Research article Available online www.ijsrr.org ISSN: 2279–0543

International Journal of Scientific Research and Reviews

A Conceptual Study on India's Demography: Potential Benefits and Affecting Variables

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ABSTRACT

To be one of the most powerful and developed regions of the world, a country's economic growth plays a crucial role and gross domestic product (GDP) is one of the most common means to measure the economic growth. There are multiple factors which affect a country's GDP. Quite often a country's population dynamics is not talked about when economic growth is discussed. But there are instances where population played the most important role in supplementing or negating economic growth of a country. Population can provide a country with demographic dividend or it can lead to demographic disaster. Population has many divisions of subsets like child population, working population, old age population and all these different subsets contribute differently in a country's economic growth. Working age population plays a key role in accelerating the economic growth of a country but only population in working age group is sufficient for economic growth or other supporting variables are necessary. In order to find out the answers, the researcher has made a humble attempt to analyze the consequences and impact of India's ever rising population and the various supporting variables that can make India's population its biggest asset or its liability. The researcher has tried to provide a model of population and demographic dividend to understand the various aspects of population.

KEYWORDS: Population Dynamics, Demographic Dividend, Supporting Variables.

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INTRODUCTION

A critical challenge that countries around the globe are facing today is the attainment of full employment of their working age citizens and sustained economic growth. With the speeding up of economic, social and technological change in today's complex commercial world, there is a need to frame policies and strategies that will be able to harness the opportunities available in the commercial front that are rapidly opening up in the world economy. A population that is aging along with the fall in birth rates gives indication of a decelerating economy whereas a young population indicates growth prospects of the economy. In this background, the paper is trying to find out the benefits of India's population dynamics to accelerate country's economic growth and the variables affecting country's dividend. The paper which is conceptual in nature is primarily based on secondary data.

OBJECTIVES OF THE STUDY

- To examine the potential impact of India's population structure on its economic growth.
- To find out the supporting variables that can impact India's attainment of demographic dividend.

THEORETICAL PERSPECTIVE ON POPULATION DYNAMICS

Economists and demographers have debated for decades on the consequences of population rise. Starting from the work of Thomas Malthus where he stated with sheer determination that there is only one consequence of population rise and that it restricts economic growth. Thomas Malthus's work (1798) was based on the exponential population rise in Asian countries and had a pessimist outlook over the entire results by glorifying his negative propositions that increase in population will lead to shortage of food grains, no capital formation and thereby retarded economy.

Soon afterwards, another group of economists discarded the pessimist outlook of Malthus and debated that population rise does not retard economy rather economic growth accelerates during population boom. The Optimists believed that with increase in population, human capital formation increases which is a major contributor to economic growth[1]. Because of the inherent positive approach in the thinking, this groups' view is popularly known today as the optimistic school of thought.

Following the optimist view, came revisionists with a neutral view and outlook towards population rise. This group has stated that rising population alone cannot make or mar a country's economic growth. Government's policies, financial markets, sound institutions are the other factors that need to be considered when studying the impact of population rise on a country's economy.

A more recent view on population rise is to look at the age structure of the population and not on the total size of the population. Under this view, a rise in the share of working age (15 to 59 years) population in the total population of a country will lead to an increase in the growth of its economy. The proponents of age structure are influenced by Modigliani's Life Cycle Hypothesis which states that the level of income that an individual accrues vary in different phases of his life and accordingly his savings fluctuates in different phases or cycles of his life[2]. An individual's behaviour changes in different phases of his life and thereby produces different economic outcomes. A child is simply a net consumer but an individual from the working age group is a net producer. Again the working age individual becomes a net consumer when he/she enters old age[2].

Now this human behaviour has serious consequences on the growth of a country's economy. When a country has abundant portion of its population in the working age group accompanied with a lesser portion of dependents (children and old age persons), economic activities will bloom as there will be savings and ultimately formation of capital. The concept of demographic dividend is linked with this working group of the population.

The words 'demo' and 'graphy' imply people and measurement. Thus demography implies the study or measurement of human population and demographic dividend implies the potential economic growth that a country will get when a major portion of its population is in the working age group. Demographic dividend, as defined by the United Nations Population Fund means, "The economic growth potential that can result from shifts in a population's age structure, mainly when the share of the working-age population is larger than the non-working-age share of the population"[3]. In other words, it is "a boost in economic productivity that occurs when there is growing numbers of people in the workforce relative to the number of dependents"[3].

INDIA'S DEMOGRAPHIC DYNAMICS AND POPULATION DYNAMICS OF CHINA AND MORE DEVELOPED REGIONS OF THE WORLD

Demographic dividend will be created if there is a rise in working age population that forms major portion of the population, combined with a reduction in the numbers of children and elderly. Dependents consume more resources in the form of investment in child care, children education and meeting medical needs of elderly citizens. Working age citizens on the contrary, contribute more for the growth of the nation.

Though there are different sources of economic growth of a country, but even through a very simple equation the sources of economic growth can be identified easily. There will be economic growth if,

GDP growth rate=Growth rate of population + Growth rate of GDP per capita.

Here, GDP per capita=GDP/population.

Cobb-Douglas has also given a simple relationship measure to identify the sources of economic growth where change in economic output is related to change in capital stock, change in labour stock and change in the state of technology.

In both these models, it can be seen that demography plays a critical role.

The following tables show India's population dynamics and also population dynamics of China and more developed regions of the world.

Table 1: Size of Population of India and China (in thousands)

Year	India	China
1955	408,973	598,574
1960	449,595	644,450
1965	497,952	706,590
1970	555,199	808,510
1975	622,232	905,580
1980	698,965	977,837
1985	781,736	1,052,622
1990	868,890	1,154,605
1995	955,804	1,227,841
2000	1,042,261	1,269,974
2005	1,127,143	1,305,600
2010	1,205,624	1,340,968
2015	1,282,390	1,376,048
2020	1,353,305	1,402,847
2025	1,418,744	1,414,872
2030	1,476,377	1,453,297
2035	1,525,369	1,448,589
2040	1,565,508	1,435,499
2045	1,596,876	1,414,088
2050	1,620,050	1,384,976
2055	1,635,452	1,350,453
2060	1,643,518	1,313,299
2065	1,644,749	1,276,337

2070	1,640,126	1,240,620
2075	1,630,683	1,205,812
2080	1,617,471	1,173,047
2085	1,601,608	1,145,422
2090	1,584,182	1,123,490
2095	1,565,809	1,104,482
2100	1,546,832	1,085,631

Source: United Nations World Population Prospects, 2017 Revision

China and India are the two most populated countries of the world. China is the most populated country with approximately 1.4 billion people in 2015. India is the second most populated country with approximately 1.3 billion people in 2015. Among Asian countries combine share of both countries is 61.07%. Due to higher population growth of India, population difference between these two countries is coming down quickly. And in 2025, India will be the world's most populated country with approximately 1.42 billion people. Population of China and India will decline after 2035 and 2070 respectively.

Table 2: India's Age Wise Population Structure (in thousands)

Year	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
1950	38464	34 406	30 386	26 933	23 481	20 602	16 489	14 248	9 928
1955	40535	36 597	32 446	28 459	24 991	21 530	18 578	14 510	12 106
1960	41594	38 924	34 879	30 716	26 693	23 167	19 638	16 566	12 542
1965	46132	40 326	37 506	33 373	29 120	25 023	21 375	17 729	14 536
1970	57935	45 034	39 179	36 244	32 015	27 677	23 441	19 603	15 803
1975	64866	57 176	44 381	38 447	35 317	30 929	26 392	21 907	17 791
1980	72245	63 987	56 285	43 608	37 616	34 312	29 717	24 891	20 075
1985	79349	71 256	62 989	55 333	42 739	36 642	33 079	28 134	22 897
1990	87892	78 256	70 137	61 939	54 267	41 687	35 386	31 380	25 944
1995	96937	86 708	77 034	68 991	60 801	53 026	40 375	33 720	29 148
2000	108767	95 770	85 475	75 867	67 808	59 513	51 499	38 653	31 544
2005	115770	107 344	94 267	84 075	74 499	66 352	57 836	49 406	36 313
2010	119398	114 298	105 720	92 783	82 608	72 947	64 556	55 625	46 627
2015	123333	118 180	112 809	104 208	91 299	81 036	71 138	62 323	52 822
2020	125 968	122 133	116 799	111 447	102 748	89 703	79 154	68 808	59 315

2025	125 616	124 926	120 908	115 568	110 063	101 128	87 783	76 722	65 652
2030	119 066	124 659	123 780	119 743	114 252	108 463	99 109	85 234	73 361
2035	119 109	118 199	123 581	122 662	118 465	112 688	106 420	96 380	81 681
2040	117 982	118 289	117 216	122 529	121 434	116 941	110 677	103 639	92 554
2045	115 892	117 199	117 344	116 250	121 365	119 956	114 965	107 928	99 733
2050	111 960	115 147	116 298	116 423	115 198	119 973	118 040	112 259	104 062

Source: United Nations World Population Prospects, 2017 Revision

As already stated, India is going through demographic transition and from the above table it is seen that India's working age population in different age groups is already on the rise. Age group of 15-19 years is showing continuous increase from 1950 onwards and from the table above it is seen that population in this age group will start declining from 2040. It implies that India will have the window open for approximately 3-4 decades.

Table 3: China's Age Wise Population Structure (in thousands)

Year	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
1950	52847	50 220	43 792	38 377	37 450	33 229	29 139	25 847	20 373
1955	53 591	51 463	48 651	42 188	36 711	35 362	30 806	26 322	22 247
1960	66 435	52 040	49 791	46 838	40 305	34 647	32 813	27 843	22 661
1965	90 615	65 593	51 205	48 797	45 667	38 984	33 132	30 858	25 471
1970	86 867	89 845	64 868	50 542	48 043	44 755	37 871	31 686	28 738
1975	106045	86 350	89 180	64 269	49 975	47 345	43 845	36 634	30 029
1980	129293	105498	85 798	88 504	63 659	49 338	46 487	42 574	34 919
1985	123272	128685	104878	85 199	87 752	62 927	48 541	45 322	40 855
1990	97 896	122599	127858	104106	84 464	86 774	61 946	47 349	43 496
1995	101485	97 412	121898	127034	103311	83 618	85 552	60 548	45 564
2000	130575	100782	96 636	120975	125994	102261	82 517	83 919	58 689
2005	106717	129818	100027	95 880	120032	124838	101018	81 067	81 601
2010	78 930	106139	129086	99 375	95 219	119092	123525	99 395	78 933
2015	80 820	101 287	129 735	102 116	96 078	118 700	124 372	102 186	79 973
2020	78 543	80 328	100 682	129 023	101 501	95 390	117 589	122 616	99 816
2025	81 949	78 080	79 814	100 111	128 328	100 824	94 541	116 034	119 969
2030	85 287	81 498	77 590	79 335	99 567	127 550	99 989	93 367	113 697
2035	80 299	84 841	81 014	77 136	78 893	98 974	126 572	98 829	91 609

2040	72 791	79 871	84 365	80 567	76 721	78 427	98 241	125 199	97 094
2045	67 565	72 384	79 418	83 926	80 160	76 288	77 864	97 226	123 159
2050	64 892	67 172	71 955	79 006	83 527	79 734	75 768	77 097	95 742

Source: United Nations World Population Prospects, 2017 Revision

China's demographics are providing a completely different scenario. The working age population has already started shrinking in China as evident from the table II above. From the year 2015 onwards there is decline in the different working age groups in China as seen in the table above.

From the above three tables it is seen that China has more of aging population and a reduced working age population, partly because of the one child policy followed by the country. India, on the other hand, has a rapidly growing working age population and a reduced number of dependent populations comprising of children and elderly.

Table 4: More Developed Regions Age Wise Population Structure (in thousands)

Year	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
1950	67 947	71 119	64 154	50 142	58 668	55 831	49 194	42 851	35 994
1955	72 496	66 938	70 286	63 519	49 467	57 644	54 038	48 135	40 440
1960	66 924	71 602	66 599	69 696	62 788	48 552	56 344	52 812	45 728
1965	81 966	66 684	71 650	66 382	69 247	62 069	47 562	54 775	50 736
1970	86 630	80 923	66 654	71 424	65 682	68 492	61 206	46 091	52 476
1975	89 727	86 651	81 636	67 083	71 029	65 068	67 262	59 589	44 131
1980	89 832	90 115	86 669	81 609	66 195	70 211	63 591	65 267	57 106
1985	84 709	90 108	90 313	86 870	80 989	65 643	68 899	61 840	62 492
1990	83 184	85 192	89 927	90 619	86 605	80 683	64 664	67 202	59 441
1995	80 843	83 667	85 921	91 251	90 876	86 174	79 287	63 274	64 614
2000	81 997	81 598	84 621	86 889	91 409	90 242	85 064	77 856	61 301
2005	81 438	83 915	83 079	85 883	87 624	91 233	89 133	83 257	75 381
2010	75 045	83 336	84 976	84 396	86 460	87 154	90 969	87 642	81 380
2015	68 954	77 519	85 019	85 495	84 740	86 789	86 118	89 169	85 009
2020	68 282	70 860	79 333	86 219	86 071	84 785	86 233	84 869	86 826
2025	71 273	70 076	72 576	80 494	86 734	86 075	84 266	85 040	82 897
2030	71 063	73 165	71 907	73 889	81 184	86 819	85 617	83 193	83 186
2035	70 720	72 967	75 003	73 242	74 676	81 410	86 417	84 596	81 481

2040	69 747	72 636	74 819	76 345	74 056	75 014	81 179	85 470	82 953
2045	68 193	71 676	74 504	76 173	77 163	74 425	74 923	80 457	83 926
2050	67 390	70 134	73 560	75 879	77 005	77 540	74 380	74 396	79 219

Source: United Nations World Population Prospects, 2017 Revision
Note: More developed regions comprise Europe, Northern America, Australia/New Zealand and Japan.

Developed regions of the world are already ageing as seen from the graph that fall in young population started from 1995 in age groups of 15-19 years, 20-24 years and 25-29 years. Years 2000, 2005 and 2010 shows further decline in working population in the developed regions in age groups of 30-34, 35-39 and 40-44 respectively.

Table 5: Dependency (Children+Old Age Citizens) Ratio of India, China and More Developed Regions

Year	India	China	More developed regions
1955	72.2	72.0	55.1
1960	76.6	77.3	58.1
1965	80.7	80.7	57.4
1970	79.1	79.6	55.8
1975	77.2	79.0	53.7
1980	75.1	68.6	51.9
1985	73.8	56.2	49.4
1990	71.7	51.9	49.3
1995	68.6	50.7	49.6
2000	64.3	46.4	48.2
2005	60.2	38.1	47.5
2010	56.3	34.5	48.1
2015	52.2	37.7	51.6
2020	49.5	41.7	55.7
2025	47.6	43.1	59.6
2030	47.1	45.2	63.2
2035	46.5	50.3	65.8
2040	46.2	55.3	68.2
2045	46.4	56.7	70.4
2050	47.7	58.2	72.8

Source: United Nations World Population Prospects, 2017 Revision (as per Medium fertility variant)

From table 5 it is seen that India where population of developed countries and China have a rising dependency rate, India's dependency ratio started to fall beginning from 1965 and it is continuing till today and even in near future in comparison to most of the developed regions, India's dependency ratio will be less. As can be seen from the above table that India's dependency ratio will start rising again from 2045 whereas for the developed countries and China it has already started from 2005 and 2010 respectively.

From the above tables it is seen that India will become the world's most populous country by 2025 and India is already on the track of declining dependency ratio of children and old age people. In India's population, the young working class is increasing with the decline in the number of dependents, and the increase started at such a point when young population in China, Japan and other developed countries of Europe and America is shrinking but dependents are rising. The world needs young people for work and India's demography is providing India the scope to supply labour force in not only its internal markets but also to the world. An increase in life expectancy means a longer prospective life span and this can influence life cycle behaviour[4]. A change in behaviour may lead to a longer working life or higher savings for retirement[4]. The savings effect of increased life expectancy was first developed by Lee, Mason and Miller (1999)[5] to explain the surge in savings that occurred in East Asia. The increase in life expectancy could be an explanation for the increase in saving rate at all ages.

POTENTIAL IMPACT OF INDIA'S POPULATION DYNAMICS IN COMPARISON WITH CHINA AND OTHER REGIONS OF THE WORLD

Though there are multiple factors that played a role in the economic growth of China in 1970s, but the role of demographic dividend cannot be ignored. The baby boom that started in China in 1960s and 1970s has ultimately resulted in increase in more working age citizens. This working age population of China has played a significant role in its economic growth and it has been estimated that around 15-25% of China's growth during 1980-2000 has been the result of its large population[6]. Because of the abundant availability of labour force China has remained one of the favourite manufacturing destinations for most of the firms of developed world[7]. But a shrinking labour force in China is giving India a competitive advantage as India's human capital is already on the rise. Working people can fuel the engine of economic growth by providing the much needed capital[8]. India's reducing number of dependants implies that the working population is in a better position to do savings as they do not have to spend part of the income on children and old age people who are net consumers only (Life Cycle Hypothesis). The savings through banks, post offices will find their way to the financial markets and also by sacrificing their current money in

securities, the population will not only play a crucial role for development and growth of industries but will also get the reward in the form of dividends/interests and thereby can enhance their standard of living. The following data provided by International Monetary Fund shows the GDP of India and China.

Table 6: GDP of India and China

Year	Nominal GDP (billions $)		Growth (%)	
	India	China	India	China
2001	493.934	1,317.236	4.94	8.30
2002	523.768	1,455.560	3.91	9.10
2003	618.369	1,650.514	7.94	10.01
2004	721.589	1,944.674	7.85	10.10
2005	834.218	2,287.258	9.29	11.30
2006	949.118	2,793.159	9.26	12.68
2008	1,224.096	4,547.716	3.89	9.64
2007	1,238.700	3,504.605	9.80	14.20
2009	1,365.373	5,105.769	8.48	9.21
2010	1,708.460	5,949.648	10.26	10.41
2012	1,835.821	8,386.678	5.08	7.76
2013	1,875.157	9,469.125	6.90	7.75
2011	1,843.018	7,314.482	6.64	9.30
2014	2,049.501	10,380.380	7.17	7.36
2015	2,308.018	11,211.928	7.46	6.76
2016	2,510.599	11,968.412	7.47	6.30
2017	2,755.830	12,864.400	7.55	6.00
2018	3,012.896	13,876.111	7.65	6.10
2019	3,311.747	14,968.590	7.70	6.33
2020	3,639.804	16,157.105	7.75	6.33

Source: International Monetary Fund

Economic growth which refers to an aggregate increase in productivity can be estimated with the help of Gross Domestic Product (GDP) and manufacturing sector's health can enhance or reduce a country's GDP[9]. Much of China's increasing GDP was due to the fact that firms like Nike,

Adidas, Microsoft, Panasonic, Sharp, TDK, Foxconn had their manufacturing bases situated in China, and China's population gave this opportunity to the country[10].

Developed society's biggest parameter lies in the development and empowerment of women both on the economic and social front[11]. Societies with different standards of living have different empowerment levels for women. Although it is a debateable issue but lower children and old age dependency rate suggests lower fertility, and enhanced standard of living suggests high longevity; lower fertility rates and longer lives create conditions for greater female empowerment as they find more time to break away from their traditional roles within the household and seek to join the labour force[12]. If women are empowered they are likely to educate their off springs more as they know the benefits of education, will spend more towards proper medical care and all this will lead to building and enhancing the future human resources of a country[13]. Modigliani's life cycle savings hypothesis implies that savings will decline as a country ages, slowing its potential for economic growth[14]. With increase in working class population, the propensity of saving also increases. It is widely recognised that population growth can have two conflicting effects on savings: it reduces savings as it leads to more dependent children, but if balanced it can also increase savings by increasing the number entering the working part of the life cycle and hence the number of potential savers[15]. Lee et al (2007)[16] estimate the impact of longevity and population aging on saving, investment, and growth rates independently. Their study find that an increase in population aging reduces saving rates and an increase in the relative size of the working age population increases economic growth rates. Capital formation, an important determinant of economic growth has its links with savings of household and FDI. In this global economy, the role of FDI could not be undermined and therefore, the size of the population may not be ignored by MNEs as they seek to increase their profits in international markets; India and China with very large populations tend to attract high levels of FDI[17]. Large domestic markets in countries are primarily the result of their large population. The number of households that own consumer durable products reflects the economies of scale for both of these countries and a large percentage of the family income in these countries is spent on food and other necessities where economy of scale is not important due to a large demand[17]. Moreover, the success of a multinational corporation which is likely to invest in the manufacturing of consumer durables depends on the size of the market and the purchasing power of its potential consumers that may be offered by large populations in emerging economies[17]. Through savings and investment there is capital formation in the country which ultimately leads to increased productivity and output and the result is economic growth.

Here the researcher would like to stress that these are the potential benefits that will accrue from the country's population which will ultimately accelerate the country's economic growth but

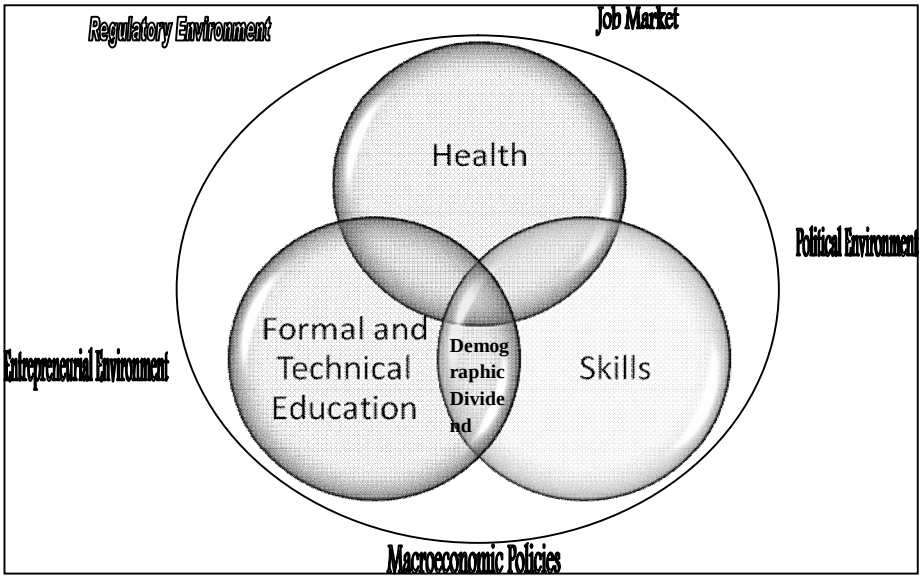
there is nothing automatic that the bulge will convert into dividend. Instead of dividend it can turn into a disaster also. By the year 2020 India's average age will be 29 while that of China's will be 37.5 and India is set for its demographic boom as the country's labour pool could expand while China's will shrink by approximately one-fifth[18]. However, demographics do not work in isolation to provide India the much needed growth and the country has to focus on other factors that will strengthen the country's demography.

SUPPORTING VARIABLES

Most of the European and American countries and parts of South East Asia (Japan, China, South Korea, Singapore and Taiwan) had experienced the phase when its working population was in boom but all the countries were not at par in reaping the demographic dividend. The reason is 'demand' and 'supply' of working populace. Countries that had a higher percentage of working population in their total population were able to fulfil the demand of labour by supplying abundant labour. But the crux is the fact that mere supplying labour does not imply existence of no gap between demand and supply. What about a working population that is not healthy, illiterate and most importantly do not have the skills necessary for job? Also what will be the situation when a population in working age searches for job but does not get any?

Japan, South Korea had been successful in reaping their demographic dividend, Singapore's growth is due to its demography, China's growth and becoming the most powerful nation in Asia at present is also a result of its demographic boon[19]. The labour force in China was not only cheaper than most of the developed regions of the world but also skilled[20]. China's healthy, educated and finely skilled workforce prompted the manufacturing giants to come to China. These Asian countries had invested highly in health, education & skill development[21], and found ways to engage in international trade that have helped in keeping their large cohorts of workers productively employed, the enabling changes involved a phased, careful and partial opening of economies to international markets, with governments striving to ensure that integration would have coherent and quickly visible effects on the local economy and people[22]. Latin America also had large base of working population but was not as successful as its Asian counterparts. In Latin America, too, the governments had tried to integrate with the world economy but the process was inconsistent and many countries had suffered long periods of poor macroeconomic management[22]. In Latin American countries the internal markets were not able to provide employment to the large working age population. Health, education & skill development was not embarked upon like the Asian countries and thus the economic growth had been disappointing. A young demography with no or outdated skill and facing unemployment can lead to creation of havoc as is seen in the Arab

countries[23], and bringing the economic activities to a standstill and for such nations Malthus's pessimist view on population rise seems to match where the dividend becomes disaster. Economic growth depends on productivity gains and changes to the number of people in the workforce. Bloom has pointed out that a productive workforce can only lead to economic growth. Having a mere young population did not attract investors and corporate to set up their firms in China. To harness demographic dividend, India has to emphasis on its citizens' health. Job opportunities need to be created for its large young populace and they have to be equipped with the skills necessary to fit into the job market. The following figure provides the framework of India's population dynamics.



Population alone is no guarantee of development. There has to be sound political set up in the country, conducive macro-economic policies, formal and technical education, dynamic skills as required in today's job market, sound entrepreneurial environment and proper focus on citizen's health. Then the potential impact can be real and true impact of India's young population dynamics and it will ultimately lead the country towards higher path of development by bringing dividend from its population.

CONCLUSION

A number of diverse factors lead to acceleration in economic activities and improving a country's growth. And demography is certainly a very crucial factor capable of enhancing or paralyzing a country's growth as explained above. A young and healthy population can boost productivity and when equipped with required skills can make the country a favoured destination for corporations from all over the world. India's population is young, dynamic and if they remain healthy and equipped with the different skills as demanded in today's changing world, then India

can be in a position to surpass many strong economies of the world to become the country with the most economic growth achieved.

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