Demographic Transition and Growth

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Abstract: Many developing countries are passing through a stage of demographic transition where much of its population share lie in working age (15-64). With increasing share in working age and lowering dependency ratio, this age distribution opens a window of economic prosperity. However, this window of demographic dividend is transitive in nature. Strong economic, social and political climate should be in place to harness the opportunity. If this bulge of youth is not equipped with proper education, skill and employment it may lead to disaster when the wave enters ageing stage.

Keywords: Fertility, demographic dividend, working age, growth.

1. Introduction

India is passing through a demographic transition process where majority of its population is in youth. As this bulge of youth enters into their working age period (15-64), they increase labour force of the economy. Higher share of population in the 15-64 age group arises as women reduce their child bearing and children born during the second stage of demographic transition enter into the labour market. According to UN population projection this transition process will last till 2050 then share of working age population will decline as the share of the older population grows. Period from 2015 to 2050 is termed as the demographic window of India. This is not unique to India. All the countries are passing through this transition process but at different levels. In a world where rising inequality is a fact, optimists believe that demographic dividend may be an opportunity to catch front-runners. Demographic dividend is defined as a rise in economic growth due to rise in working age population.

2. Literature Review

Becker (1992) discussed household fertility choice to cost of rearing children, parental income. Becker also talked about investment in human capital and its relationship with demand for children, a quantity-quality trade off. Bloom and Williamson (1998) showed linkages between population age structure and economic growth in explaining economic miracles in emerging Asia. James (2011) talked about opportunities and challenges of India's demographic dividend. Chandrasekhar, Ghosh, and Roychowdhury (2006) discussed employment and employability of young India's economic future.

Analysis. For a long time, it was believed that population growth dampens economic growth as it tended to suppress the contribution of technological change and capital accumulation. On the other side optimists believed that rapid population growth help through capturing economies of scale from market size and promoted both technological and institutional innovation. But research in late 1980's shows no significant impact on economic growth, positive or negative.

This way of thinking overlooked the change in age structure with demographic transition. The initial fall in mortality creates a boom generation in which there are more people at young age than in earlier generation because survival rates mainly infant and child are higher. After a period of time fertility rate also fall as people realize they do not need as many births to reach their desired family size or as desired fertility abates as a result of some combination of educational development (quantity-quality trade off), income growth and expansion of women's opportunity to work outside home.

Becker explains negative relation between parent's wage and number of children through investment in human capital. Becker's argument for fertility decline is parent's decision on tradeoff between quantity and quality of children. With increase in wage parenting become costly that is opportunity cost of child rearing is higher. So, people choose lower fertility but these children are embodied with higher human capital.

Another channel for quantity –quality trade off of children can be technological progress. If production technology upgrades quickly young people without skill, formal education cannot cope up with market demand. In pre-industrial revolution period society was mainly agricultural base. Technology was static. Children learn by observing previous generation. In this static condition trial error process serve efficiency issue. This arrangement of knowledge transfer is not efficient with rapid technological progress. It requires workers with college education that can yield better use of technology, have training, specific skill. But acquiring this human capital is costly. With imperfect capital market or borrowing constraint parents may choose less number of children with market desired human capital. So, age structure distribution due to decline in fertility rate not only creates more working age population, therefore more savings also has the potentiality to create smarter new generation. This last effect of age structure distribution is related to output per unit of input. Human capital speeds the process of technological diffusion.

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This non-synchronous fall in mortality and fertility creates bulge of youth cohort. This age structure can create a spurt in economic growth through-Peoples economic needs and contribution vary over the life cycle. Low dependency and high life expectancy induces people to save more. So saving is expected to increase during age structure transition. With decline in fertility women are more likely to enter into the labour market during this stage which increases economic activity. It is also pointed out that with fewer children people invest more on their education and heath leading to better productivity and economic benefit to household.

Population concentration at working age period may be a growth potential for a country. This can be expressed from the national income identity. Growth of per capita output can be expressed as the summation of productivity component (growth of labour productivity) and transition component (growth of labour – growth of population). If share of working age population dominates the economy, then transitional component is positive and with given growth of labour productivity, it algebraically increases per capita output (first demographic dividend). As the economy moves further with higher percentage of elders in the economy transitional components becomes negative. In this scenario sustained growth is possible if labour productivity grows substantially to offset the negative effect of ageing economy (second demographic dividend).

$$g_{y/n} = g_{y/l} + (g_l - g_n)$$

Age matters as the economic behavior (production and consumption) of an individual varies systematically with age. Where aged and children consume more than they produce, working age people produce output more than they consume and generate a surplus. People in this age group support the life cycle deficit of children and elders. So to maintain standard of living working age people must generate sufficient resources to fulfill three important responsibilities. The first is to provide for its own material needs, the second is to fund public and private transfer to children and retiree, and the third is to save enough to fund its own future retirement needs. Life cycle deficit of an individual finances through

1. Public transfer- social security system, health care
2. Private transfer- familial resources transfer from working member to children and aged
3. Asset based reallocation- private savings, mutual funds, public provident fund, housing

Importance of the three component of deficit financing varies over the economy. European countries depend heavily on public transfer but Asian countries rely on private transfer. For India child and aged are dependent on earning members of the household. Life expectancy at birth and at age 60 is longer than previously experienced. This prolonged retirement life with big cohort in old age may bankrupt public programme for the aged. Forward looking individuals may response to this crisis by either increasing labour supply (higher retirement age) or more savings or both. Some argue that future cohort will have fewer tax payers but they will be more educated and productive to offset the decline in support ratio.

3. Conclusion

It is a challenging task for Indian economic planners to exploit growth potentiality of young India with wide spread unemployment and low gross enrollment at higher education level. In depth study of household fertility choice with human capital accumulation is important to channeling youths to desired paths. It is also important to study life cycle financing pattern of India to achieve necessary conditions of second demographic dividend.

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