

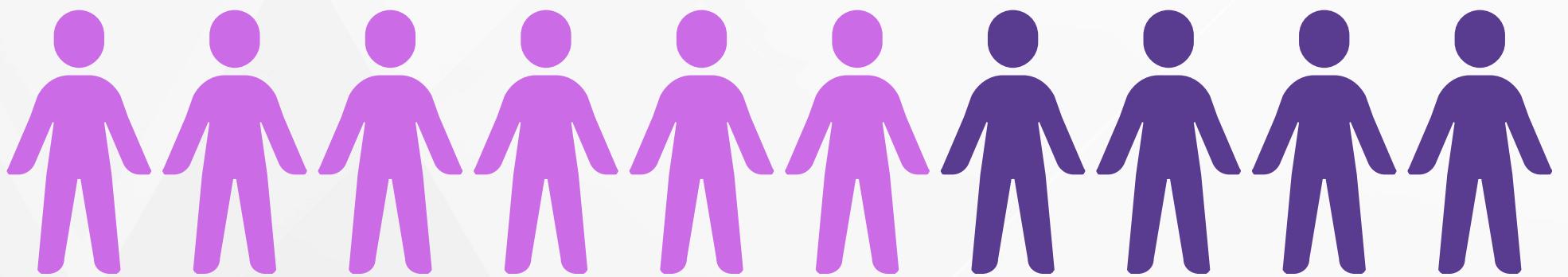
HS3021

**ECONOMIC IMPACT OF
DEMOGRAPHIC
TRANSITION IN INDIA**

GROUP 2: ANKITA, GANESH, AMIZHTHNI, ARJUN AND HARSHA

WHAT IS DEMOGRAPHIC TRANSITION?

The historical shift from **high** birth rates and **high** death rates to **low** birth rates and **low** death rates



STAGES OF DEMOGRAPHIC TRANSITION

Stage one “*Pre-industrial society*”

1. High birth rate
2. High death rate



Stage two “*Developing country*”

1. High birth rate
2. Rapidly falling death rate



Stage three “*Demographic dividend stage*”

1. Slow down of birth rate
2. Slower fall of death rate

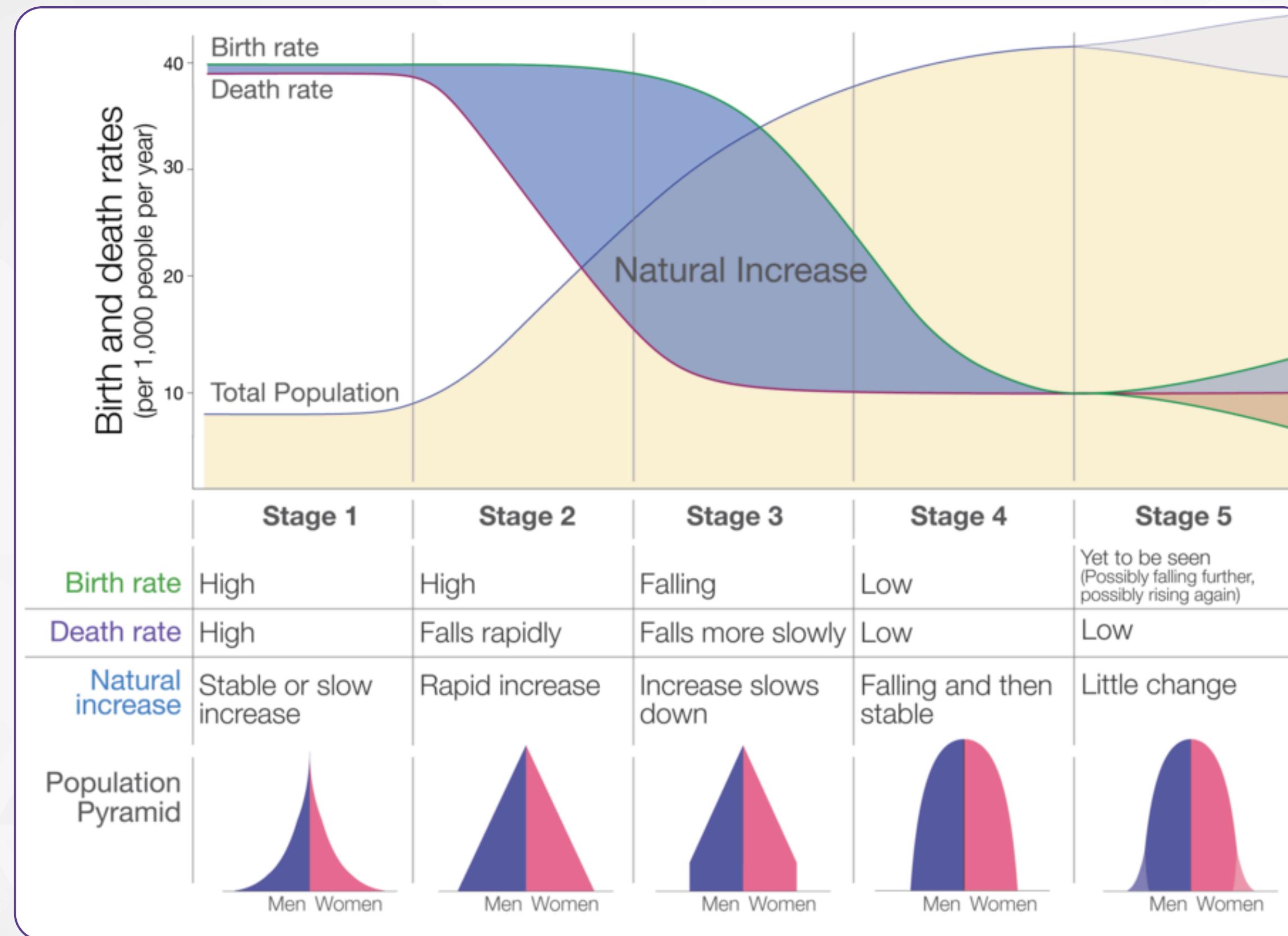


Stage four “*Developed country*”

1. Low birth rate
2. Low death rate



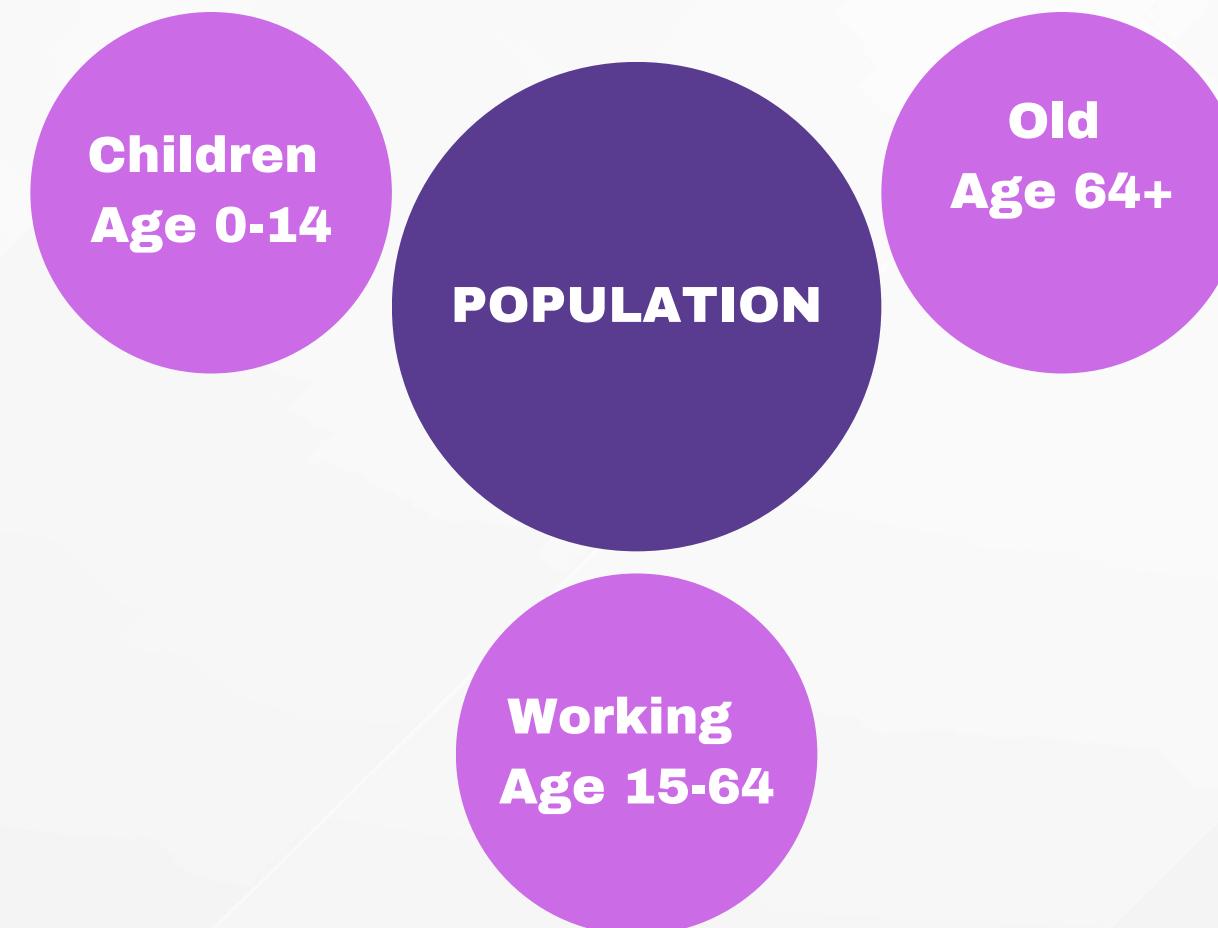
STAGES OF DEMOGRAPHIC TRANSITION



source: ourworldindata.org

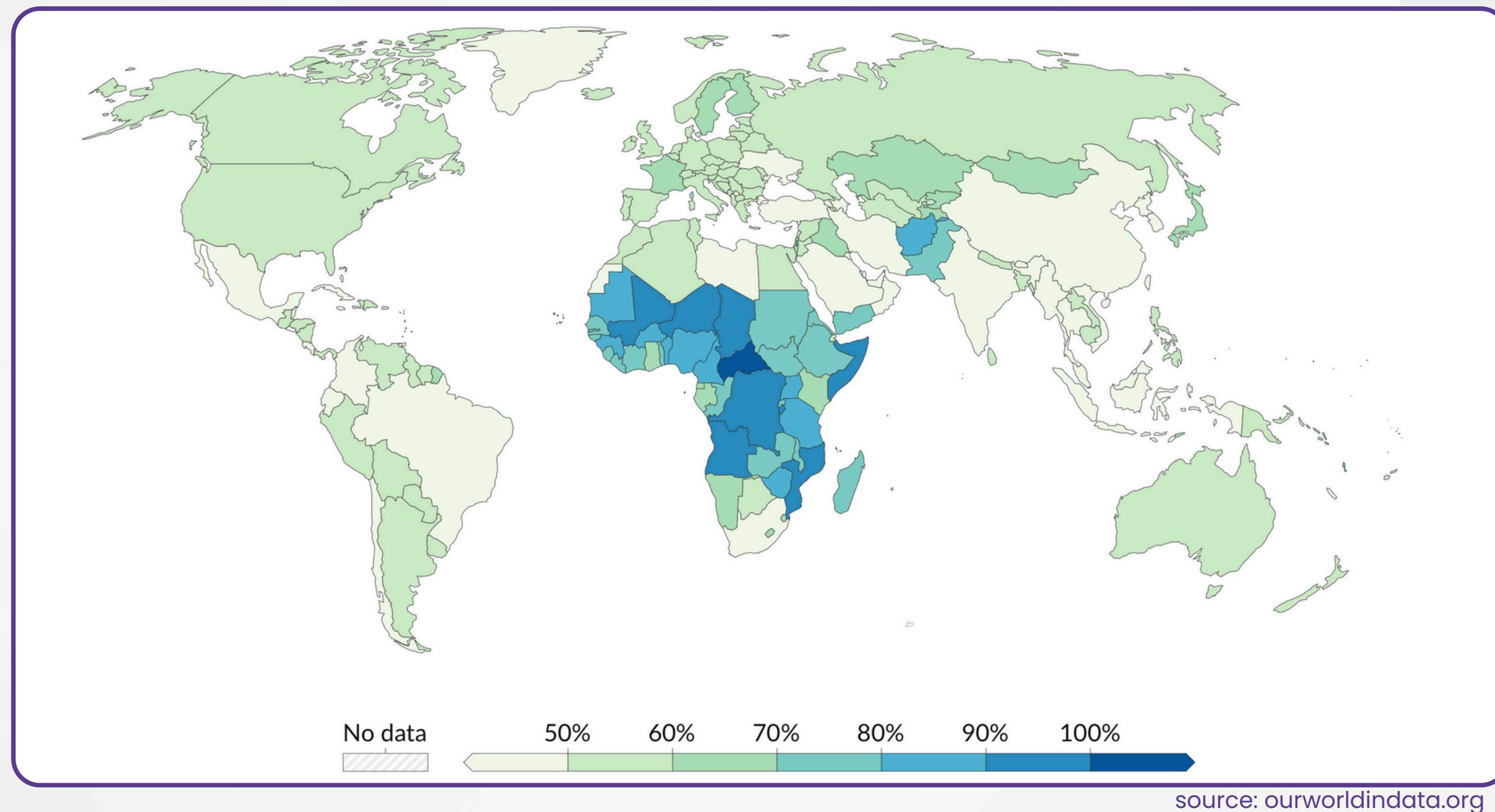
DEPENDENCY RATIO

- Dependency ratio is the ratio of the **number of dependents** (children and old people) to the number of people in **the working age**.
- Gives us an idea of the **burden** on the working age to support the non-working population.

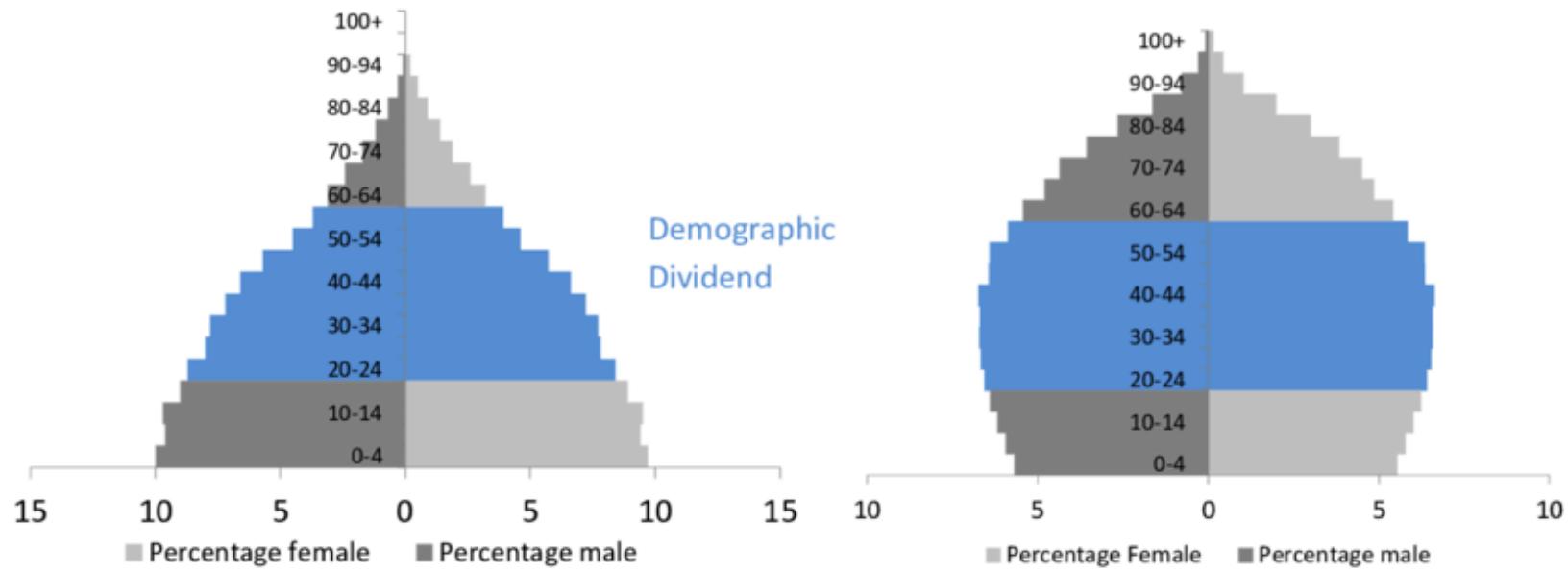


DEPENDENCY RATIO

The age dependency ratio is the sum of the young population (under age 15) and elderly population (age 65 and over) relative to the working-age population (ages 15 to 64). Data are shown as the number of dependents per 100 working-age population.



DEMOGRAPHIC DIVIDEND - POTENTIAL FOR GROWTH



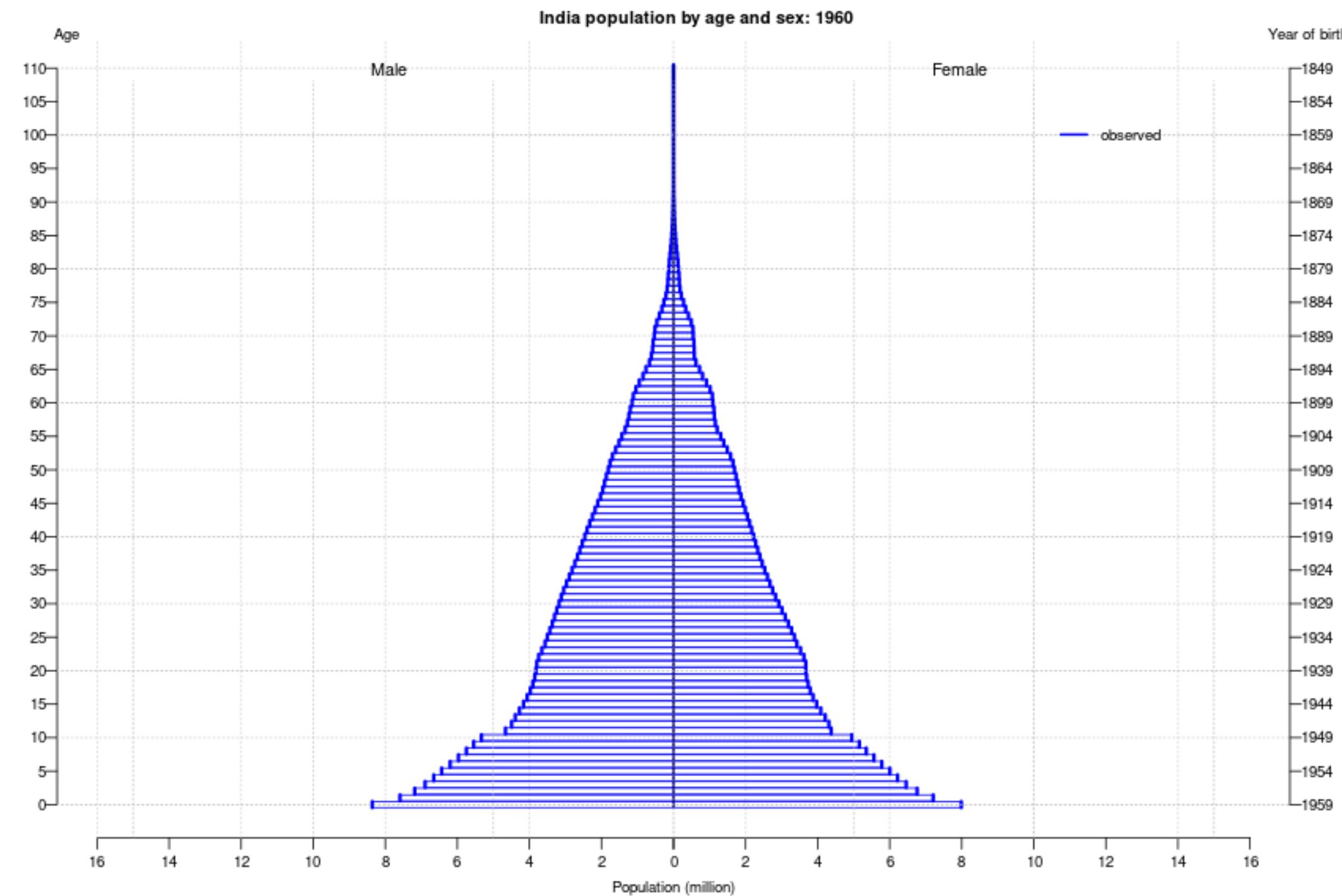
- Demographic dividend refers to the growth in the economy triggered by the change in the age composition of the population.
- Leads to the **labor** force temporarily growing more rapidly than the population dependent on it
- Freed up resources that can be used for economic development - **First demographic dividend**
- Older working population would lead to late retirements and incentive to accumulate assets.
- These assets can then be used to increase national income through investment - **Second demographic dividend**.

HOW DOES THIS FUEL ECONOMIC GROWTH?

Important pathways through which the increased workforce (relative to total population) can impact economic growth:

- Reduced dependency burden --> **higher household savings** --> capital deepening and productivity gains.
- Declining fertility rates encourage greater **investment** in human capital, boosting labor productivity, research, innovation, and technology.
- Lower fertility rates also increase **female labor force** participation.
- Higher savings and wealth --> **entrepreneurial** and **risk taking capacities** --> economic growth.
- Longevity and increased health investments --> substantial economic benefits.

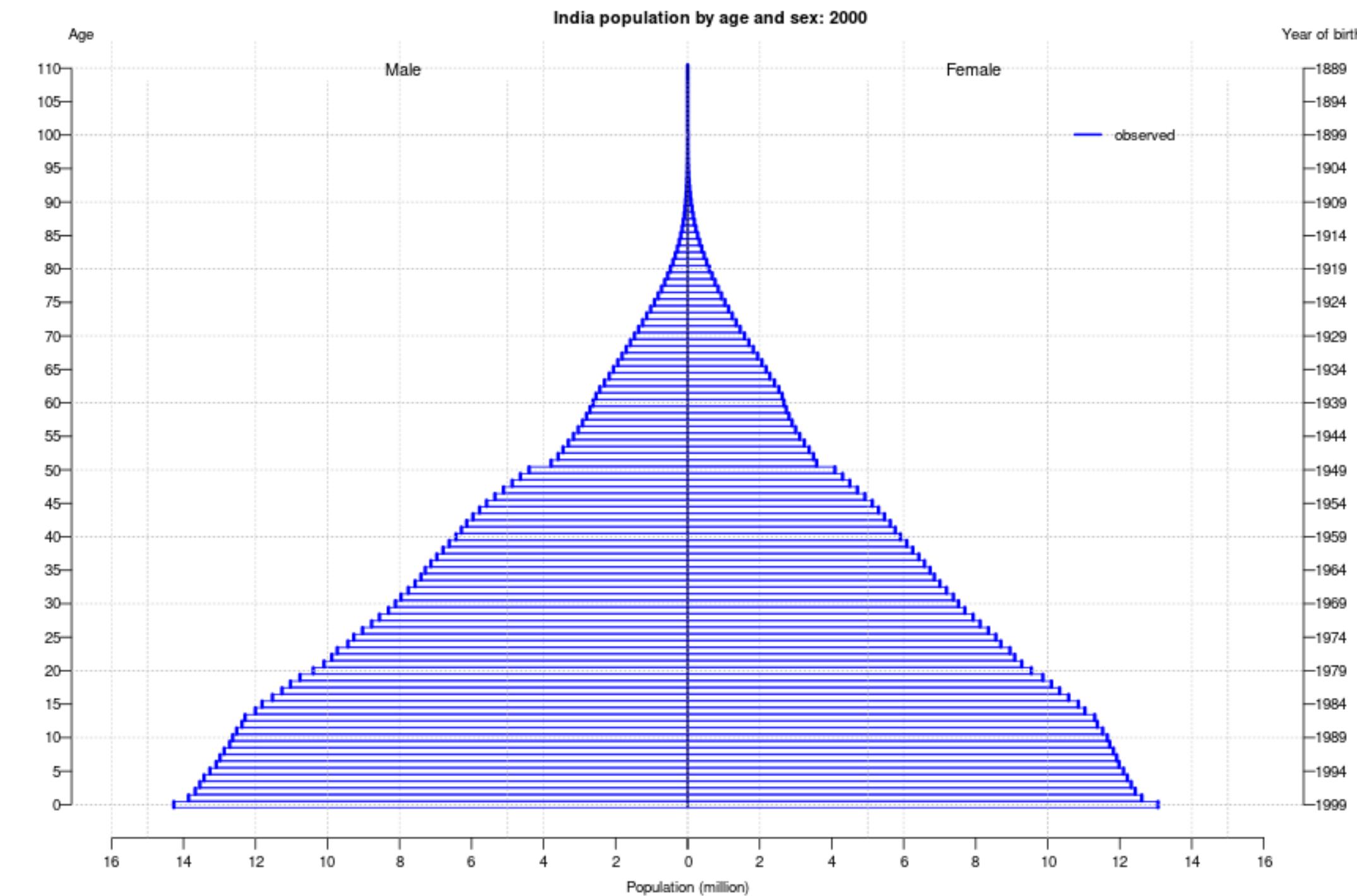
AGE COMPOSITION OF INDIA



1960

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United Nations, DESA, Population Division. *World Population Prospects 2024*. <http://population.un.org/wpp/>

AGE COMPOSITION OF INDIA

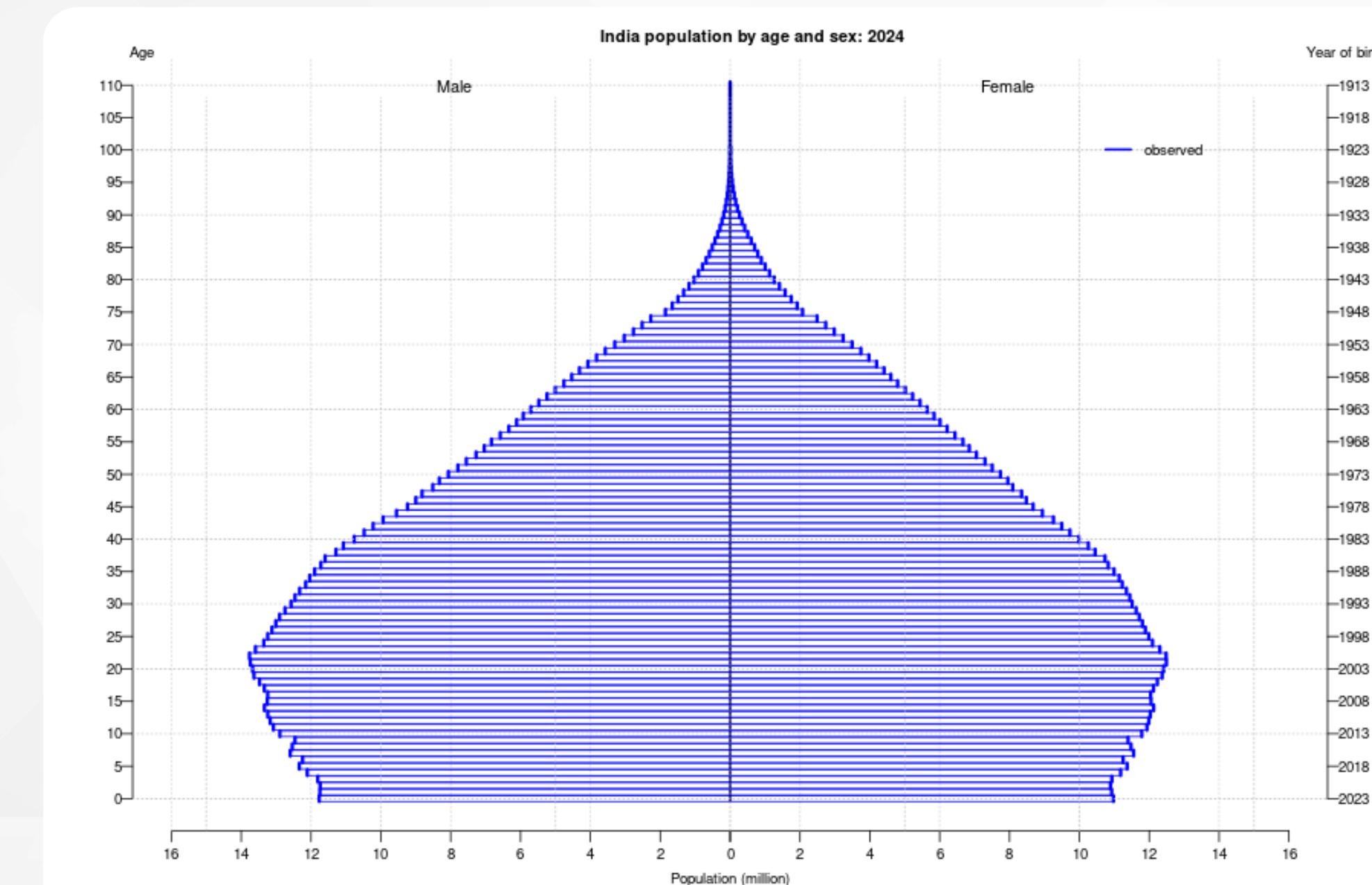


2000

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United Nations, DESA, Population Division. *World Population Prospects 2024*. <http://population.un.org/wpp/>

AGE COMPOSITION OF INDIA

India's population is considered **young**, with over half of the population under the age of 30. The average age of an Indian is **28.4** years in 2024.



INDIA AND DEMOGRAPHIC DIVIDEND

- India did not benefit much in the early phases (1980s-1990s) of the demographic transition due to **poor growth environments**.
- India's growth trajectory improved significantly post-1980s, breaking from previous stagnation.
- Per capita income grew over **5%** annually after the 1990s, compared to below **3%** in earlier decades.
- The increase in the working-age population since the 1980s contributed to this turnaround.
- Bloom (2011): **1-2%** additional GDP growth per capita annually is possible if India employs the working-age population productively over the next two decades.

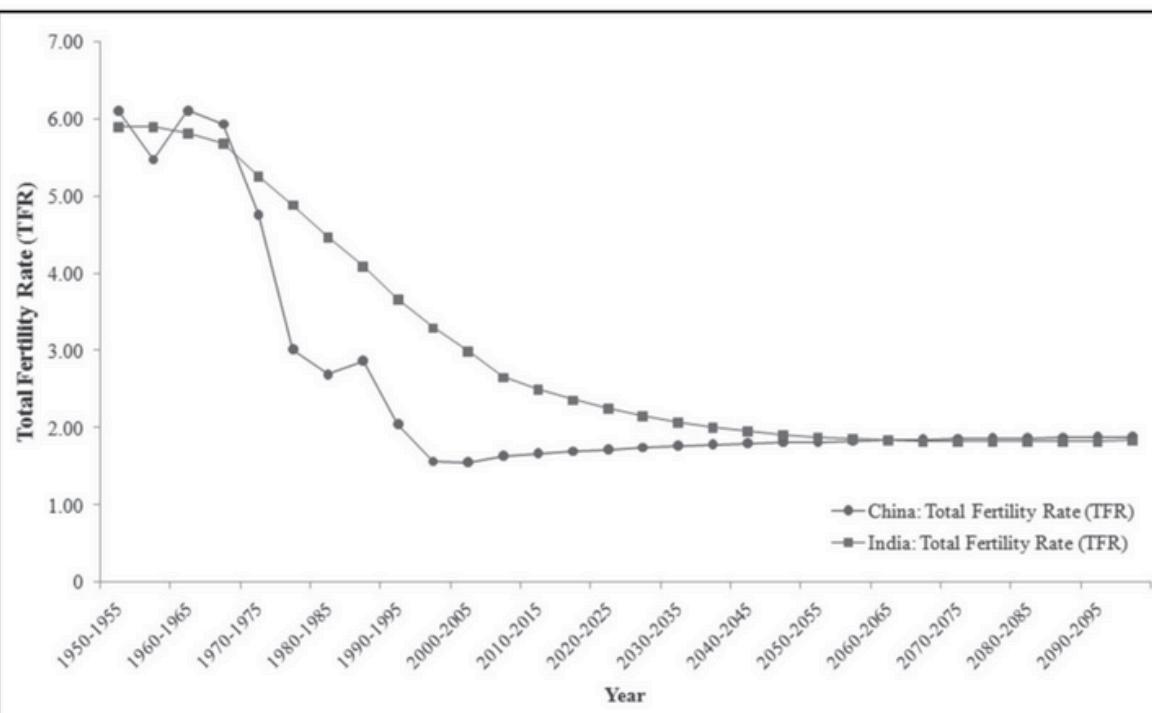
INDIA VS CHINA

1960s:

- Similar age structure, India ahead economically
- GDP per capita: India – **245** USD | China – **108.4** USD

China's Faster Demographic Shift (1970s–2000s)

- Rapid fertility decline reduced population growth from **2%** to **0.6%**.
- Dependency ratio dropped from **79.8** to **40.9** (1960s–2000s).
- Savings-to-GDP ratio: **30.5%** (1970s) → **45.9%** (2000s)

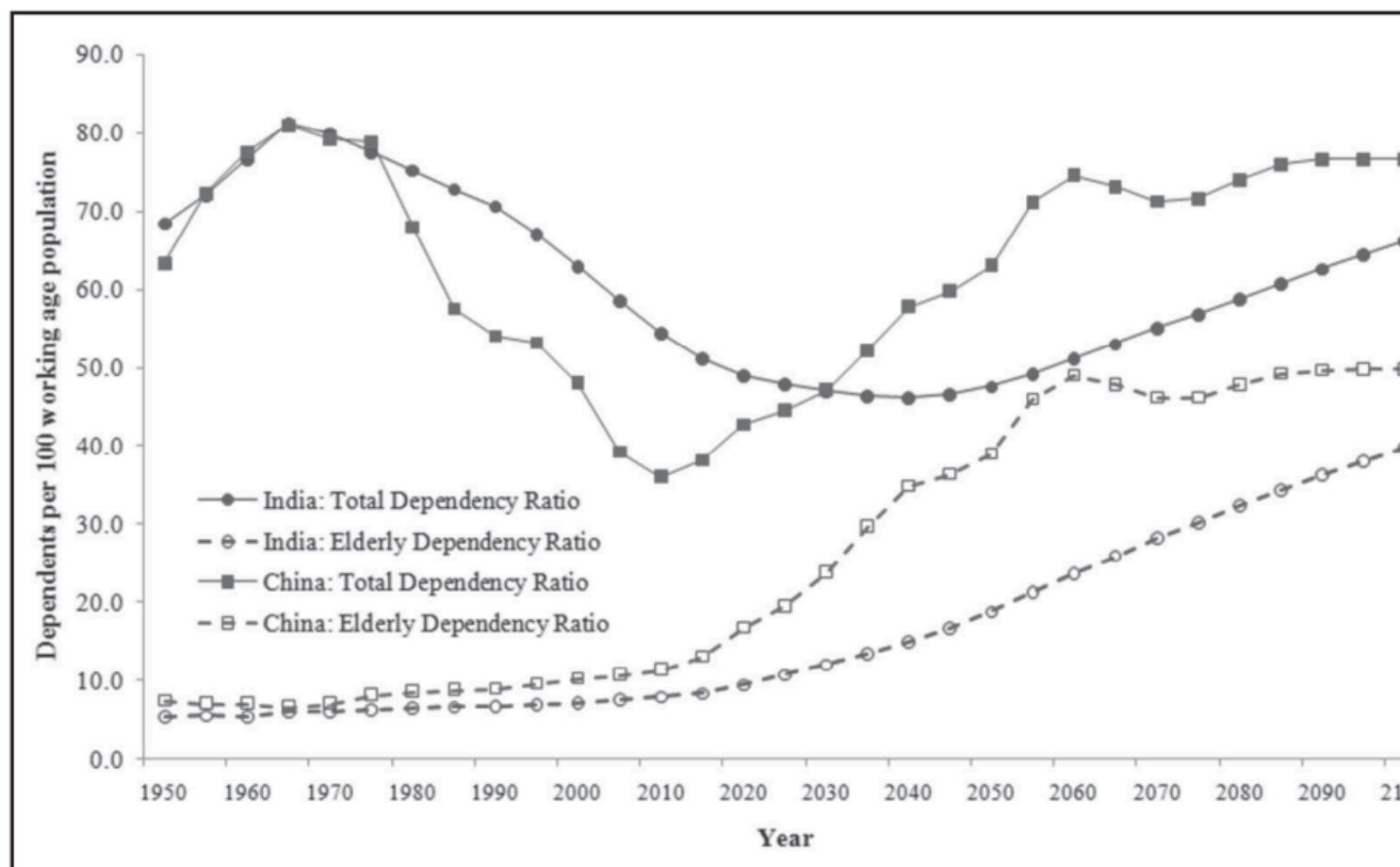


Source: World Population Prospects (12th Revision), United Nations (2014)

INDIA VS CHINA

India's Slower Transition:

- Dependency ratio projected to reach its lowest (46%) by 2040.
- However, India is expected to have a longer Demographic Dividend period.
- China: 1970–2015 (shorter window)
- India: 1970–2040 (**longer opportunity for growth**)



Source: World Population Prospects (12th Revision), United Nations (2014)

DEMOGRAPHIC DIVIDEND = LABOUR ABUNDANCE?

- Consider **two equally large and labour-abundant economies**, one having lower dependency ratio and the other with higher dependency burden.
- With similar growth environments, it is likely that the economy with **lower dependency burden** will present itself with **higher chances of economic growth**.
- This is because a lower dependency burden allows for **higher savings** and investment in **physical and human capital**, and thus contributes to sustained economic growth.



EFFECT ON ECONOMIC GROWTH

$$\frac{Y}{P} = \frac{Y}{L} \times \frac{L}{W} \times \frac{W}{P}$$

Y/P : per capita real GDP – output

Y/L (I) : output per labour – labour productivity

L/W (E) : ratio of labour force to working age population – participation opportunity

W/P (D) : ratio of working age population to total population – population age composition

AN EMPIRICAL ANALYSIS

$$\frac{Y}{P} = \frac{Y}{L} \times \frac{L}{W} \times \frac{W}{P}$$

$$Y = P \times \frac{Y}{L} \times \frac{L}{W} \times \frac{W}{P}$$

$$Y = P \times I \times E \times D$$

$$\ln(Y_2) - \ln(Y_1) = (\ln(P_2) - \ln(P_1)) + ((\ln(I_2) - \ln(I_1)) + \ln(E_2) - \ln(E_1)) + (\ln(D_2) - \ln(D_1))$$

$$\Delta Y = \frac{\Delta Y}{(\ln(Y_2) - \ln(Y_1))} \{ (\ln(P_2) - \ln(P_1)) + ((\ln(I_2) - \ln(I_1)) + \ln(E_2) - \ln(E_1)) + (\ln(D_2) - \ln(D_1)) \}$$

$$\Delta Y = \delta P + \delta I + \delta E + \delta D$$

DEMOGRAPHIC COMPONENT :
ECONOMIC COMPONENT :

$\delta P + \delta D$
 $\delta I + \delta E$

DEMOGRAPHIC DIVIDEND ANALYSIS

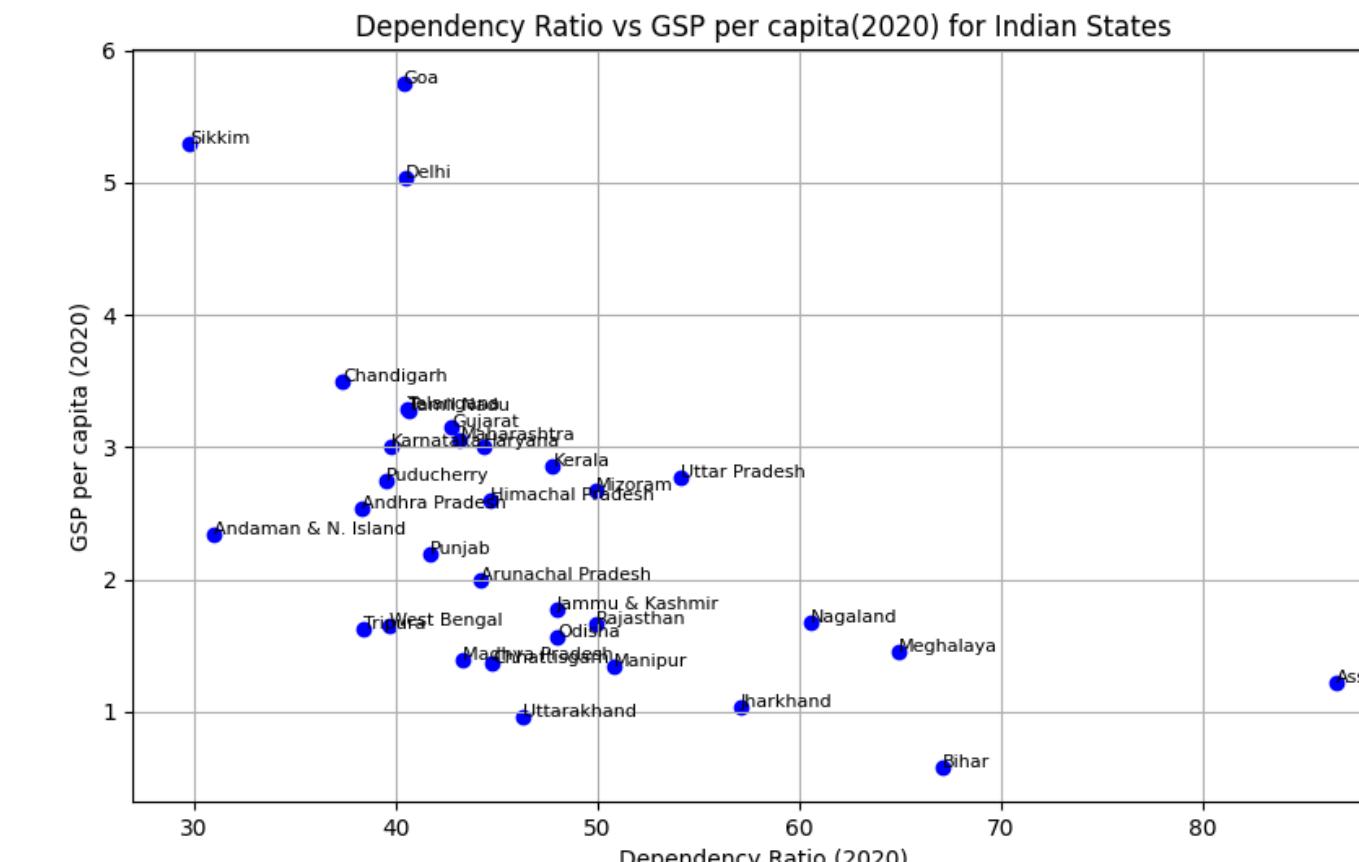
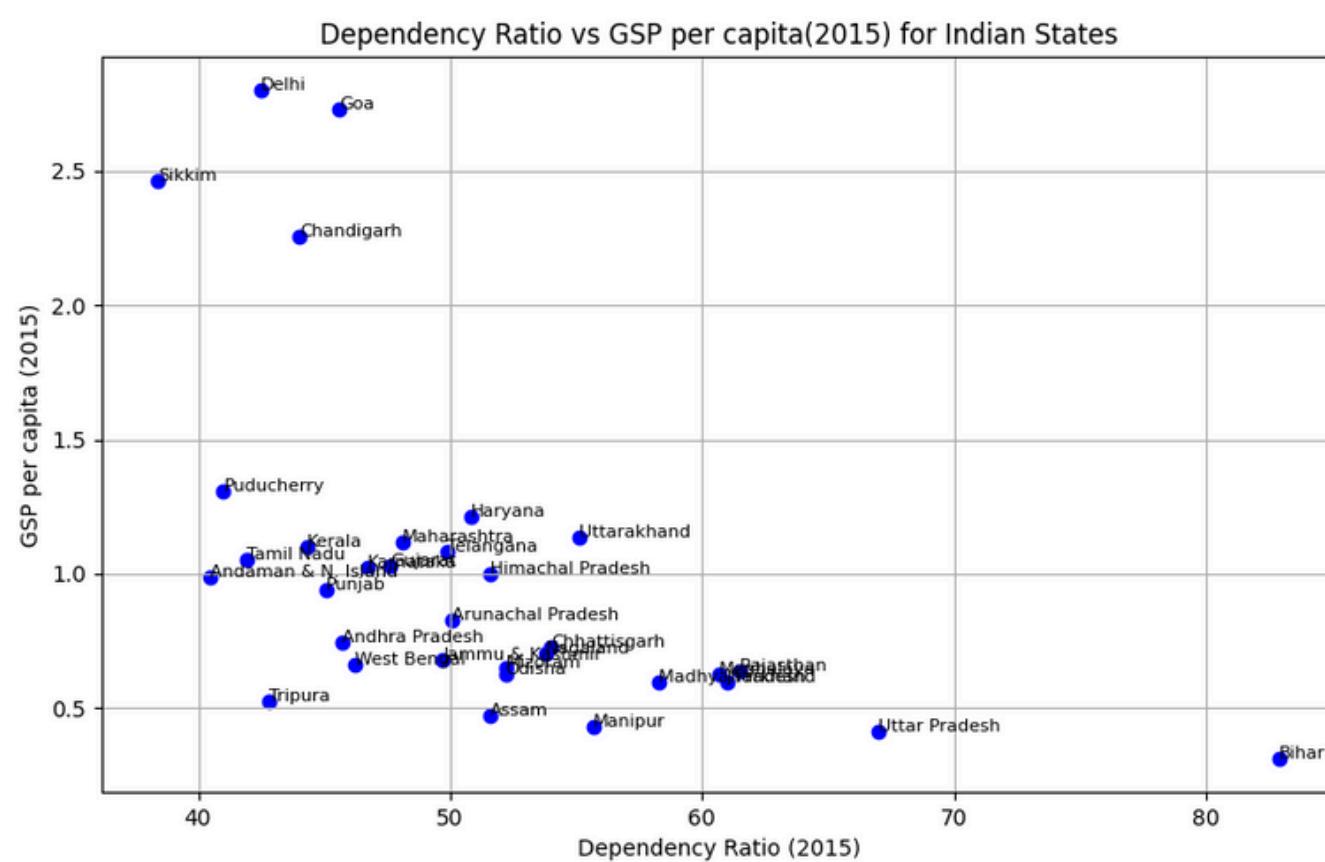
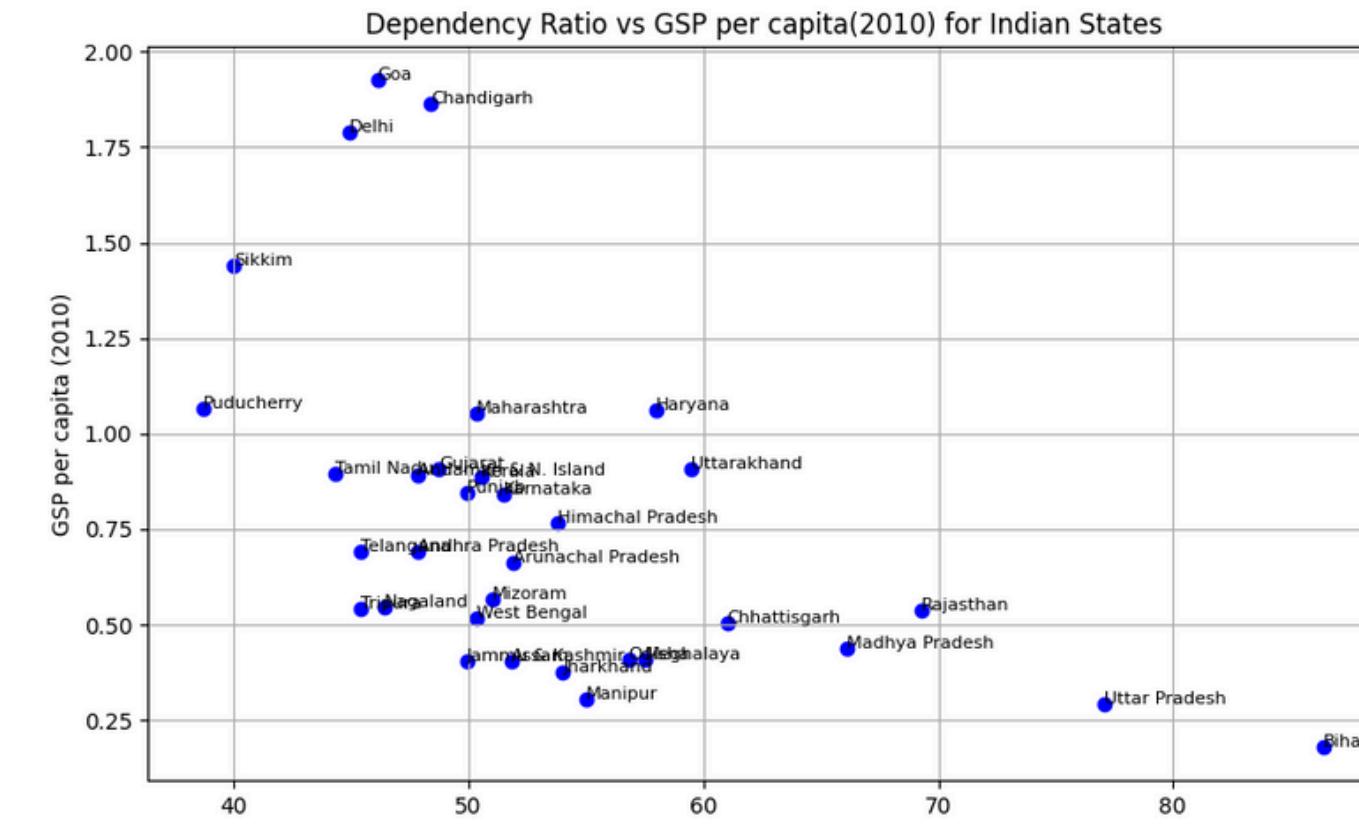
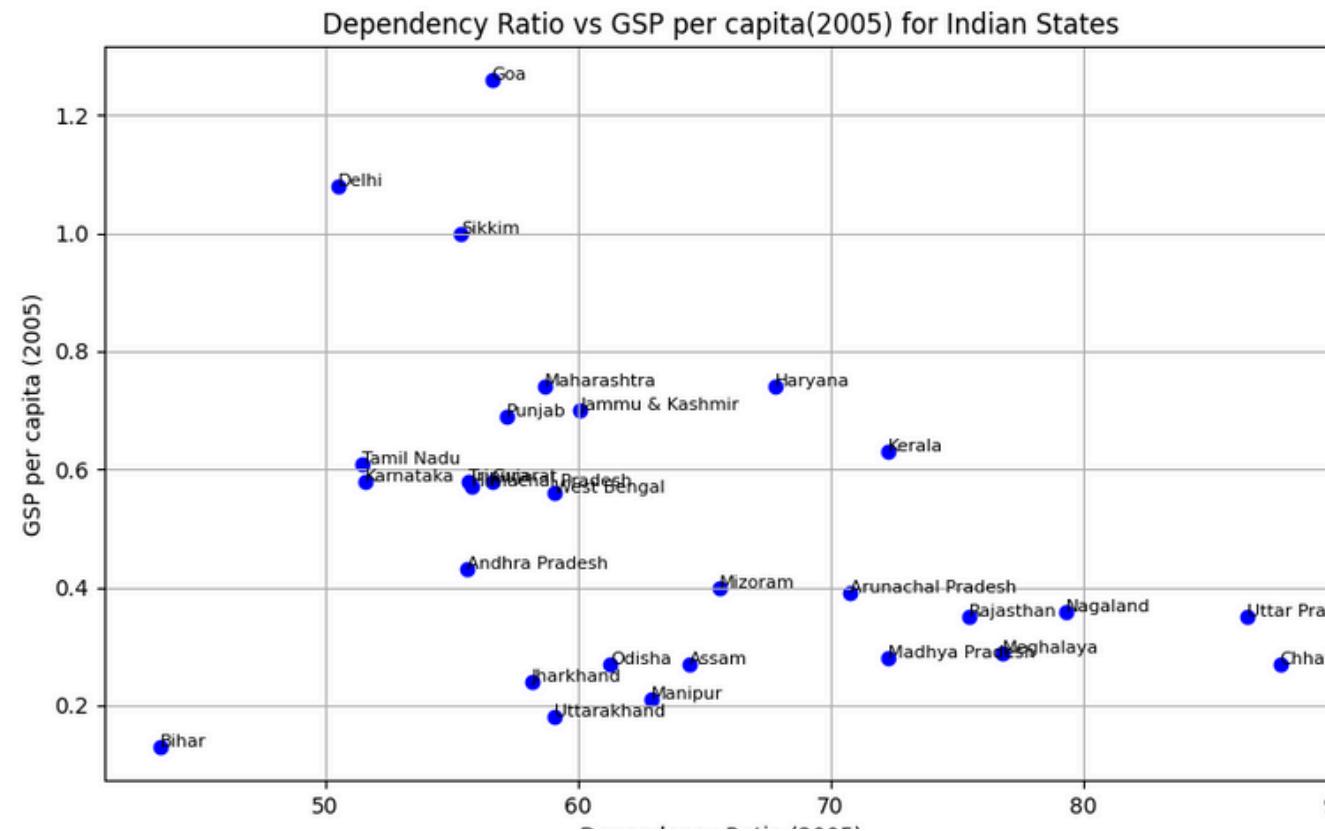
DEMOGRAPHIC COMPONENT CONTRIBUTED TO 30% OF THE CHANGE IN GDP OF INDIA BETWEEN 2001 AND 2011

STATE	ΔY	δP	δD	δI	δE	Demographic component
ANDHRA PRADESH	2049.7	278.2393617	143.3571158	1566.053635	62.04988738	0.2056869188
GOA	444.91	109.3075588	39.92683811	279.3215604	16.35404269	0.09734095092
KERALA	994.01	64.31180046	10.8918173	1524.894636	-606.0882537	0.075656802
MADHYA PRADESH	826.19	245.5299359	104.6822983	457.6435551	18.33421065	0.4238882511
RAJASTHAN	1118.16	290.3426292	127.6303632	623.4680375	76.71897014	0.3738042788
UTTAR PRADESH	1744.66	553.8635404	229.3023228	1493.809017	-532.3148803	0.4488931157

Reasons for regional variations in the demographic component of increase in GDP:

- Different fertility rates
- Possibly crossed the window of opportunity

GSDP PER CAPITA VS DEPENDENCY RATIO



BUT IS DEMOGRAPHIC TRANSITION ENOUGH?

DEMOGRAPHIC TRANSITION CAN BE A DEMOGRAPHIC DISASTER.

Growth benefit of demographic dividend is **not automatic**.

Increase in working-age population must be accompanied by **skill development and job creation**.

Without sufficient jobs, **more people will remain dependent** on the employed population.

Automation and **technology** may **replace** existing jobs.

South Asia, India risk squandering demographic dividend: World Bank

Between 2000–2022, India's employment ratio fell by more than in any other South Asian country except Nepal; India's robust economic expansion has, however, kept the region's output growth stronger than in other emerging market and developing economies

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THE HINDU BUREAU

ECONOMICS

SOUTH ASIA

India's business-as-usual will waste its demographic dividend

Published: 20 November 2023

BOOSTING SAVINGS

Stimulate higher boosting of savings, following the example of China and other Asian economies.

POLICY REFORMS FOR SUSTAINED GROWTH

Create a robust business environment to attract global investment. Promote cost-efficient manufacturing (e.g., automobiles, electronics) and exports.

INVESTMENT IN HEALTH

Healthier populations enhance productivity, savings, and investment.

SKILLING & EDUCATION

Skill development to increase employability of young population.

EMPLOYMENT GENERATION BEYOND AGRICULTURE

Shift labour from agriculture to non-agricultural sectors, given agriculture's vulnerability to climate change.

FEMALE EDUCATION & LABOR PARTICIPATION

Increase public and private investment in human capital with a focus on equitable access and quality.



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THANK YOU
