate in India is still above the replacement rate. It needs to be brought down to at least the replaceable rate of 2.1 as soon as possible. It is also observed that certain states in India are having high fertility rates than others. Most significant of them is the Unwanted Fertility Rate. This can be done by means of women’s education, women empowerment, encouraging use of contraceptives up to village level, increasing the availability of medical and paramedical staff etc. These regional differences need to be removed by adopting suitable policy level decisions.

Health is a very important factor not only for triggering and accelerating demographic transition but also in realizing the potential created by 'demographic dividend' in the form of real growth in per capita income. Government expenditure on health is very low as compared to many other developing countries. It needs to be increased considerably.

Education is also very important factor in deciding and accelerating realization of the demographic dividend. The relationship between education and fertility is too complex in nature and hinges on influence on factors like marital patterns. Education not only raises age of marriage but it also changes the value systems leading individuals to have lesser children. Moreover, Reforms in various sectors, disinvestments, privatizations etc. are the measures, which are required to be taken at fast pace to maximize our gain on the demographic dividend. Finally, last but not the least, the gainful employability of the youth needs to be ensured. Various measures for this have been suggested in the Indian context under policy level interventions required. Unless we attain on all these counts, the demographic dividend will be a lost opportunity.

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