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Demographic Dividend: Opportunities andChallenges ofEconomicDevelopmentforaCountry

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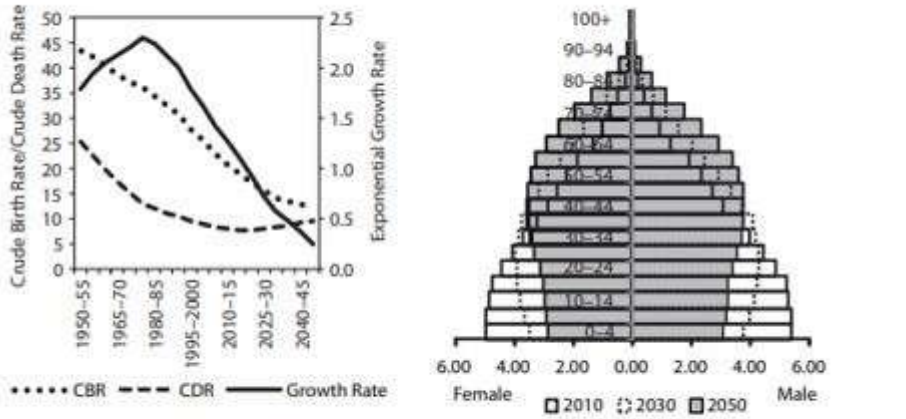
India has long been touted as the next big economic growth story after China. One of theprimary reasons for that has been its young population. The hope has remained that as theyoung Indian population enters the working age, it will lead to higher economic growth – ademographicdividend. Thewindowbeganin2018whentheworkingagepopulationbegantogrowlargerthanitsdependentpopulation– childrenaged14yearsorbelowandpeopleabove65 years of age. It is expected to last for 37 years until 2055. The present study tries tounderstand the current scenario of the demographic dividend and its impact on the growth ofthe economy and to develop effective strategy in utilizing the vast working population in themostefficientmanner,todevelophumancapitaltoachievehigherrankinHumanDevelopment Index.

In the next 40 years, the world's population will grow by about 2.4 billion people, almost allofthemindevelopingcountries(Figure1).Thelargebulk ofthisincreasewillbebetweentheages of 15 and 64, the so-called "working age" population. This huge boost reflects a delayeddemographic transition: declining infant mortality rates are being followed by falling fertilityrates. Thus, with children more likely to survive into productive adulthood and fewer childrenbeing produced, the share of working age populations will increase. For the least developedcountries,thissharewillcontinuetoincreasethrough2050;forotherlessdevelopedcountries,the sharehasbeensteadilyincreasingandwillpeakinthecomingtwo decades.

Figure 1: Demographic and Age Structure Transition in India



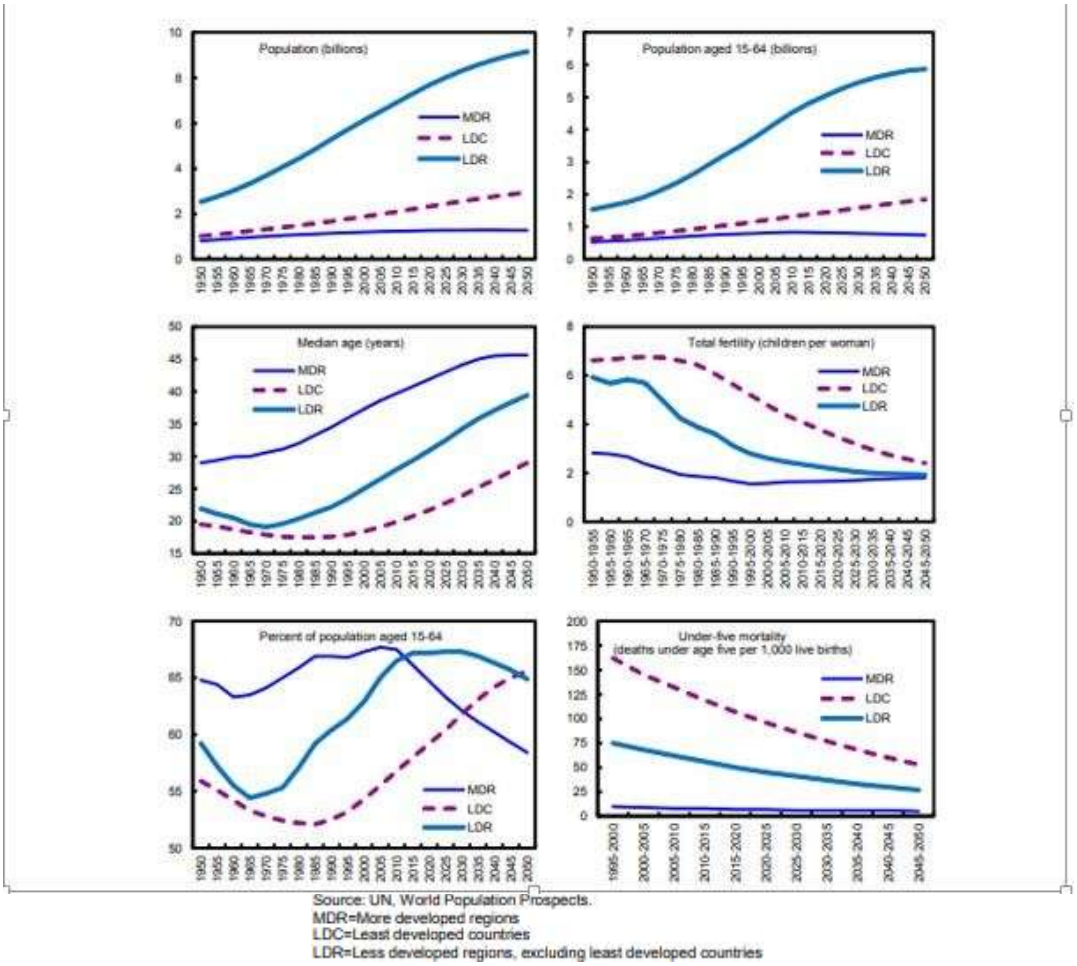
CBR = crude birth rate, CDR = crude death rate.
Source: Constructed from *United Nations World Population Prospects: The 2008 Revision* (United Nations 2008).

Anincreaseintheworkingageratiocanraisetherate ofeconomicgrowth,andhenceconfera "demographic dividend." People of working age are on average more productive than thoseoutside this age group. Also, because workers save while dependants do not, a bulge in theworking age ratiocontributes tohighersavingsrates,increasing the domestic resourcesavailable for productive investment. In addition, the fertility decline that is the source of thechanged age structure may act directly to induce greater female labour supply (Bailey (2006))andincrease attentiontoprimaryeducationandhealth(JoshiandSchultz (2006)).

While there is a sizeable literature on demographic trends and their economic ramifications,theeconometricevidenceforthegrowthimpactoftheworkingageratioismorelimited.Bloomand Canning (2004) is a landmark contribution: for a panel of countries from 1965– 1995, theauthors find a sizeable

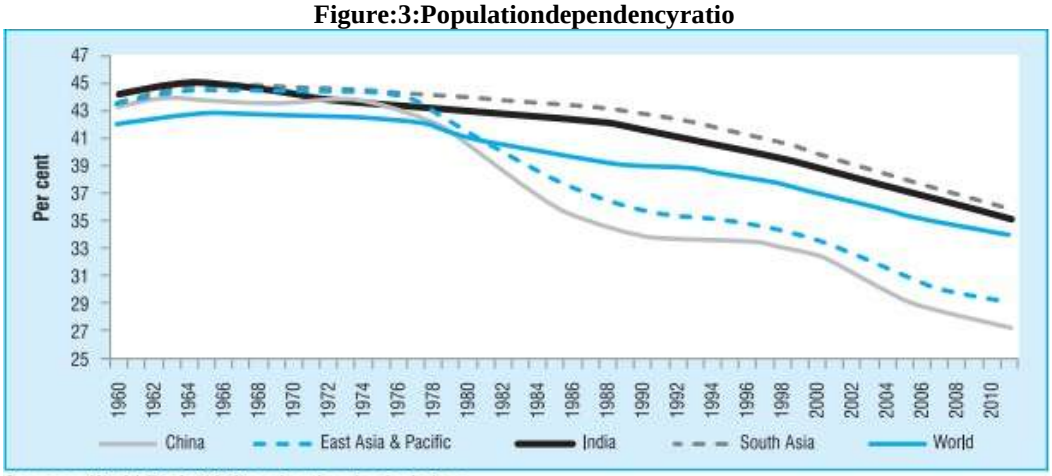
impact of the working age ratio on economic growth but only if theeconomy is "open." Thus, they conclude that the potential for a dividend exists but that it isrealized mainly when incentives are in place to exploit that potential. Several papers find thatnationalsavingsratesarestronglyconnectedtodemographicstructure(FryandMason(1982),Higgins(1998),andKelleyandSchmidt(1996)).Otherpapersfocusonparticularcountriesorregions. Person (2002) and Feyrer (2007) document the relationshipin the US betweendemographicstructureand,respectively,outputandproductivity.Bloom,CanningandMalaney(2000)andMason(2001)concludethatEastAsia's"economicmiracle"wasassociated with a major transition in age structure, while Bloom, Canning and Sevilla (2002)find that much of Africa's relatively poor economic performance can be accounted for by thelackofsuchatransition.

Figure:2:DemographicTransition



Growth optimists are confident in India's demographic dividend--the fact that India's dependencyratio,asmeasuredbytheshareoftheyoungandtheelderlyasafractionofthepopulation,willcomedown more sharply in the coming decades (Figure 3). More working age people will mean moreworkers, especially in the productive age groups, more incomes, more savings, more capital perworker,andmoregrowth.Also,becausedemographicchangeisassociatedwithfertilitydeclines,thetransition period may be accompanied by greater female participation in the labour force (Bailey,2006).

Figure:3:Populationdependencyratio

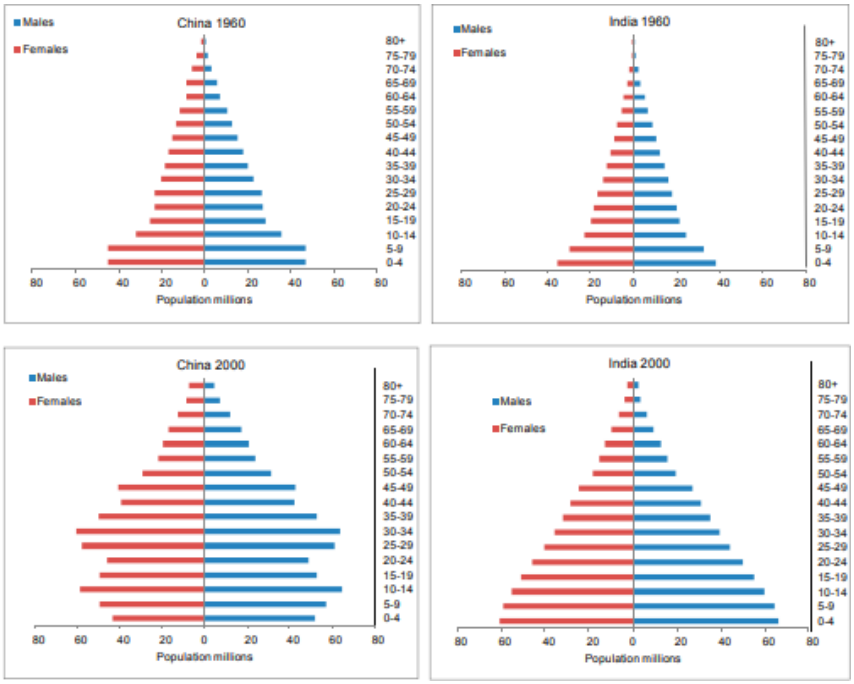


Sources **: World Bank (2012) and authors' calculations.**
Note **: Population dependency ratio is defined as 100-[Population ages 15-64 (% of total)]. This definition follows IMF (2006).**

Everyfast-growingAsianeconomyinrecentyearshasacceleratedasitunderwentademographic transition. In India itself, Aiyar and Mody (2011) documented that the highgrowthstates(TamilNadu,Karnataka,andGujarat)intheperiod1991-2001hadadependencyratiowhichwas8.7percentagepointslowerthanthat ofthelowgrowthstates(Bihar,MadhyaPradesh, and Uttar Pradesh) and an average annual growth rate that was 4.3 percentage pointshigher.Lookingahead,theyargue,thelowgrowthstateswillbenefitmorefromthedemographic dividend, as higher incomes and lower fertility alter demographics. Indeed, overthe period 2001-11, the hitherto laggard states have grown at an average of around 5 per centannually.Thedifferencebetweentheirgrowthandthegrowthoftheleadersintheperiod2001-11isjust1.5percentagepoints.Sodemographictransitionseemstobecorrelatedwithgrowth,withsomereasonstobelievethatcausalityflowsbothways--lowerdependencyratiosincreasegrowthandhighergrowthreducesfertilityandconsequentlydependencyratios.

Overthecomingdecades,astheworkingagepopulationChinadeclines,thatofIndiawillriserapidly.A not atypical prognosis is offered by the Economist (August 21–27, 2010) "As recently as the early1990s,Indiawasasrich[asChina],intermsofnationalincomeperhead.Chinathenhurtledsofarahead that it seemed India could never catch up. But India's long term prospects now look stronger.While China is about to see its working age population shrink, India is enjoying the sort of bulge inmanpower which brought sustained booms elsewhere in Asia. It is no longer inconceivable that itsgrowthcouldoutpaceChina'sforaconsiderabletime."

Figure4.ComparativeEvolutionofPopulationPyramids



TheoreticalEstimation:AgeStructureandEconomicGrowth:

In order to examine the impact of age structure we derive a theoretical model of estimationborrowed from Barro and Sala-i-Martin (2004) and used by various papers studying a similarrelationship. (Bloom and Canning, 2004; Aiyar and Mody, 2011). Following Barro and Sala-i-Martin'sextensivelyresearchedmodelofeconomicgrowth,everycountryconvergestoitssteadyStatefromitsinitialState.

Assuming

$g(z)=\lambda(z^*-z0)$

Here z represents the income per worker. z* is the steady State of income per worker and z0 is theinitial income per worker, λ is the speed with which a country converges to its steady State level.Now, the steady State income per worker is determined by many variables which impact workerproductivity.Takingthisintoaccount,theabovemodel canbere-writtenas;

$g(z)=\lambda(X\beta-z0)$ (1)

WhereXrepresentsall thevariablesthatimpacthumanproductivityandβisitsbetacoefficients.

To theorize the relationship between the variables of interest; share of working age population andincome per capita, one follows the estimation derived in Bloom and Canning (2004). A simplerelationshipcanbewrittenas

$$\frac{Y}{N}=\frac{Y}{L}\frac{L}{WA}\frac{WA}{N} \qquad (2)$$

Here, N is the total population, WA is the working age population, L represents the labor force and Yis the total income. Thus, the above equation simply states that income per capita is equal to incomeper worker multiplied by the labor absorption rate in the economy and the share of working agepopulation.

Substituting, Log (Y/N) = y; Log(Y/L) = z; Log (L/WA) = p; Log (WA/N) = wWecanrewrite(2)as;y=z+p+w (3)

For simplicity one will assume that the absorption rate is constant. Deriving this equation in terms ofgrowth,

$g(y)=g(z)+g(w)$ (4)

Now,substituting(1)and(2)into(3),weget

$g(y)=\lambda(X\beta-z0)+g(w)g(y)=\lambda(X\beta+p+w0-y0)+g(w)$ (5)

Equation (5) will form the base of the empirical strategy. Here growth of income per capita isdependentontheinitialshareofworkingagepopulation,initialincomepercapita,growthrateofworkingagepopulation ,participationrateandothervariablesaffectinghumanproductivity.Thispaperisnotinterestedintheparticipationratean donewillassumethatitwillbecapturedintheconstanttermtheempiricalexerciseis carriedout.

With the help of the above-mentioned theoretical model, using long panel data for India, thestudy has found mixed results from the econometric exercise. Historically, states with a largerworking age ratio have seized upon the chance and experienced faster growth rates. However,the States with recent growth in their working age ratios have not been able to make use ofsuchfavorabledemographicsandareslipping.Thisscenariocanstillbereversed.Thelaggardstatesareyettoexperienc eabulgeintheirworkersupply.Ifstepsaretakennowtoexploit thefavorable age structure, they too could experience the positive impact, as has been done in theleaderstates.

Itisthepotentialforeconomic gainswhentheshare oftheworking-age population(15years–64years)ishigherthanthenon-workingagegroup.Demographicdividendoccurswhentheproportion of working people in the total population is high because this indicates that morepeoplehavethepotentialtobeproductiveandcontributetogrowthoftheeconomy.Duetothedividend between young and old, many argue that there is great potential for economic gains,which has been termed the "demographic gift". In order for economic growth to occur theyounger population must have access to quality education, adequate nutrition and healthincludingaccess tosexualandreproductivehealth.

Table 2: India's Sector Growth Performance, 1970–2002

	Total GDP Growth (%)	Sector Growth of GDP (% per year)		
		Agriculture	Industry	Services
1970–1972 to 1980–1981 (average)	3.2	2.0	4.0	7.2
1981–1982 to 1990–1991 (average)	5.7	3.8	7.0	6.7
1991–1992	1.3	−1.1	−1.0	4.8
1992–1993	5.1	5.4	4.3	5.4
1993–1994	5.9	3.9	5.6	7.7
1994–1995	7.3	5.3	10.3	7.1
1995–1996	7.3	−0.3	12.3	10.5
1996–1997	7.8	8.8	7.7	7.2
1997–1998	4.8	−1.5	3.8	9.8
1998–1999	6.5	5.9	3.8	8.3
1999–2000	6.1	1.4	5.2	9.5
2000–2001	4.0	0.1	6.6	4.8
2001–2002	5.4	5.7	3.3	6.5
1992–1993 to 1996–1997 (average)	6.7	4.6	8.0	7.6
1997–1998 to 2001–2002 (average)	5.4	2.3	4.5	7.8

GDP = gross domestic product.
Note: Growth rates for 2001–2002 are projections of the Ministry of Finance based on partial information.
Source: Economic Survey 2001–2002 (Government of India, Ministry of Finance 2002).

Thedemographicdividendhaslongbeenviewedasanimportantfactorforeconomicdevelopment and provided a rationale for policies aiming at a more balanced age structurethrough birth control and family planning. Assessing the relative importance of age structureandincreasesinhumancapital,recentworkhasarguedthatthedemographicdividendisrelatedto educationandhassuggestedadominanceofimprovingeducationoveragestructure.

Human capital investment is a broad, comprehensive measure of resources devoted to thedevelopment of children and youth. There are many important questions about the relativecontribution to development of public versus private spending on health and human capital,and the ways such spending affects economic inequality in subsequent generations. Surelyspending at some ages is more important than spending at others. Spending on neonatal careorprimaryeducationmaymattermore thanspendingonchildhealthortertiaryeducation,forexample.Anotherimportantissuetoexploreisthepotentialcomple mentaritybetweeninvestmentinhealthandeducation.

I. Conclusion

The present paper has tried to understand the importance of human capital in achievingeconomic growth for a country. It is seen that the future working population plays crucial rolein shaping the country's economic future. Hence, the proper direction of such vast futureworking population is important to study and manage. The creation of proper opportunity inthisregardisgoingtobesignificantlyimportant.Ithasbeenfoundthattheshareofemploymentinserviceswasrelatively highattake-off,itsgrowthhassincethenbeenslow.Atthe same time, the share in value added, which was high at take-off, has continued to risequickly. This implies that while productivity in the sector has been high, the services sector isnot creating many jobs--the opposite of the problem with industry. Some impediments tobusiness creation such as regulatory hurdles and access to funding and infrastructure may becommonbetweenservicesandindustry.Labourregulationsarealsolikelytoconstraincreationof jobs in services. For example, 27 per cent of retail stores in India report labour regulationsas a problem for their businesses (Amin 2008). But what stands out for the services sector isthe importance of education and skilling. Suitable higher education is important for high-endservicessuchasinformationtechnology,softwaredevelopment,andfinance.Mid-levelservicessuchasretailtrade,hotels,andrestaurantservicesalsorequireadequateskillingofthelabourforce.

Challengesinthe wayofrealising demographic dividend:

The empirical analysis highlights the importance of education, health, employment, lowergender bias, high level of urbanisation and several other crucial policy factors in determiningdemographic dividend for India. However, several lacunae in these areas act as a hindrance inIndia's way of realising the demographic dividend. These shortcomings have been identifiedwith the help of our empirical findings, which are again corroborated by findings of previousstudies. First and foremost is the abysmal level of public investments in social infrastructure(James,2008;2011;OxfamIndiaReport,2018).Thetotalexpenditureonhealthasapercentageof GDPislessthan2%whiletheglobalaverageisaround6%.Despiteatremendous improvement in health indicators, the healthadjusted life expectancy (HALE) atbirth in India is only 59.3 years as per WHO (2016) estimate. On the education front, thoughthere is remarkable progress in India's Gross Enrolment Ratio in the primary and secondarylevel,itissignificantlylowerinhighereducation(26.3%in2018–19asperMHRDprovisionaldata, cited in economic Survey 2018–19). Also, there is a disparity in higher education levelsacross gender and backward social groups. The literacy rate has touched 77% mark in 2017–18 (PLFS Annual report 2017- 18), but the learning outcomes are still miserable. The AnnualStatusofEducationReport (2018)highlightsthat1outof4childrenleaving class8lack basicreading skills. The quality of the workforce depicted by its skill profile is also gloomy. As perthePLFSAnnualReport(2017–18),only2.26%ofthepeopleintheproductiveagegroup(15–59years)receivedformalvocationaltraining.Second,asperthe PLFS AnnualReport (2017–18), around half of the working-age population in India is out of the labour market. Further,there is a worsening of the quality of employment due to the growing informalisation andcasualisation of jobs. One cannot ignore the other half of the demographic dividend that is thestatus of women in the sphere of education, health and labour market. The female LFPR inIndia isoneofthelowestintheworldandlessthanaquarterofthemwereactive inthelabourmarket in 2017– 18. [see CPC 2006; Desai 2010] Another constraint is the negative trend inhousehold savings rate which is a principal source of capital accumulation and an importantparameter of demographic dividend (Economic Survey, 2018-19). Besides this, according toOxfam India Report (2018), India has the highest disparity among all the nations of the worldon all the parameters of income, wealth and consumption. This rising income disparity mayfurther dampen the consumption levels in the future, thereby affecting the demand in themarket. Lastly, the level of urbanisation in India is around 34% in 2018 but there is a vastinterstatedisparity(U.N.WorldUrbanisationProspects,2018).Thisrapidpaceofurbanisationdue to non-availability of adequate and quality non-farm employment in rural areas has putexcessivepopulationpressureincitiesleadingunhealthylivingenvironment,greaterpollutionlevels and disease burden (Bloom et al., 2010; Bloom, 2011; James &Goli, 2016). The nextupcoming issue emerging from the age structure transition of the population is the rapidlygrowingold-agedependencyratiowithagreaterdiseaseanddisabilitiesinthefuture(Economic Survey, 2018-19). According to Goli& Pandey's (2010) estimates based on UNprojections, there will be only a 2% increase in the working-age population in the 2005–2050period, whereas the size of the older population will increase by 13% during the same period.Moreover, in India, the older population doubles in only 25 years, which is in stark contrast totheUSwhereittakesaround70yearsforthisdoubling(James&Goli,2016).Thus,Indiawillprematurelydevelopintoageingsocietieswhichwillhaveseriouseconomicandhealthburdensunless it acts against it (see Japan's case study in Bloom, Canning, &Sevilla, 2003). There isa possibility of the 'Second Demographic Dividend' for the country (Ladusingh&Narayana,2011), but it hinges on the healthy and financially literate older population, with adequateavailability of developed financial markets, income and social security measures, which atpresent seems to be an arduous task in India (Bloom, 2011; James &Goli, 2016; Goli, ReddyA, James & Srinivasan,

2019). Therefore, India should 42 start preparing for this futurechallenge; otherwise it may get old before getting rich, despite the observed demographicbonus.

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