Can India Capitalize the Benefits of Demographic Dividend?

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Abstract

The early stage of fertility decline gives birth to a window of opportunity, a nation experiences once in a life time in the form of economic prosperity. This phenomenon is demographic dividend. The economists had focused on population growth for decades, ignoring the importance of age structure in the demographic transition. People's economic behavior changes at different stages of life and changes in the age structure of the population, significantly influences economic growth. The objective of the paper is to examine the relationship between working age ratios and economic growth in different Indian states and identify the factors that influence Demographic Dividend at state level. An econometric analysis is done to see the impact on growth rate of Net State Domestic Product per-capita on initial Net State Domestic Product per-capita, initial level of working age share from 25 years to 59 years and rate of growth of working age share and other control variables that affect and determine the economic growth. The paper also studies the internal composition of work-force and disaggregates age structures into various groups. The findings of the paper reveal that NSDP per capita has been found to be highly significant implying conditional convergence possibilities of Indian states during 2006-15. Secondly the level of working age population and rate of growth of working age share is found to have large and significant impact on economic growth. 1% increase in working age population increases the growth rate of NSDP per capita by 90 percentage points. But 1% increase in the rate of growth of working age share reduces the growth rate of NSDP per capita by 0.5 percentage points. The quantum of dividend is large but a large part of working age population is either unemployed or underemployed or is not considered employable in majority of the Indian states. The findings also indicate that the share of working age population aged 35-39 and 50-54 contribute significantly to the growth rate of NSDP per-capita. The author concludes that it is the highly educated or qualified with work experience that get productively absorbed in the labour force and the mature adults that drive the mature productivity process.

JEL Classification: I25, J11, O47

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Introduction

The economists, demographers and social thinkers have debated on the impact of population growth on economic development. Whether population growth is detrimental, contributes and promotes or is independent of economic development has been examined with evidences. The focus was on population growth and population size instead of age structure of the population. Later it was recognized that people's economic behavior differs at different phases of the life-cycle and change in the age structure significantly contributes to the economic growth. A rise in the working age population creates a window of opportunity that can spurt the economic growth provided that policy institutions contribute to productive employment opportunities. The working age population has multiplier effect on productivity and human capital policies that virtually leads to the economic development and wealth creation. This phenomenon of accelerated economic growth when working age population grows at a faster pace that dependent population, unleashing a one time opportunity in the life span of a nation is demographic dividend.

India has limited window of opportunity that shall be open till 2040. Seizing the demographic dividend is neither

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automatic nor guaranteed. It requires favorable policy environment and institutions in health, education, family planning, labor market, trade etc. In order to harness the maximum benefits of demographic dividend, India has to productively employ its working age population. Given the deficit in human capital and lack of sufficient formal sector jobs it is a huge challenge to skill, absorb and deploy millions of people entering labor force every year. The demographic dividend turns out to be demographic liability or demographic disaster in the absence of appropriate employment opportunities and quality human capital.

Literature Review

The Population Reference Bureau defines Demographic Dividend as follows:

"The demographic dividend is the accelerated economic growth that may result from decline in a country's mortality and fertility and the subsequent change in the age structure of the population. With fewer births each year, a country's young dependent population grows smaller in relation to working-age population. With fewer people to support, a country has a window of opportunity for rapid economic growth if the right social and economic policies are developed and investments made."

A fall in the birth rate changes the age distribution such that young working age population produces more and consumes less, hence enhancing the investments in development and welfare of the family. The change in population age structure creates a divergence between production and consumption. Young people produce more while aged population consumes more. This gives birth to demographic dividend which is witnessed in a nation with large number of people in working age and few dependents.

With large number of people in working age and relatively few dependents, the nation can devote more resources in investment in human capital, education, health, technological up-gradation and thereby contribute to economic growth. The high ratio of working age people (15-59) to dependents (0-14) and (60 & above) greatly contribute to an increase in per-capita income that acts as a dividend for any nation.

Demographic Dividend can be delivered with the help of three mechanisms

- ***Labour Supply***

  A higher rate of growth of labour supply ensures greater contribution ensuring that the per capita production shoots up. Women participation also increases with the fertility decline thereby adding to the workforce contribution.

- ***Savings***

  People of the age group 40-65 save more and thus a higher savings gets channelized into higher investments and higher per capita income. Accumulation of capital and wealth gives birth to second demographic dividend whose benefits can be reaped by a nation indefinitely.

- ***Human Capital***

  Human capital is labor that is skilled, qualified and knowledgeable and that can handle sophisticated machinery and is innovative and employable. The process of human capital formation is possible with health, education and employability skills that help in materializing the demographic dividend in the long run.

But this dividend is not automatic, neither is the window of opportunity open for infinite time period. The harsh reality is that the window of opportunity closes after a particular time span. The country sees decline of productive young workers and increase in middle-aged and dependent elders. The nation has to invest in education, skill development, health, employment generation and create productive work opportunities, to reap and capitalize demographic dividend. The duration of window of opportunity depends on how quickly fertility rates fall. As boom generation matures and the age structure retires, the process of population ageing starts. The dependency ratio goes up and nation has to support its growing elderly population. The transition from positive economic development and innovation to rising costs of public pensions and demographic liability follows with the process of population ageing. Hence over a period of time the window of demography in form of demographic dividend closes down and the demography becomes a burden for the entire nation, unless it is utilized intelligently.

The Importance of Age Structure

The economists had focused on population growth for decades, ignoring the importance of age structure in the demographic transition. People's economic behavior changes at different stages of life and changes in the age structure of the population, significantly influences economic growth.

For example, for young health and education is the most important concern while for prime-adult labour markets and housing would be key concerns and for aged again health care and retirement is an essential need. The relative sizes of each of these groups in population changes and that affects their economic behaviour. It is an opportunity for government to capitalize on dividend, when the number of working age population grows larger relative to the dependent population. It is during this time that income grows faster than consumption and can act as major economic spur. Conversely in the absence of proper policy environment, health, education, employment and social welfare system, harnessing this dividend would be difficult.

Age structure can be disaggregated into various age groups like 15-29, 15-34, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59 and 60+. Age group 15-29 and 15-34 represents youth working age population. Youth is either pursuing education or is productively employed in the labor market. The other side may be youth who is underemployed or unemployed. Age group 35-39 and 40-44 represents highly educated individuals with some job experience. It is this age group that drives the process of absorption and contributes effectively to economic growth. Similarly we can classify 50-54 and 55-59 as mature adult group who are highly experienced and knowledgeable and contribute to the mature productivity process. By emphasizing on the internal composition of work-force we can better analyze the impact of working age population during different time-span on economic growth. A young nation has an upper hand in terms of age structural transition over ageing economies.

Empirical Evidence

Empirical evidence validates the claim that share of working age population and growth rate of working age population positively influences the process of economic growth. James (2008) had confirmed a positive relationship between growth of working age population and growth of income per- capita taking data from (1971-2001). But the author did not isolate the difference between overall population growth in all age groups including the working age ones and demographic dividend where population growth occurs only in the working age group (15-59) years. The deficiency was overcome by Kumar (2010) by introducing variable for growth in share of working age populations. The findings of the author concluded that the Indian states with higher ratio of working age populations grew faster than the rest.

Shekhar Aiyar and Ashoka Mody in their IMF Working Paper (2011) titled 'The Demographic Dividend: Evidence from the Indian states' examined the variation in the age structure of the population across 22 Indian states, with data at ten year interval from 1961 to 2001. After correcting for the inter-state migration, it was found that there is large and significant impact of the level and growth of the working age ratio on economic growth per-capita. The results imply that demographic dividend could add up to 2 percentage points per annum to India's per-capita GDP growth over the next two decades.

Vasundhra Thakur, (2012) in her paper titled 'The Demographic Dividend in India: Gift or curse?' found that the growth in the working age ratios had negative impact on the economic growth per-capita. Saibal Ghosh (2016) in his paper titled Estimating the demographic dividend: Evidence from Indian states calculated the direct and the indirect demographic dividend that adds up to 1.6 percentage points including the control variables like physical, health, educational and financial infrastructure and policy variables. The findings concluded that both the share of working age population and its rate of growth has positive and statistically significant impact on the economic growth.

There are literature gaps in the empirical papers where most of the research papers on demographic dividend consider working age population between 15 years to 59 years instead of 25 years to 59 years. This is questioned because between 15 years to 25 years majority of the youth population is either pursuing secondary education or higher education and is not a part of the labor force or the working age population. Similarly no study has been done

in India's context where internal composition of the age-structure is taken into consideration. We make an attempt to remove these deficiencies and scrutinize the impact of working age population (25-59) and the different age structures on the economic growth of different Indian states.

Objectives

- Examine the relationship between working age ratios and economic growth in different Indian states.
- Identify the factors that influence Demographic Dividend at state level.
- Analyze the internal composition of the work-force and age structures into various groups and its impact on economic growth per capita.

Research Methodology

Following Barro and Sala-i-Martin (1995) & Bloom and Canning, (2004), we use a standard conditional convergence equation to derive the relationship between the per-capita income growth and demographic variables (age structure).

From the derived theoretical model per-capita income has been decomposed into share of working age population (WP/L), rate of growth of working age population (WP/P) and income per worker (Y/L). The generic form of equation is

$$g\_NSDP_{pci,t} = \beta_1 NSDP_{pc,i,t-1} + \beta_2 WAS_{i,t-1} + \beta_3 g\_WAS_{i,t-1} + \gamma' X_{it} + f_i + \eta_t + \varepsilon_{i,t}$$

$g\_NSDP_{pci,t}$ is the growth rate of NSDP per-capita for different states i in the year t

$NSDP_{pc,i,t}$-1 is the initial per-capita income

$WAS_{i,t-1}$ is the working age share which is equivalent to Working Population (15-59)/Total Population

$g\_WAS_{i,t-1}$ is the growth in the share of working-age population in the year t

X_{it} represents control variables that might impact labour productivity.

f_i is time-invariant fixed effect capturing state-specific effects.

η_t is time dummy capturing effects in the year t.

The main regressors are log Net State Domestic Product per-capita, Log Working Age Share and Rate of growth of Working Age Share over time t in state i. After carrying out Hausman Fixed Random Effect Test, it was concluded that the fixed effect model will be suitable for analyzing the impact of working age population on rate of growth of Net State Domestic Product per capita for all states. There may be endogeneity between growth in ratio of working-age to total population and economic growth of different states. After checking for endogeneity it was found that Wu-Hausman F-test values are 0.018 (p=0.89) and hence we cannot reject the null hypothesis that the variables are exogenous. Similarly Durbin chi-square test also supports that the variables are exogenous. Hence we do not carry out instrumental analysis in this case.

Data Sources

A balanced panel data set of 19 major Indian states has been incorporated in the analysis. The data ranges from 2006-15 where yearly analysis has been done.

Variable	Definition	Data Source
NSDP	Ln (Net State Domestic Product per capita)	Central Statistical Organisation &Reserve Bank of India
Rog (NSDP)	Rate of growth of Net State Domestic Product per capita	Central Statistical Organisation
Log WAS (25-59)	Working age Share Working age population (25-59)/ Total Population	Indiastat.com
Rate of growth of WAS (25-59)	Rate of growth of Working age population (25years to 59years)	Indiastat.com
Sex Ratio	Females per thousand people	Census of India, various years
Power	Per-capita Availability of Power	Reserve Bank of India (RBI)
GER (E)	Gross enrolment Ratio at Elementary level	Publication Statistics of School Education & U-DISE-NUEPA
GER (S)	Gross enrolment Ratio at Secondary Level	Publication Statistics of School Education & U-DISE-NUEPA
GER (H)	Gross enrolment Ratio at Higher Level	Ministry of Human Resource Development, Department of Higher Education, New Delhi
Birth Rate		Office of the Registrar General and Census Commissioner, India & NSS
Infant Mortality Rate		Ministry of Health & Family Welfare, Govt. of India
FERTILITY	Fertility Rate	Office of the Registrar General and Census Commissioner, India
Population Doctor Ratio		Ministry of Health & Family Welfare, Govt. of India
Number of Government Allopathic Doctors		Ministry of Health & Family Welfare, Govt. of India
Social Expenditure	State-wise Expenditure on Social Sectors in India	Reserve Bank of India
Capital Expenditure	State-wise Capital Expenditure in India	Ministry of Finance, Government of India

Data on growth of working age population share has been calculated by using following equation

$$\alpha = (WAS1 - WAS0 / WAS0) * 100$$

Where α is growth rate in working age share

WAS_1 is the working age share of the present year

WAS_0 is the working age share of the previous year

Results

Table 9.1 summarizes the impact of working age share from 25 years to 59 years on rate of growth of NSDP per capita. Log NSDP per capita has been found to have significant impact on growth rate of NSDP per capita implying divergence possibilities of Indian states during 2006-15. Secondly both working age population and rate of growth of working age share is found to have large and highly significant impact on economic growth. This states that both level and growth of working age population significantly influences per-capita income growth. A high R2 in all 12 models estimated indicates greater reliability.

Table 9.1

Regression Results (OLS Estimates) when working age share ranges from 25 years to 59 years

The Impact of Demography on rate of growth of Net State Domestic Product per capita

Dependent Variable : Rate of growth of Net State Domestic Product per capita						
Variable	**Model 1**	**Model 2**	**Model 3**	**Model4**	**Model 5**	**Model 6**
Log NSDP pc	40.701*** (8.000)	40.217*** (8.830)	32.257*** (6.348)	40.666*** (8.128)	42.336*** (8.674)	41.160*** (7.976)
Log WAS (25-59)	89.935*** (22.33)	79.762*** (23.889)	74.054*** (24.358)	89.984*** (22.454)	94.237*** (23.119)	91.941*** (22.626)
Rate of growth of WAS (25-59)	-0.514** (0.250)	-0.614** (0.258)	-0.270 (0.256)	-0.516** (0.241)	-0.542** (0.255)	-0.519** (0.248)
Control Variables						
Sex Ratio		0.0039 (0.0036)				
Infant Mortality Rate			-0.009 (0.092)			
Fertility Rate				0.0003 (0.010)		
Power					-0.002 (0.004)	
Log Gross Enrollment ratio (Elementary)						3.614 (4.094)
State dummies	YES	YES	YES	YES	YES	YES
Time dummies	YES	YES	YES	YES	YES	YES
R2	0.472	0.466	0.501	0.472	0.473	0.475
Number of Observations	163	150	154	163	163	163

Standard errors in parentheses

***, ** and * denote statistical significance at 1, 5 and 10% respectively

Table 9.2

Regression Results (OLS Estimates) when working age share ranges from 25 years to 59 years

The Impact of Demography on rate of growth of Net State Domestic Product per capita

Dependent Variable : Rate of growth of Net State Domestic Product per capita						
Variable	**Model 7**	**Model 8**	**Model 9**	**Model10**	**Model 11**	**Model 12**
Log NSDP pc	53.384*** (12.809)	36.869*** (7.913)	46.779*** (9.786)	45.395*** (8.595)	32.669*** (9.823)	42.150*** (7.960)
Log WAS	133.381*** (35.698)	82.311*** (24.776)	82.296*** (29.190)	82.614*** (24.978)	93.645*** (22.658)	99.639*** (22.356)
Rate of growth of WAS	-0.943** (0.381)	-0.367* (0.218)	-0.220 (0.330)	-0.248 (0.273)	-0.470** (0.234)	-0.571** (0.267)
Control Variables						
Log Gross Enrollment ratio (Secondary)	-3.495 (2.623)					
Log Gross Enrollment ratio (Higher)		-2.615 (1.636)				
Population Doctor ratio			0.00003 (0.00009)			
Number of Government Allopathic Doctors				-0.0001 (0.0001)		
Policy Variables						
Social Expenditure					0.0044 (0.0096)	
Capital Expenditure						0.292 (0.278)
State Dummies	YES	YES	YES	YES	YES	YES
Time Dummies	YES	YES	YES	YES	YES	YES
R^2	0.471	0.463	0.497	0.506	0.534	0.482
Number of Observations	128	127	123	142	103	154

Standard errors in parentheses

***, ** and * denote statistical significance at 1, 5 and 10% respectively

Sex ratio, Infant Mortality rate, Fertility rate and Power are controlled for assessing their impact on per-capita income growth. In model 2, sex ratio is incorporated since the higher the proportion of females to males the higher is the probability of female demographic dividend being capitalized. Sex ratio is proxy indicator of social development, as bias or discrimination towards women could have an impact on fertility rate, health and education of child, malnutrition and range of other factors that indirectly influence economic dividend of different states in India. But unfortunately better sex ratios are confined to southern states like Kerala, Karnataka, Tamil Nadu, and Andhra Pradesh. Power variable gives an insight of the infrastructure and is not found to have positive and significant impact on economic growth in Model 5. Although India has improved tremendously in terms of power, we need revolutionary changes in exploiting renewable resources like solar energy and nuclear energy instead of relying on the traditional methods. This would give a major boost to the manufacturing sector growth that has been stalled due to low private investment infused in the economy.

Model 6, 7 and 8 takes into account the education dimension and model 9 and 10 explains the health dimension. Social expenditure and capital expenditure are policy variables that are taken into consideration. A higher quantum of social sector expenditure enhances human capital and benefits the bottom sections of the society. It also helps in achieving sustainable development goals that are essential for holistic development of the nation. Model 11 and 12 have reported that social expenditure and capital expenditure are not statistically significant although a positive coefficient indicates that they are instrumental in economic growth. (Table 9.2)

Table 9.3

Two Stage Least Square Regression Results of working age share population of different age structures

The Impact of Demography on rate of growth of Net State Domestic Product per capita

Dependent Variable : Rate of growth of Net State Domestic Product per capita							
Variable	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**
Log NSDP pc	36.022*** (6.226)	32.491*** (5.966)	35.444*** (6.004)	31.934*** (6.079)	34.516*** (6.709)	30.825*** (6.335)	32.480*** (6.401)
Log WAS (25-29)	15.519* (8.927)						
Rate of growth of WAS (25-29)	-0.045 (0.138)						
Log WAS (30-34)		-10.145 (15.903)					
Rate of growth of WAS (30-34)		0.029 (0.148)					
Log WAS (35-39)			26.299** (13.176)				
Rate of growth of WAS (35-39)			-0.179 (0.238)				
Log WAS (40-44)				6.737 (15.891)			

Rate of growth of WAS (40-44)				-0.070 (0.140)			
Log WAS (45-49)					9.898 (11.832)		
Rate of growth of WAS (45-49)					0.001 (0.107)		
Log WAS (50-54)						29.897** (12.261)	
Rate of growth of WAS (50-54)						-0.297* (0.167)	
Log WAS (55-59)							3.547 (6.929)
Rate of growth of WAS (55-59)							0.103 (0.146)
Instruments							
Lag WAS	YES	YES	YES	YES	YES	YES	YES
Lag Birth Rate	YES	YES	YES	YES	YES	YES	YES
State Dummies	YES	YES	YES	YES	YES	YES	YES
Time Dummies	YES	YES	YES	YES	YES	YES	YES
R2	0.450	0.437	0.458	0.438	0.444	0.426	0.432
Number of Observations	143	143	143	143	143	143	143
First Stage F-statistics	23.167	62.158	77.639	69.31	63.16	18.79	14.71
Over identifying restrictions (H0 : Instruments uncorrelated with the error process) Sargan (score) chi 2 p value	0.0179 (p= 0.893)	1.076 (p=0.29)	0.207 (p= 0.648)	0.537 (p=0.46)	0.562 (p=0.453)	1.405 (p=0.235)	1.884 (p=0.169)
Basmann chi2(1) p value	0.0141 (p=0.905)	0.857 (p=0.35)	0.164 (p= 0.685)	0.426 (p= 0.51)	0.446 (p=0.504)	1.121 (p=0.289)	1.509 (p= 0.219)
Tests of Endogeneity Dubin (score) chi2 p value	4.343 (p=0.0372)	1.984 (p=0.15)	3.495 (p= 0.061)	6.622 (p=0.01)	2.31 (p =0.128)	5.216 (p=0.02)	6.166 (p=0.013)
Wu Hausman p value	4.322 (p= 0.039)	1.947 (p=0.16)	3.462 (p= 0.064)	6.69 (p= 0.01)	2.266 (p=0.134)	5.22 (p=0.023)	6.212 (p=0.013)

Standard errors in parentheses

***, ** and * denote statistical significance at 1, 5 and 10% respectively

Table 9.3 shows the internal composition of work-force and disaggregates age structures into various groups. In an attempt to assess the impact of working age population on economic growth, the proportion of working age population is further classified into different age structures like 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55- 59. The endogeneity tests were conducted individually and it was found that there is endogeneity between rate of growth of working age share of different age structures and the rate of growth of per-capita NSDP. Wu-Hausmann test and Durbin Chi-square reject the null hypothesis that variables are exogenous. Hence simply Ordinary Least Squares (OLS) would be inadequate to assess the results and they would be biased due to presence of endogeneity. While we are carrying out the two stage least squares (2SLS) we need to ensure that the instrumental variables used in place of rate of growth of working age share are good. For the instrument variable to be good it must be exogenous uncorrelated with the error term of the structural equation and it must be partially correlated with the endogenous variable. This is important since weak instruments would lead to misleading results and in that case two stage least squares is worse than OLS. The F-values of all models have been greater than 10 and the partial R2 values have been high. It is also essential to keep the sample size large as IV estimator can have substantial bias in the small samples. Modi & Aiyar have identified that one instrument would lead to the problem of over identifying restrictions (instruments are uncorrelated with the error process) and hence two instruments are used to carry out the analysis. We have used lagged working age share of different age structures and lagged birth rates as instruments in our analysis. The standard tests of over identifying restrictions were conducted for each model and it was found that that the Sargan chi2 and Basmann chi2 reject the null hypothesis that the instruments are uncorrelated with the error processes.

We find that the initial level of Net State Domestic Product per capita is positive and has significant impact on the growth of per-capita income. This indicates a positive relationship between growth rates of per-capita income and initial values of per-capita income and hence does not support the idea of catch-up to the steady-state. Hence states with higher initial level of per-capita income can also grow at a faster pace than their steady states and states with lower level of initial per-capita income grow at a slower pace than their steady state. This is the idea of conditional convergence. In model 1 we find that, the impact of working age population between 25 to 29 years on economic growth is positive and statistically significant at 10% level of significance. In model 2 we assess that, the working age population between 30 to 34 years and the rate of growth of working age population does not significantly influence NSDP per capita growth. In model 3 we find that, the impact of working age population between 35-39 years on economic growth per capita is found to be high, positive and statistically significant at 5% level of significance.

The model 4 and model 5 show that level of working age population between 40 to 44 and 45 to 49 years and their rate of growth of working age population are not statistically significant. In model 6 it is found that level of working age population from 50 to 54 years and the rate of growth of working age population is statistically significant at 5% level of significance.

Major Findings of the study

The major findings of this study are given below:

1. 1% increase in the working age population (25-59) increases the NSDP per-capita growth rate by around 90 percentage points and 1% increase in the rate of growth of working age share reduces the NSDP per capita growth rate by 0.5 percentage points with a range varying between 0.22 to 0.9 percentage points. This is attributed to unemployment and lack of productive employment opportunities in potential states.
2. Our findings reveal that working age population between 25 to 29 years is positively associated with economic growth of per-capita income. 1% increase in the working age population (25-29) increases the per-capita growth (NSDP) by 15.51 percentage points in 2006-15. This can be attributed to the fact

that the median age of the working age population is around 27 years and a large number of youth have entered this phase. But a negative rate of growth of working age population implies that, there exists problem of unemployment and lack of employability skills among the youth.

3. Our findings indicate that the relationship between working age population (35-39 years) and economic growth per-capita is found to be high, positive and statistically significant. This age group between 35-39 years represents individuals who are highly educated and have reasonable amount of job experience. They are part of skilled workforce that positively contributes to human capital formation and economic growth. 1% increase in working age population (35-39) increases the per-capita growth rate by 26.29 percentage points.

4. The results also reveal that the level of working age population from 50 to 54 years and the rate of growth of working age population is statistically significant at 5% level of significance. This could be interpreted as 1% increase in working age population (50-54) increases the per-capita growth rates by 29.8 percentage points during 2006-15. 1% increase in growth rate of working age population reduces the per-capita NSDP growth rate by 0.29 percentage points. The mature adults foster growth in the labour productivity and maximize their contribution to economic growth. This age structure represents individuals who are highly experienced and knowledgeable and projections state that this age group would eventually grow in the future. Hence, the challenge is not only confined to educating, training and skilling the work-force, but also to ensure that it is done within short duration. Otherwise, we would lose the demographic opportunity and would be left with uneducated less skilled work force that is a demographic liability.

5. Except for primary education enrolment ratio, secondary and higher education enrolment rates have not positively contributed to the per-capita income growth. This raises questions on the quality and access to education and its economic implications. Similarly India has not been performing well in health parameters like population-doctor ratio and number of government allopathic doctors.

Conclusion

Our nation suffers from deficit in social capital and hence health and education sectors can play a vital role in creating jobs and ensuring economic growth along with political stability. Strong demographics and domestic consumption have contributed to fast growth rates over decades. But in the long run, human capital investment shall be instrumental in reaping the benefits of demographic dividend. Job creation on large scale, based on prudent strategies shall determine India's growth and quality of life of citizens of our nation. Sectors like e-commerce, defense, aerospace, textiles, leather, metals, automobiles, gems & jewellery, transport, IT/BPO, handloom and green sectors like solar energy and wind energy have massive job potential unidentified in our nation.

India has around 60% of population under the age of 35, who are termed as the youth working age population. The knowledge driven economy faces typical problem of skill gaps where job applicants especially in the technical sector does not have requisite skill sets for a particular position. We find millions of engineers and management graduates who are not employable in the industry because of degraded quality of academic institutions and education system. Hence it is essential to acknowledge that skills are more important than degree and we need to move beyond memory based education system. Secondly with changing technological scenario and automation the nature of jobs shall change and re-training a huge number of work-force shall be a challenge for the industry and the government.

India has lost a major part of its demographic dividend due to several obstacles on multiple fronts on its path of development. The challenge is bigger now, which is to grab the potential demographic dividend within a stipulated time span and turn the dividend into actual demographic success.

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