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# DEMOGRAPHIC CHANGE AND ECONOMIC GROWTH: A COMPARATIVE ANALYSIS BETWEEN INDIA AND PAKISTAN

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## **ABSTRACT**

There are many components responsible for change in the population. During partition of India, there was a largest population exchange between India and Pakistan. In population studies demography is based on economic, social, cultural and biological processes. In this study, we made a demographic comparison between India and Pakistan with respect to demographical variables. In this paper, we will discuss the trend of population birth and death rates and their various aspects on socio-economic, culture with the help of statistical tools and techniques.

**KEY WORDS:** Demographic Change, GDP, Human Development Indicators (HDI), Death Rate, Birth Rate, India, Pakistan.

## **1. INTRODUCTION:**

Under the study of population change over a specific time and region is called demography of the population. There are many components (or variables) responsible for change in the population. This change in population does not mean the change in size only but an analysis of various internal and external factors. These factors may be socio-economic and geographic including demographic events like birth, death, migration and immigration etc. population of any country depends on the size but change in population may increase due to birth & immigration and decrease due to death & migration.

The population of India between classical era and medieval era (500 A.D.- 1000 A.D.)

grew slowly but an increase during late medieval period and a rapid growth had been found during Mughal empire (16<sup>th</sup> – 18<sup>th</sup> century). It is noticed that however, the population growth was increasing but surprisingly the average life expectancy was 35 years.

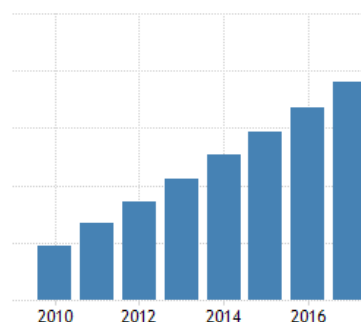
In this paper, we are interested to analyse a comparative study between India and Pakistan demography. So, we may divide our literature before partition of India. During (1901 – 1921) however, the birth rate was high but due to epidemics like influenza, plague, smallpox and shortage of food by severe droughts population growth was slow. In second stage of 19<sup>th</sup> century the period (1921-1951) the growth of population was 1 percent only and the factors, mortality rate decline was responsible.

After partition of India it had been observed that this was the largest population exchanges between India and Pakistan. In India, Punjab was the most affected area with respect to demographic changes. The highest ever growth rate was recorded 2.22 percent in the period 1971-1981, while a decline trend was found 2.14 percent in 1991 and a continued decline shows 1.95 percent in 2001 and 1.64 percent in 2011.

On the other hand Pakistan came into existence in the year 1947. It was estimated that Pakistan's under population expanded seven folds during 1951-1998 and the growth of population is 2.1 percent on an average.



Graph of population of Pakistan



Graph of population of India

According to the 1951 census conducted by the Government of Pakistan, West Pakistan had 1.6% Hindu population, while East Pakistan (now Bangladesh) had 22.05%. According to the 1998 census conducted by the Government of Pakistan,

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Hindus made up 1.85% of the population and Christians (Protestant and Roman Catholic) 1.59%, or around 3.2million people. Other estimates put the numbers higher. Historically, there was also a small contingent of Jews in Pakistan who emigrated to Israel in 1948.

## **2. OBJECTIVES OF THE STUDY:**

The main objectives of the studies are as follows:-

- (1) To find the comparison between India and Pakistan on the basis of birth rates.
- (2) To find the comparison between India and Pakistan on the basis of death rates.

## **3. METHODOLOGY:**

According to Blacker (1947) demography of any country is based on five stages; In first stage a country meet low life expectancy with high birth and death rates. In second stage the decline in death rate was constant birth rates results to population explosion. In third stage the slow decline in birth rate and a high decline in death rate is an indicator of slow population growth. While in forth stage birth rate and death rate are equal than the population growth fall in a stationary position. In the last stage death rates exceed birth rates the population growth decline.

In this study, we will discuss the trend of population birth & death rates and their various aspects on socio-economic culture with help of some important tools and techniques.

### **3.1. TECHNIQUES OF DATA COLLECTION:**

In population studies, demography is based on economic, social, cultural and biological process and it is measure through statistical analysis. The success story of any demography depends on data collection and its analysis. We have the following methods of data collection first is direct methods-

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- (1) All the births and deaths related data collected from vital statistics registry.
  - (2) The census of the country which includes data such as sex, age, marital status, education etc.

On the other hand second is indirect method –

When we face lack of resources we use this method and collect data from one person about all related components.

Here we are using an auto law branch of statistics called vital statistic and analysis the data to following methods.

### **3.2. METHODS AND TOOLS:**

Methods and tools used for data analysis of demographic comparison of India and Pakistan are the following: -

#### **(I). Measurement of population:**

In order to determine the population at any time T after the census we use

$$P_t = P_0 + (B - D) + (I - E)$$

Where  $P_0$  = total population at last census

B = total number of births

D = total number of deaths

I = total number of migrants

E = total number of emigrants

#### **(II). Rates and Ratios of vital events:**

Rates of vital events is defined as the ratio of total number of occurrence of the event to the total number of person exposed to the risk of occurrence of the events.

#### **(III). Measurement of mortality:**

- (i) Crude Death Rate (C.R.R.) = for any reason of community it is given as
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$m = (\text{annual death } *k) / (\text{annual mean population } )$

(ii) Specific Death Rate (S.D.R.)= it is characteristic specific :

$SDR = (\text{total death in specific section of population } *k) / (\text{total population of specific section } )$

(iii) Infant Mortality Rate (IMR)

$IMR = (\text{no.of deaths among children between age group } 0-1) / (\text{total live births in same calendar year } Z )$

(iv) Standardize Death Rate - it is weighted average of age-S.D.R., using same weights.

**(IV). Mortality table / life table:** it gives life history of a cohort as it is gradually diminished by deaths. It is a tool for measuring the probability of life and death of various age sector.

**(V). Fertility**

(i) Crude Birth Rate (C.B.R.):  $(\text{total live birth in given time } *k ) / (\text{total population})$

(ii) General Fertility Rate (G.F.R.)=  $(\text{total live births in time } t *k ) / (\text{sum of female population in reproductive age})$

(iii) Specified Fertility Rate (S.F.R.) =  $(\text{total births of female population } *k) / (\text{total female population})$

(iv) Total Fertility Rate (T.F.R.)

**(VI). Measurement of population growth -**

(i) Crude rate of natural increase –  $[C.B.R. - C.D. R.]$

(ii) Pearl's Vital index –  $[C.B.R./C.D.R. *100]$

(iii) Gross reproduction rate (G.R.R)

(iv) Net reproduction rate (N.R.R.)

**(VII). Life expectancy-** Number of years an individual of an expected to live.

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#### **4.ANALYSIS AND INTERPETATION OF DATA:**

- India holds 1300 million population while Pakistan holds 200 millions. If we compare the density of population then we see that India has 464 people per Km<sup>2</sup> and Pakistan has just 287 people. This vast difference is due to historical and topographical factors.
- The Gangetic plane of India is highly fertile and numerous river trees in India are responsible for many humans while in Pakistan little area and a few rivers lead to less population.
- The population growth rate in India is 1.14 % while for Pakistan it's 1.41% this increment in Pakistan is due to relatively weak population control laws, weak use of contraception, religious factors, educational factors, greater immigration, lower death rates, etc.
- For India 0-25 yrs age group people are 45% of total while for Pakistan it's 51%, stating that Pakistan is younger and going to hold booming economy (if workforce were to skilled) in near decades relatively.
- Labor force participation % is 67% for India and 64% for Pakistan, not large difference, so current economic growth can dismantle this factor for both countries.
- Birth rate for Pakistan is 21.6 per K and for India it is 18.7 /k. This shows relatively lesser literacy and less awareness about contraception in Pakistan. Other socio-religious factors are also responsible.
- Death rate in India is 7.3 per K while in Pakistan it is 6.3, which states better sanitation (disease barrier), better primary health care in Pakistan.
- Sex ratio in India is 1.08 male per female while in Pak it is 1.05 male per female ,which says relatively more female foeticides ,less healthcare access for females in India .
- Infant mortality rate in India is 37.8 per K birth while for Pakistan it is 50.4. Insecurity and lack of access to decent health care facilities are hindering proper care for thousands of infants across the country. Pakistan allocates less than one percent of its GDP on health and experts say that's kept the high infant mortality rate from improving.
- Life expectancy is 69.1 yrs in India and 68.4 in Pakistan. Hence India's life expectancy is slightly better than that of Pakistan.
- Literacy rate is 71.2 % in India and 57.9% in Pakistan. This shows high education investment and good education policies in India.
- Maternal mortality in India is 145 / lakh births while in Pakistan it is 140.

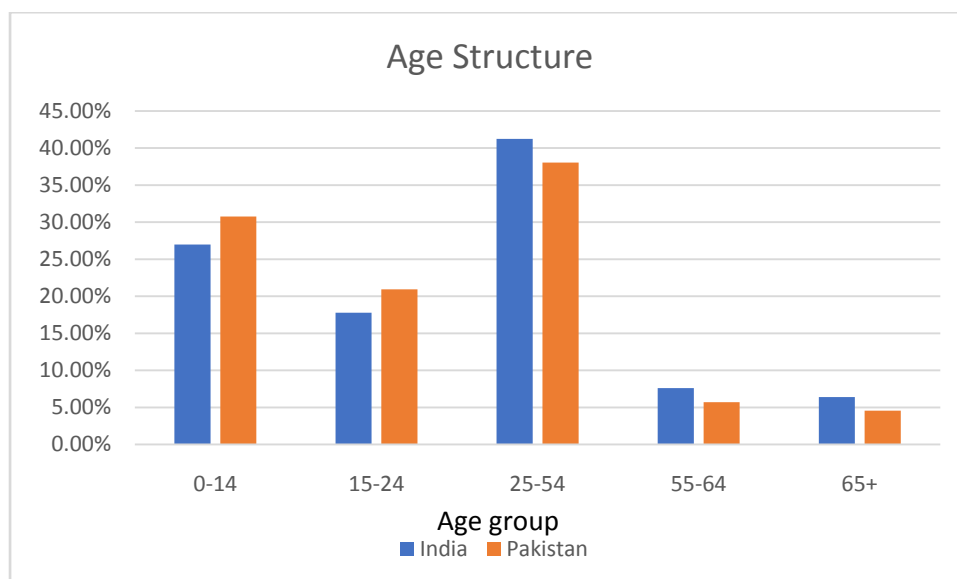
- Dependency ratio is 52.2 in India and 65.3 in Pakistan. This depicts that more people are dependent on workforce in Pakistan.
- Health expenditure in India is 3.9% of GDP while for Pakistan it is for 2.7% of GDP, showing India is more conscious in health investment and care taking of it's population.
- Education expenditure in India is 3.8% and for Pakistan it is 2.8% of GDP ,showing India is relatively more conscious in education and human resource development .
- Obesity adult prevalence rate in India is 3.9% and for Pak it is 8.6% indicating

Indians are more food rational and health conscious.

## CHART ANALYSIS

### AGE STRUCTURE

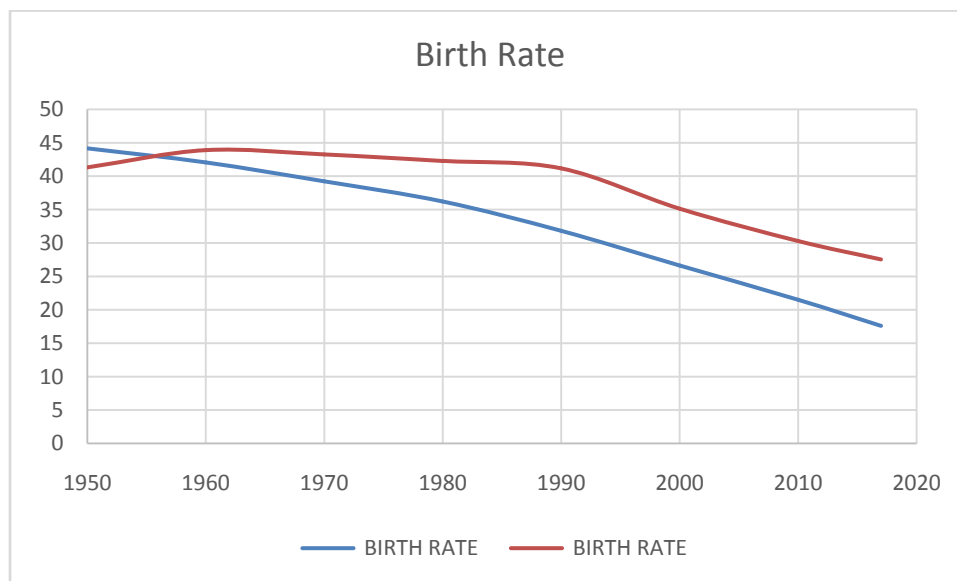
Age group	India	Pakistan
0-14	26.98%	30.76%
15-24	17.79%	20.94%
25-54	41.24%	38.04%
55-64	7.60%	5.70%
65+	6.39%	4.56%



- The above table clearly indicates that the percentage of population which is young and percentage of population which is working is roughly same ( 40-45% for both) in India, which further says booming economy may prevail in coming decades if demographic dividends payas per expectation. In pakistan young population is slightly more than the working.

## BIRTH RATE

Year	India	Pakistan
1950	44.175	41.321
1960	42.066	43.899
1970	39.231	43.249
1980	36.216	42.284
1990	31.817	41.171
2000	26.635	35.142
2010	21.508	30.301
2017	17.592	27.53

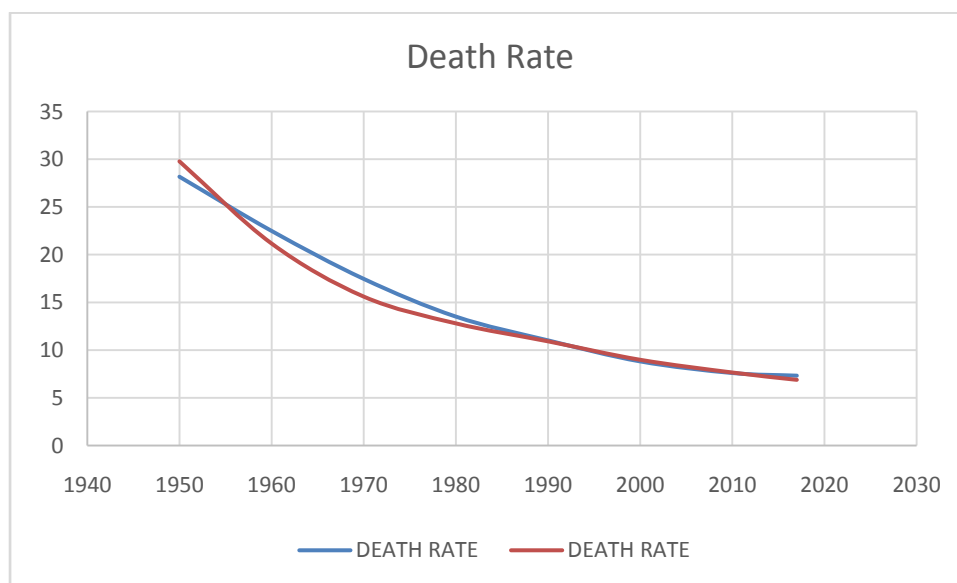


The above table says that India is doing better consistently after partition in reducing its birth rate. This indicates better awareness ,education about birth control, contraception etc. Pakistan is not as successful as India in birth rate reduction.



## DEATH RATE

Year	India	Pakistan
1950	28.161	29.777
1960	22.481	21.167
1970	17.454	15.606
1980	13.498	12.798
1990	11.007	10.918
2000	8.804	8.983
2010	7.589	7.649
2017	7.309	6.884



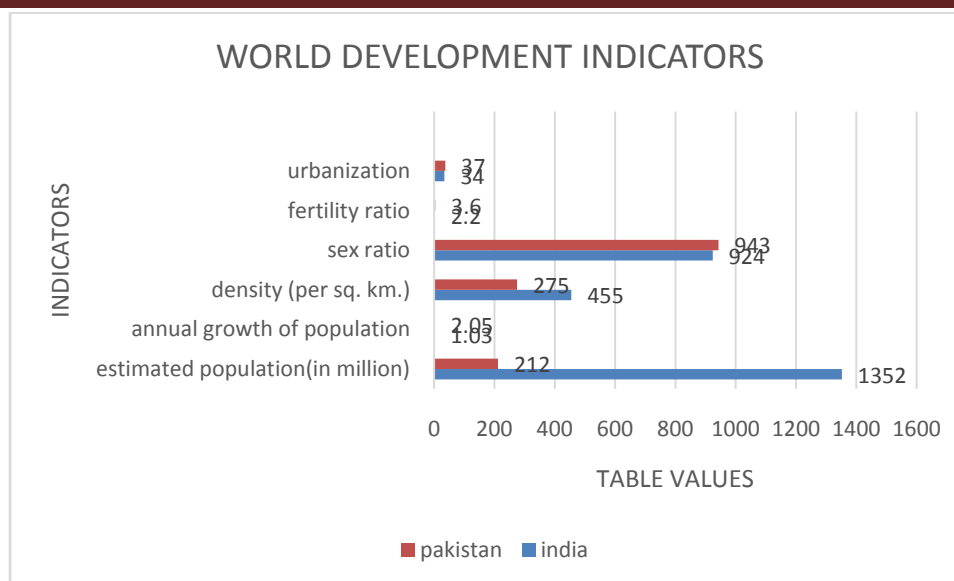
- The above graph shows that both countries have reduced their death rates at almost same rate but Pakistan is doing slightly better. May be because of better sanitation system, less pollution, better motor vehicle acts etc. in Pakistan.

## WORLD DEVELOPMENT INDICATORS

Demographic indicators 2016-17

Country	Estimated Population (in million)	Annual Growth of population	Density (per sq. km.)	Sex Ratio	Fertility Ratio	Urbanization
India	1352	1.03	455	924	2.2	34
Pakistan	212	2.05	275	943	3.6	37

Source: World Development Indicators 2017, [www.worldbank.org](http://www.worldbank.org).



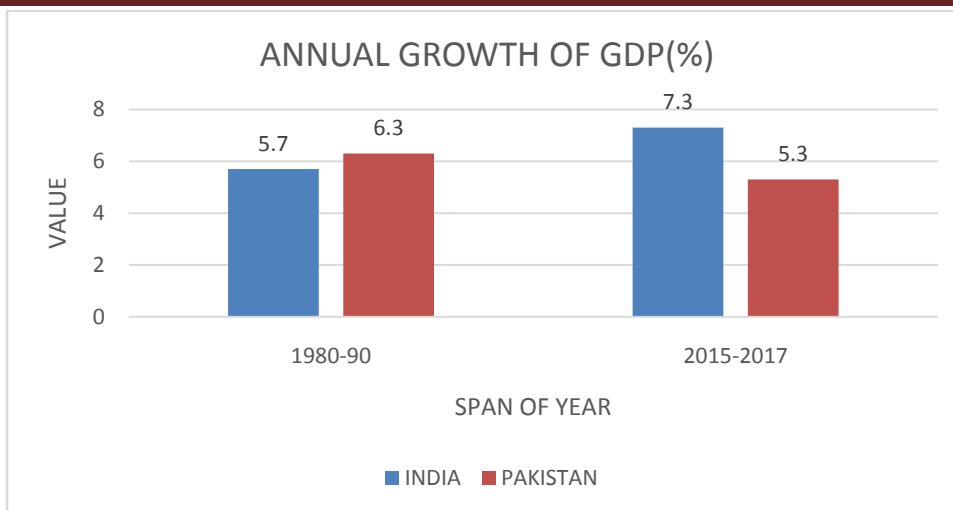
Annual growth of gross domestic product(%), 1980-2017

- The population of Pakistan is very small and it is around less than one sixth of population of India.
- On the basis of above data, it is found that the sex ratio is less in India than the sex ratio in Pakistan.
- The fertility rate in India is low in comparison to Pakistan.
- The population density in India is twice than the population density in Pakistan.
- The urbanization is less differentiate between two countries.

### GROWTH OF GDP

Country	1980-90	2015-2017
India	5.7	7.3
Pakistan	6.3	5.3

Source: key indicators for Asia and Pacific 2017, Asian Development Bank, Philippines: World Development Indicators 2017.



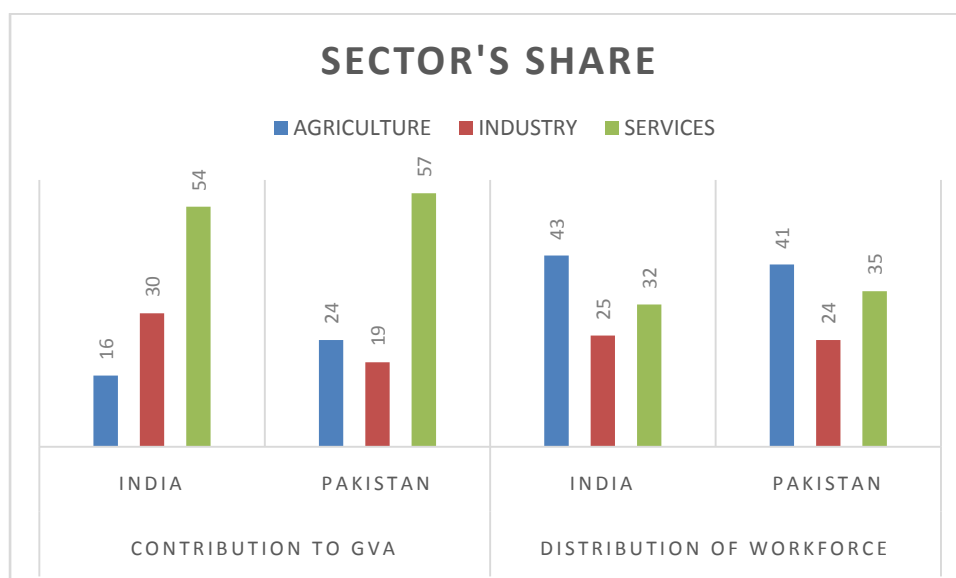
- The GDP of India was 0.6 less than the GDP of Pakistan during the (1980-90) decade.
- The GDP of India was 2.0 more than the GDP of Pakistan during the (2015-17).

### SHARE OF EMPLOYMENT IN DIFFERENT SECTORS

Sectorial share of Employment GVA and GDP (%) in 2016-2017

Sector	Contribution to GVA		Distribution of workforce	
	India	Pakistan	India	Pakistan
Agriculture	16	24	43	41
Industry	30	19	25	24
Services	54	57	32	35
Total	100	100	100	100

Source: Human Development Report 2017: key indicators of Asia and Pacific 2017.



- The distribution of workforce is about to near for both the countries.
- The distribution of GVA, India is high than the Pakistan w.r.t. Industry.
- The distribution of GVA, India is low than the Pakistan w.r.t. Agriculture.

## GROWTH IN DIFFERENT SECTORS

Trends in output growth in different sectors, 1980-2015

Country	1980-90			2014-18		
	Agriculture	Industry	Service	Agriculture	Industry	Service
India	3.1	7.4	6.9	3.1	6.9	7.6
Pakistan	4	7.7	6.8	1.7	4.8	5.0

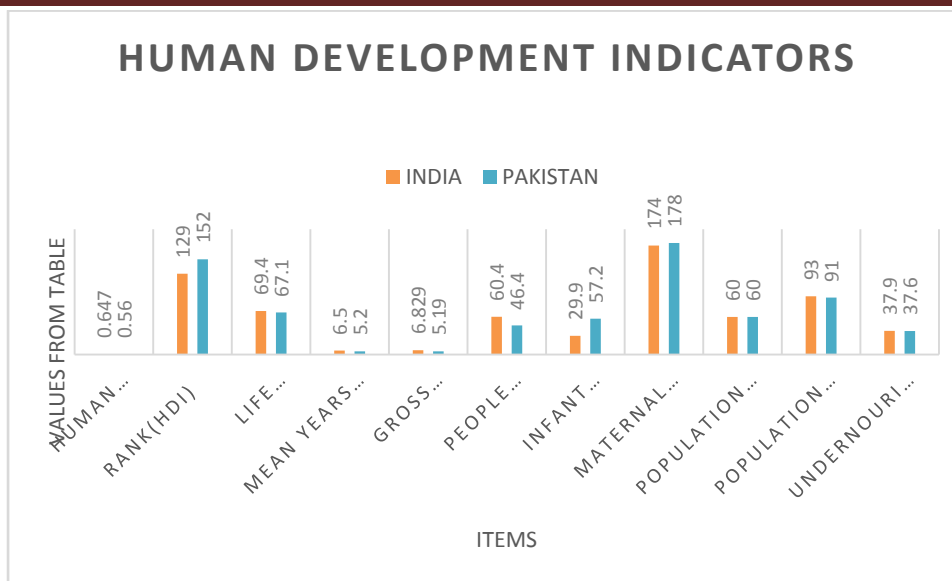
- The growth of Agriculture & Industry sectors in Pakistan was more than India during 1980-90.
- The growth of Agriculture, Industry & Service sectors are very low in Pakistan than to India.

## HUMAN DEVELOPMENT INDICATORS

Some selected indicators of human development, 2014-2017

Item	India	Pakistan
Human Development Index	0.647	0.560
Rank (HDI)	129	152
Life Expectancy (yrs.)	69.4	67.1
Mean Years of Schooling (% aged 15 and above)	6.5	5.2
Gross National Income per capita (PPP US\$)	6.829	5.190
People Below Poverty Line (at \$3.20 a day PPP)(%)(2011)	60.4*	46.4*
Infant Mortality Rate (per 1000 live births)	29.9	57.2
Maternal Mortality Rate (per 1 lakh Births)	174	178
Population using at least basic Sanitation (%)	60	60
Population using at least basic drinking water source (%)	93	91
Undernourished Children (%)	37.9	37.6

Source: Human Development Report 2017 and world Development Indicators ([www.worldbank.org](http://www.worldbank.org)); Key indicators of Asia and the Pacific 2017, Asian Development Bank (ADB).



- The rank of India is 129, much better than the HDI of Pakistan i.e.152.
- The position of India is far better than Pakistan in infant mortality rate i.e. 29.9% than the 57.2%.

## 5. CONCLUSION:

The broader goals of our project are to compile and make available comparable demographic and socioeconomic data for the pre and post-partition period.

We conclude that partition-related flows resulted in an increase in literacy rates in India and a decrease in the percentage of people engaged in agriculture.

In Pakistan, while incoming migrants tended to raise the literacy rates, out-migrating Hindus and Sikhs (themselves being very literate) tended to reduce total literacy - in sum, there is a decrease in Pakistan's literacy rate as a result of partition.

Despite the fact that the overall net effects of the flows are muted due to the two-way nature of the flows, there is considerable variation in how districts were affected.

As far as the current scenario is concerned, the population of India is more as compared to Pakistan and due to better educational facilities available in India, there is higher literacy. As the analysis suggests that Pakistan has higher youth population as compared to India, so if the younger workforce is efficiently skilled in Pakistan then it can experience an economic boom in the next decade.

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