

The background of the slide features a majestic mountain range under a vast sky. The mountains in the foreground are dark blue, while those in the middle ground are partially illuminated by a warm, orange glow from the setting sun. The sky above is a deep, hazy orange, transitioning into a darker blue at the top. A few wispy clouds are scattered across the sky.

IS WORLD A BETTER PLACE THAN WE THINK?

A Data Visualization Project

By: Nishant Jain (nishjain@iu.edu)



MOTIVATION

- ‘Factfulness’ by Hans Rosling



MOTIVATION

- What it is?
- World as we know vs World as it is
- Instincts and Perceptions



MOTIVATION

- Why?
 - First know then act
 - Appreciation
 - Positivity



RELEVANT WORK

- Gapminder using the data from various sources like World Bank, United Nations
- Online database and tools to visualize
- Bubble charts and line charts

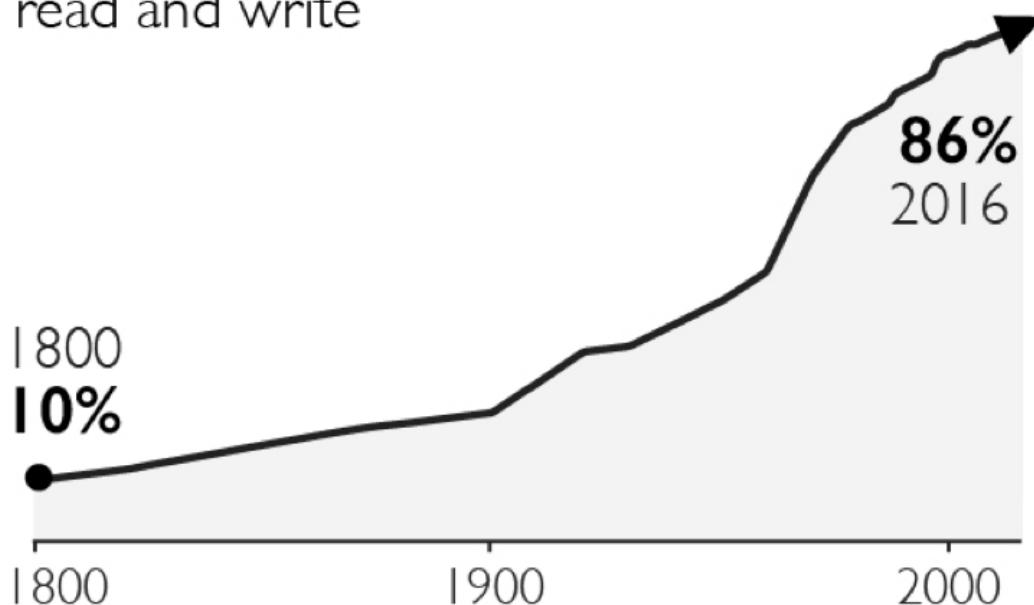
- Our World in Data (OWD)
- Line charts and choropleth
- Detailed study about each topic



EXAMPLES

LITERACY

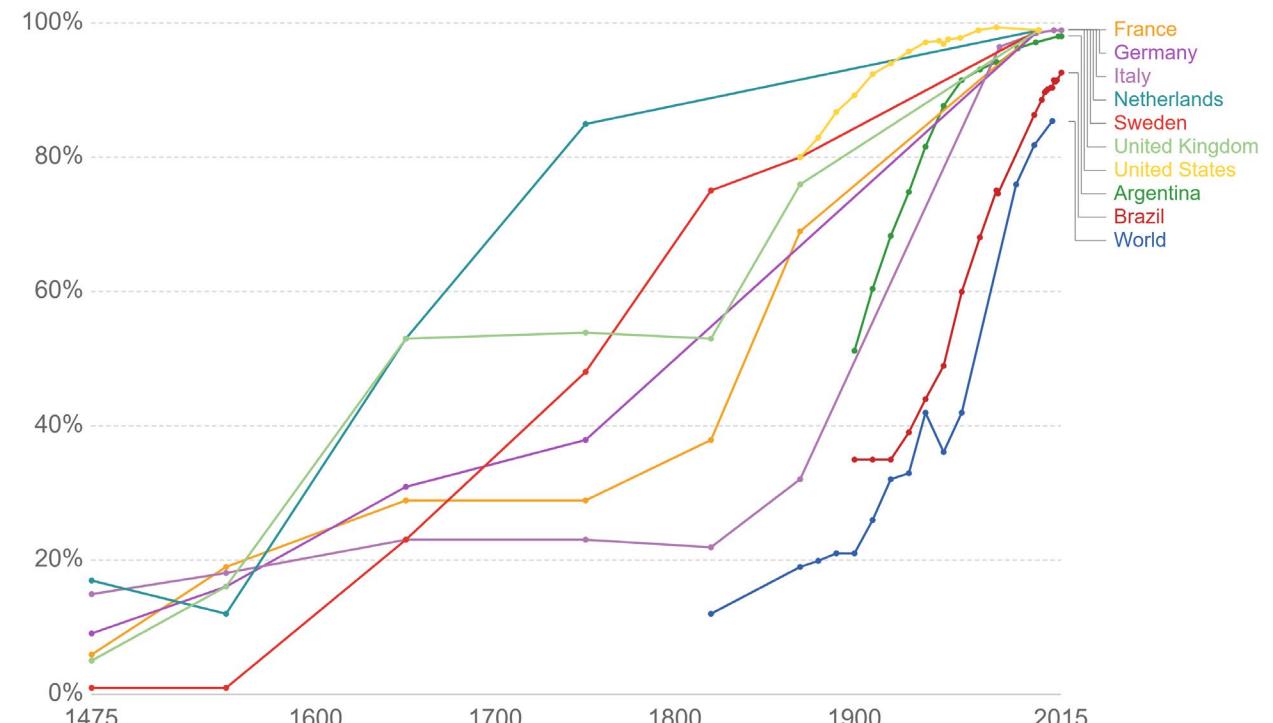
Share of adults (15+) with basic skills to read and write



Source: Gapminder[21] based on UNESCO[2] & van Zanden[3]

Literacy rate

Estimates correspond to the share of the population older than 14 years that is able to read and write. Specific definitions and measurement methodologies vary across countries and time. See the 'Sources'-tab for more details.

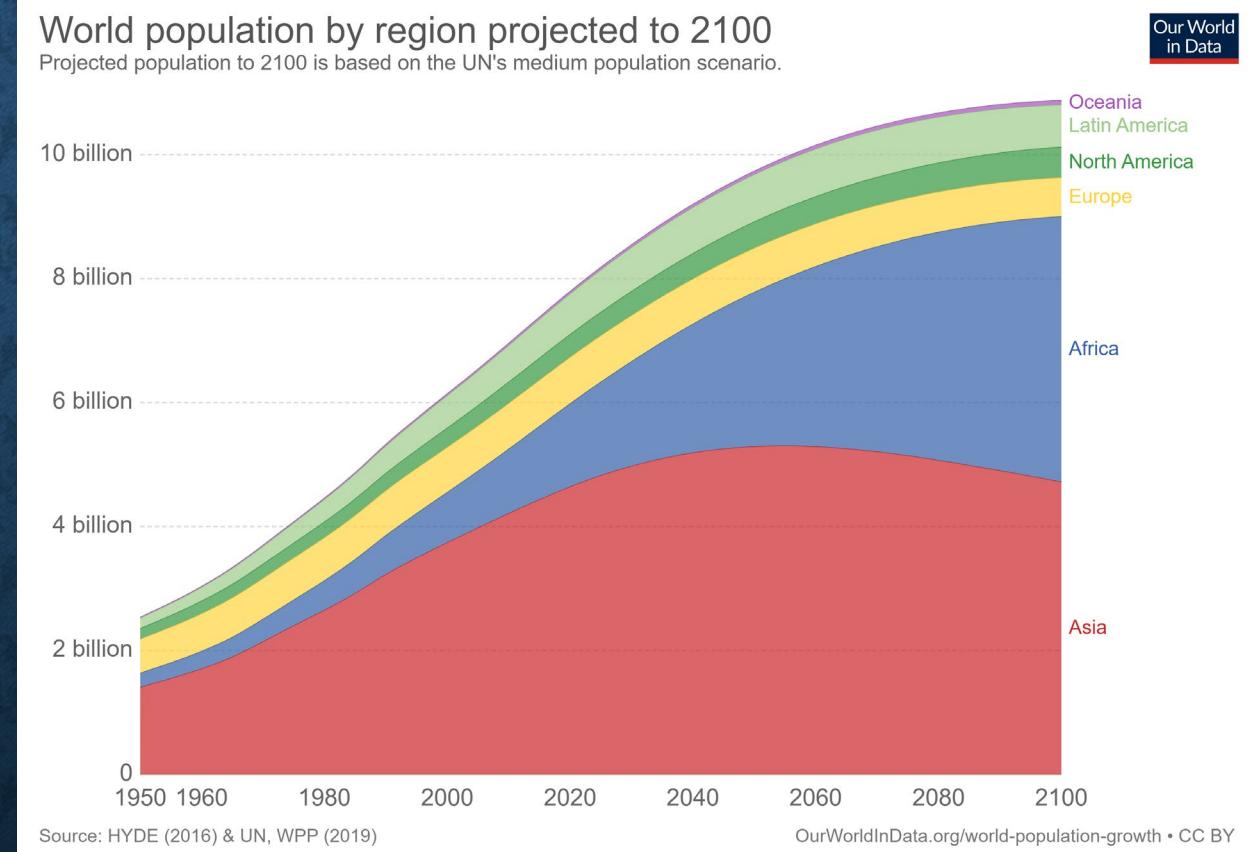
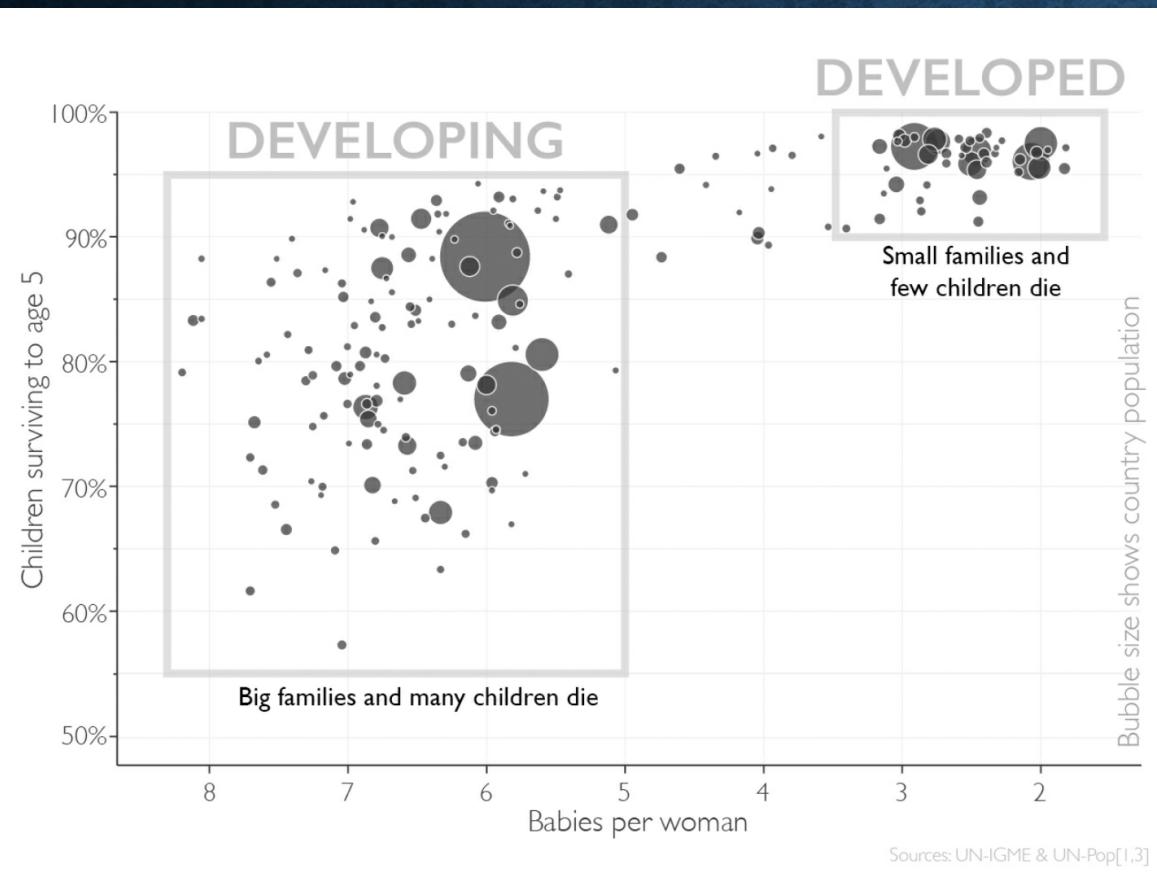


Source: WDI, CIA World Factbook, & other sources

OurWorldInData.org/literacy • CC BY



EXAMPLES



DATA AND METHODS

Data Sources:

- World Development Index (World Bank)
- Gapminder (Aggregated from sources like United Nations, World Bank etc.)

Tools:

- Python - Jupyterlab
- Pandas, for tidying the data

Visualization Libraries:

- Seaborn – Matplotlib
- Plotly - Cufflinks



PRIMARY EDUCATION

In all low-income countries across the world today, how many girls finish primary school?

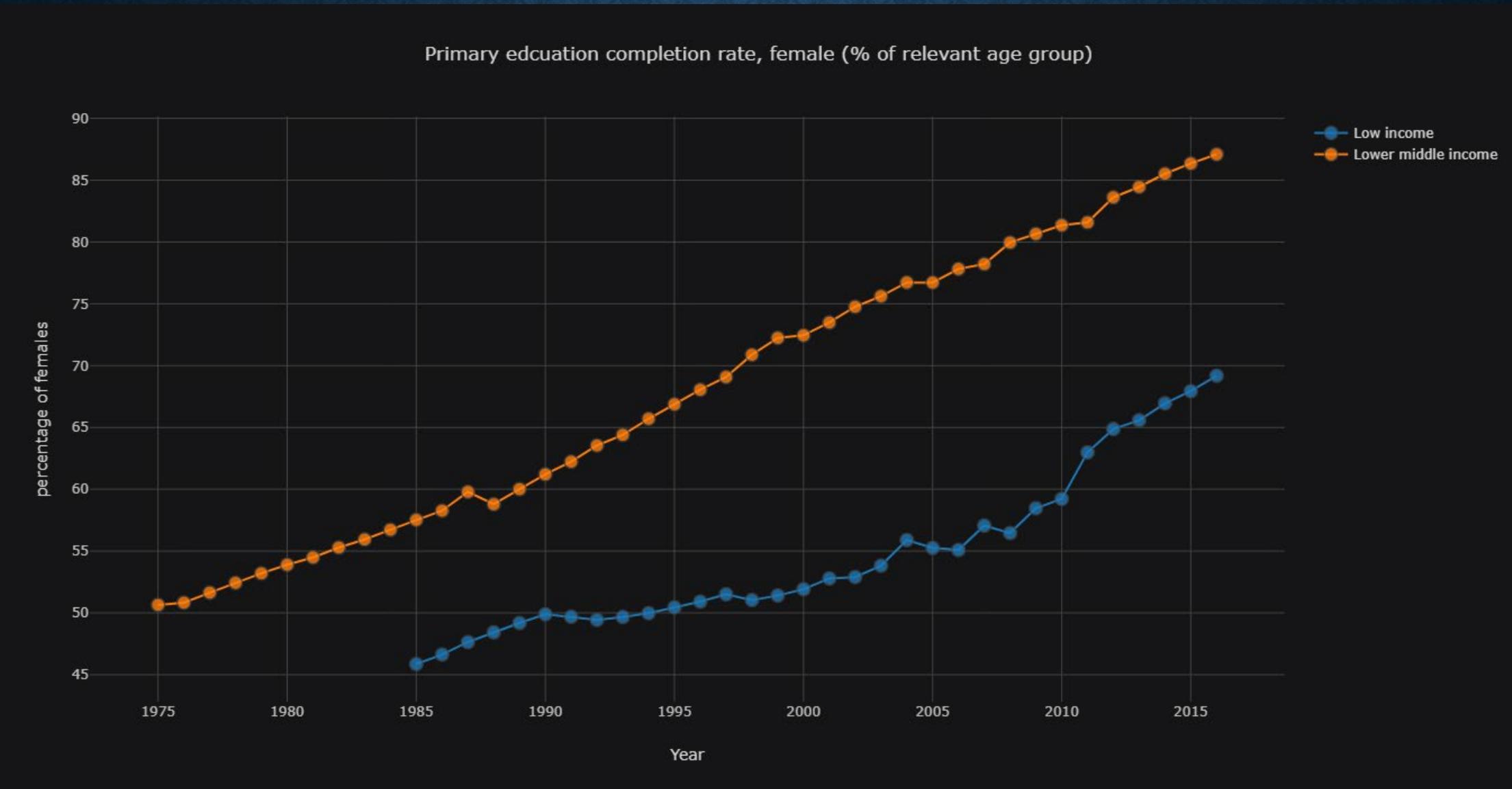
A: 20 percent

B: 40 percent

C: 60 percent

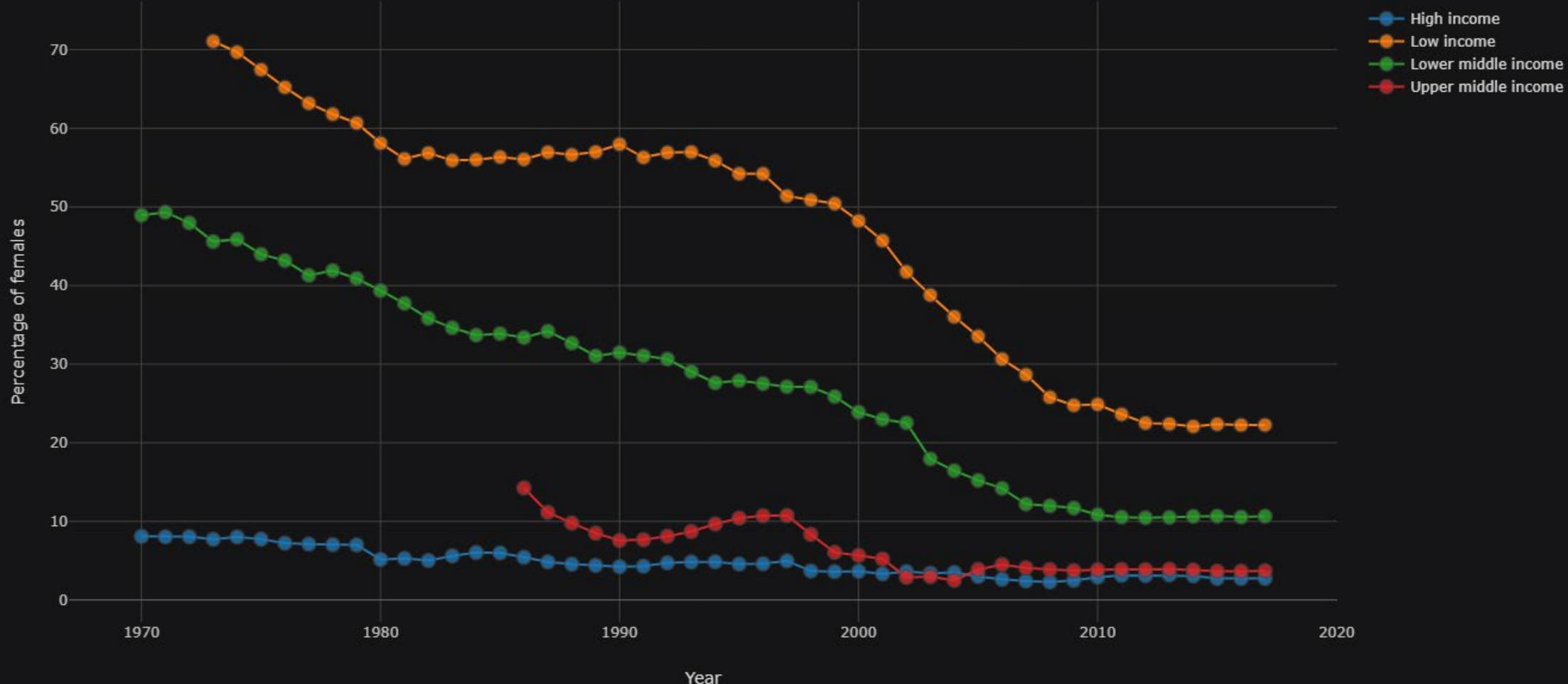


IN ALL LOW-INCOME COUNTRIES ACROSS THE WORLD TODAY, HOW MANY GIRLS FINISH PRIMARY SCHOOL?

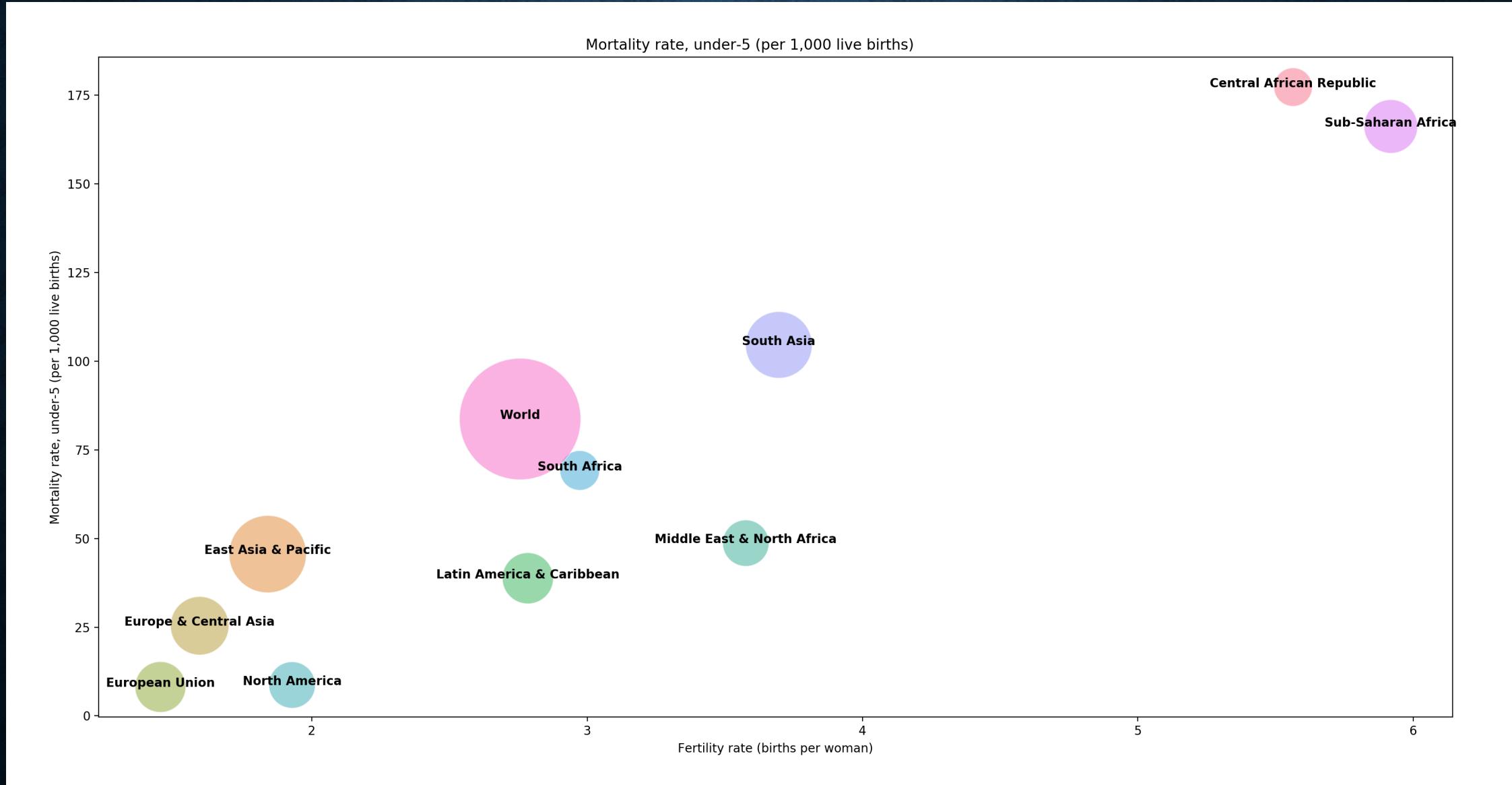


SCHOOL DROPOUT RATE IN FEMALES (PRIMARY SCHOOL)

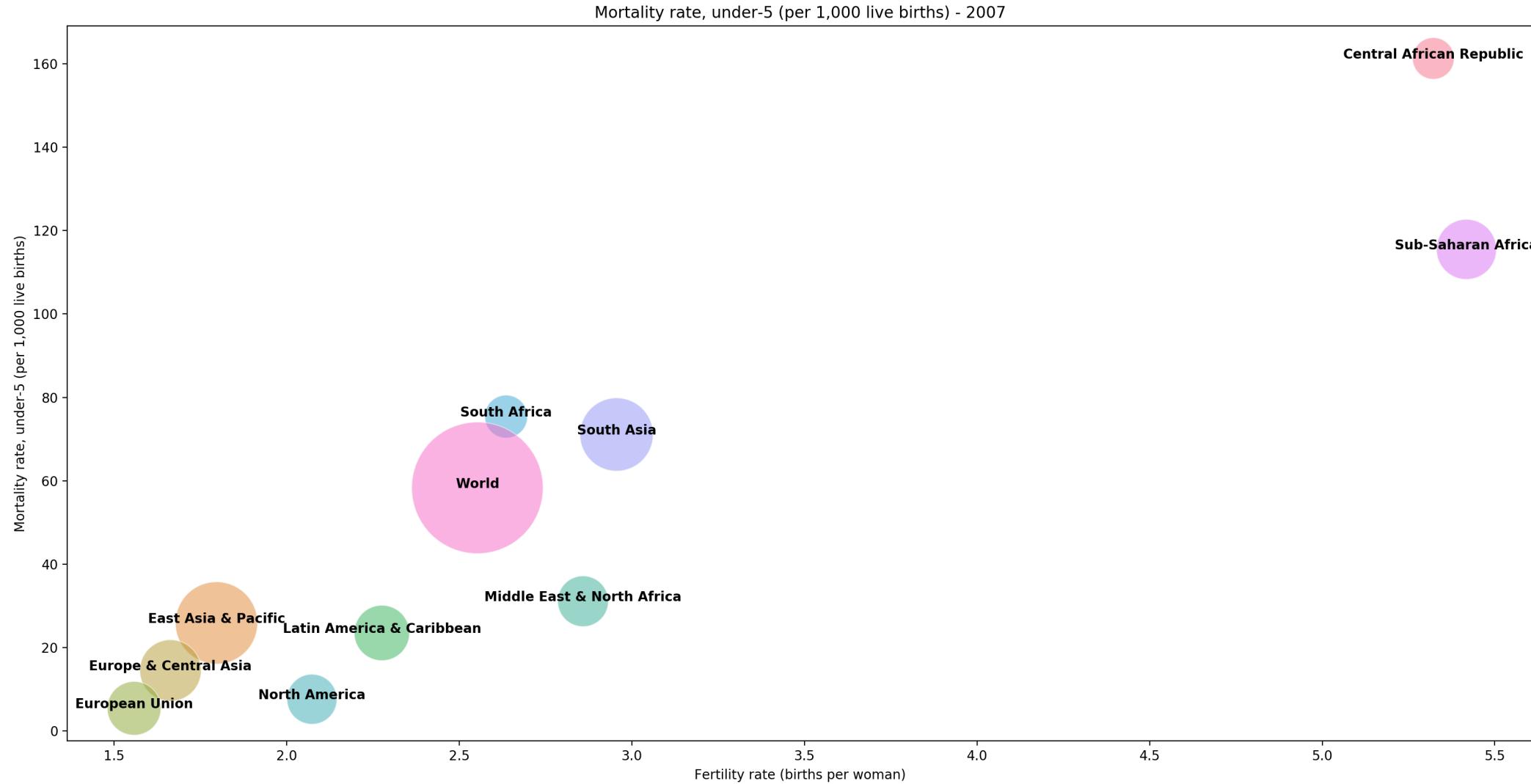
Children out of school, female (% of female primary school age)



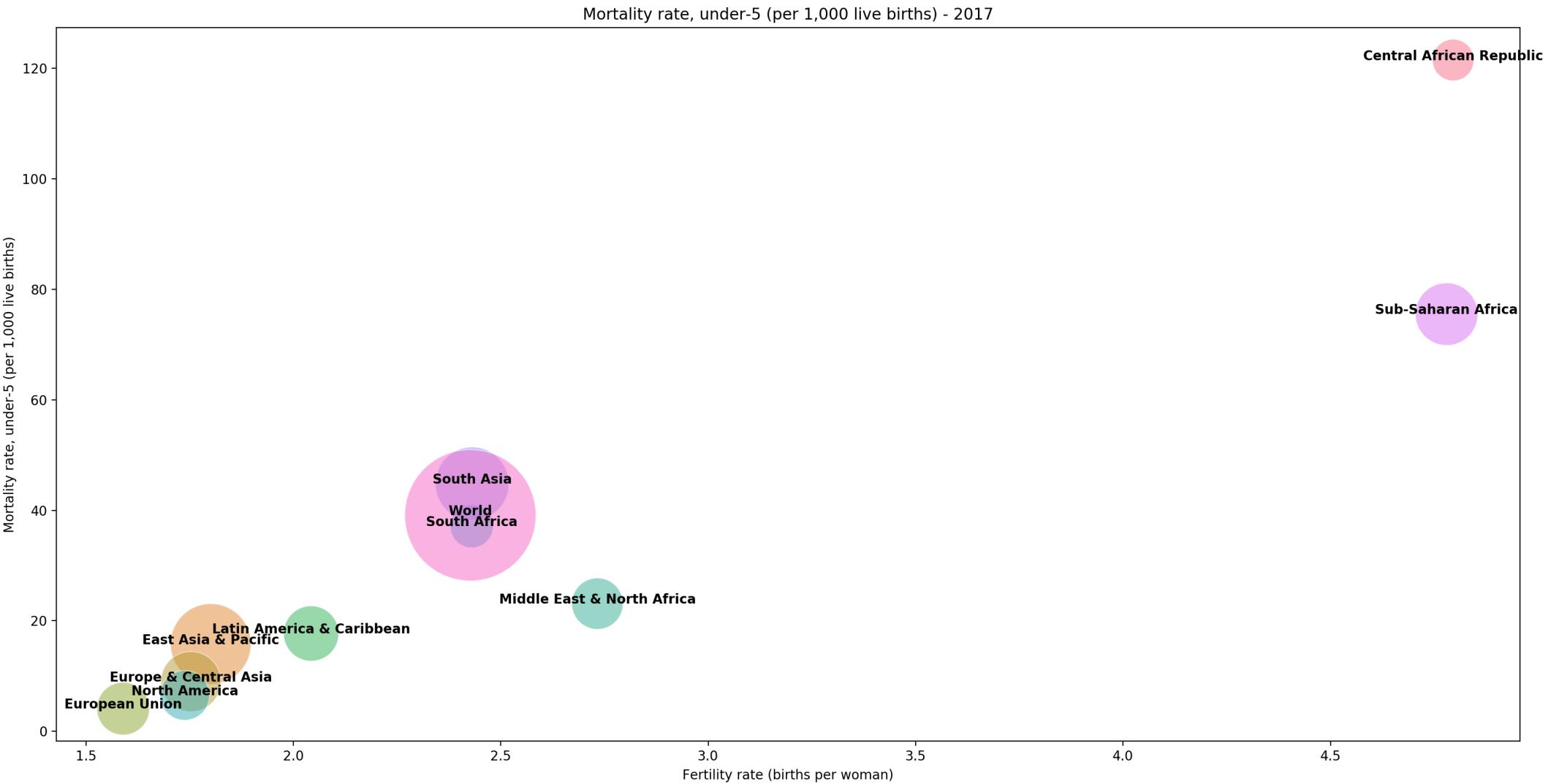
CHILD MORTALITY RATE



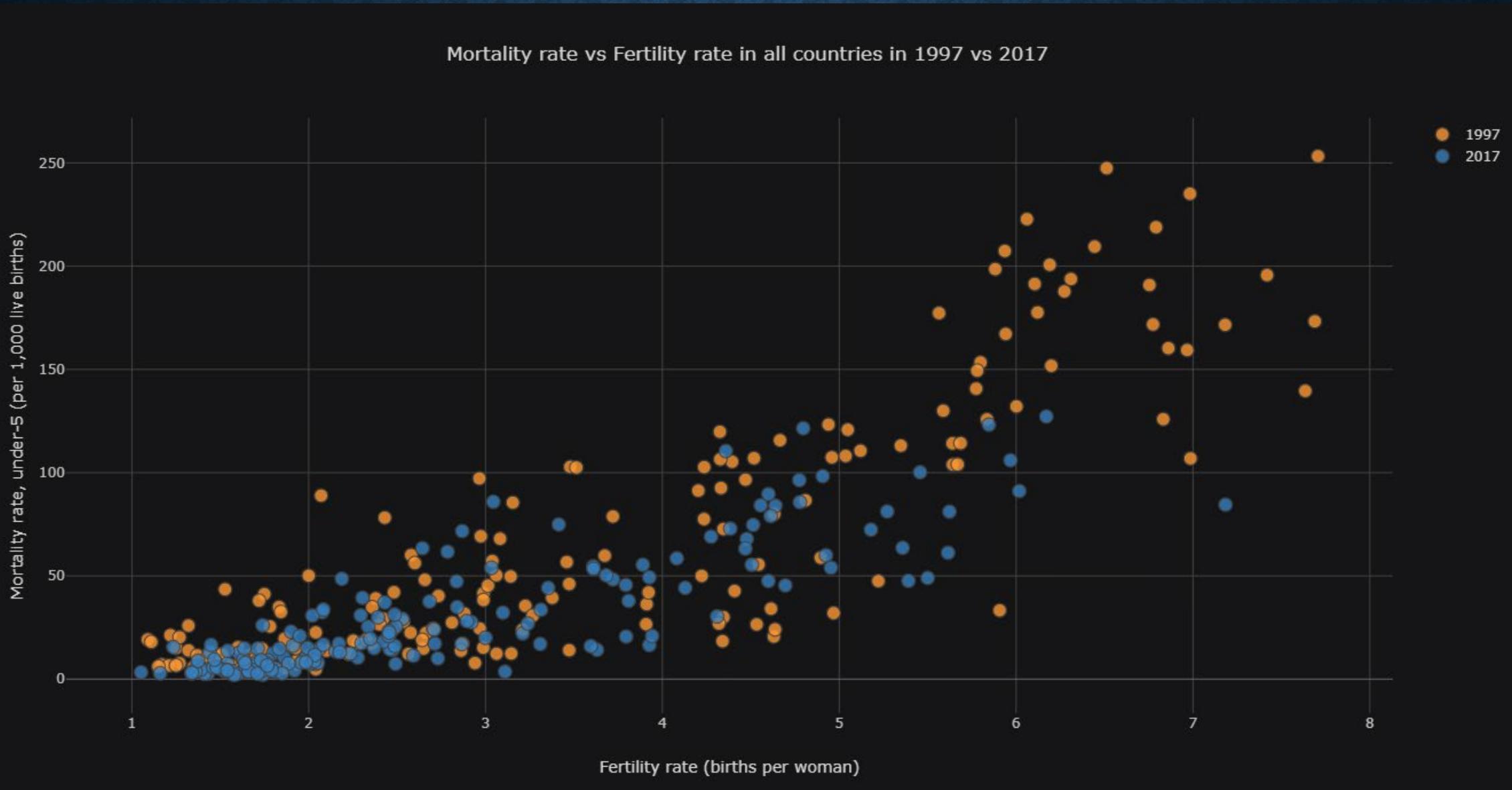
THAT'S NOT THE CURRENT PICTURE



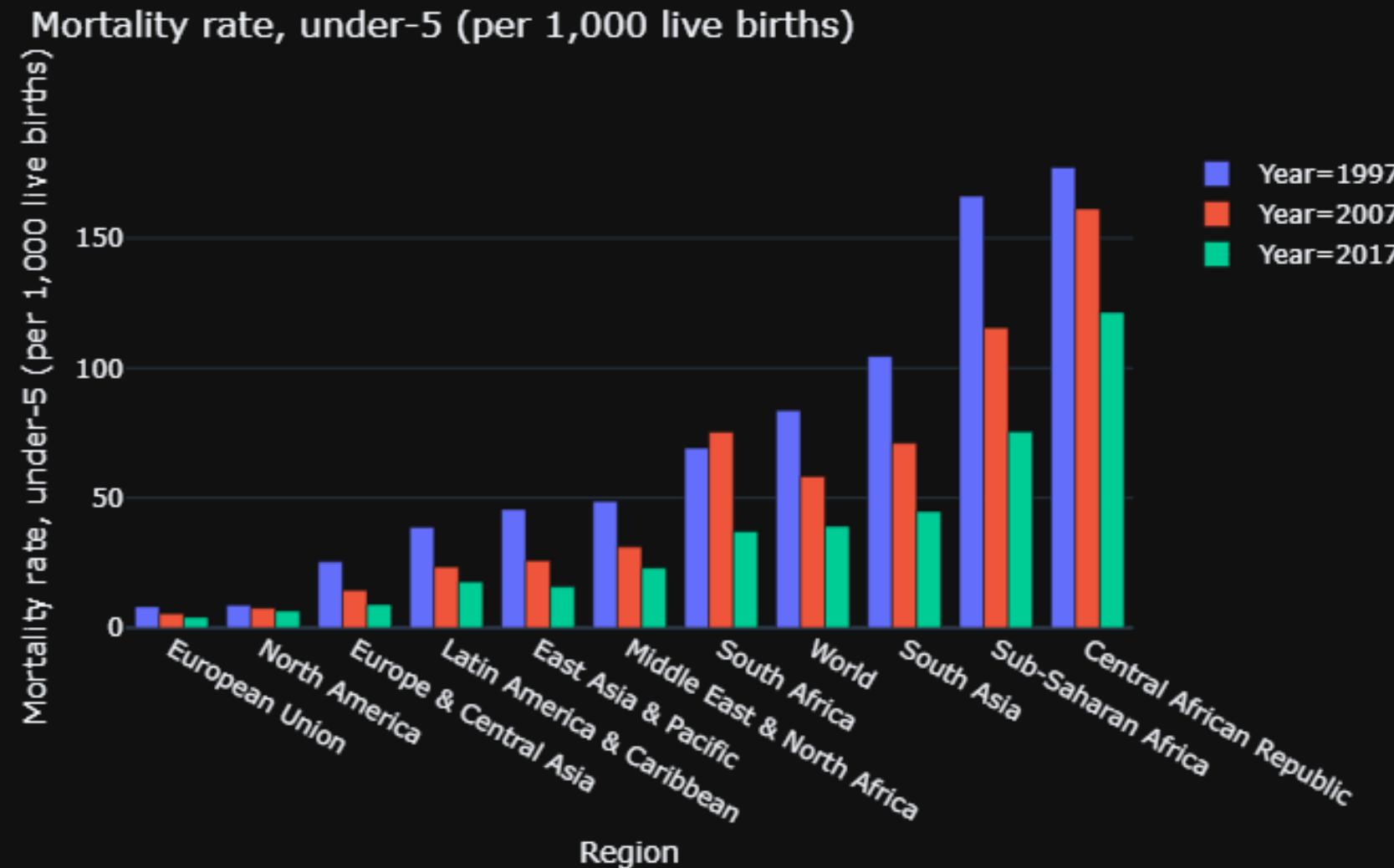
TODAY'S WORLD



WHAT ABOUT INDIVIDUAL COUNTRIES?



A GROUPED BAR CHART



WORLD POPULATION DIVISION

In the first section we came across four categories:
low income, lower middle income, upper middle income, high income,
What are these?



DEVELOPED VS DEVELOPING?

- World division based on economic condition:
 - Developed vs Developing
 - West vs Rest
 - Rich vs Poor

Is this the accurate picture?



THE NEW CLASSIFICATION

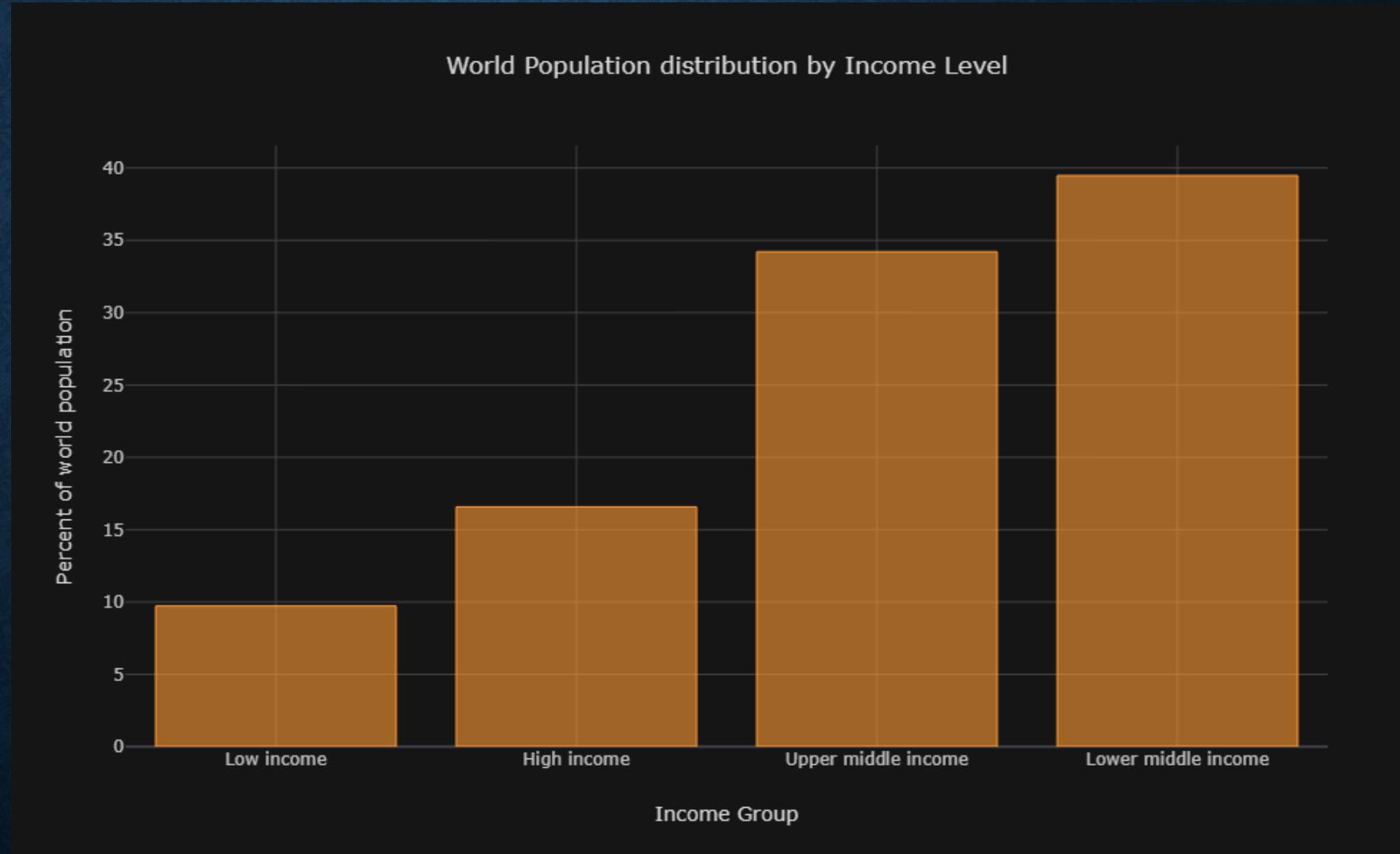
Where does the majority of the world population live?

A: Low-income countries

B: Middle-income countries

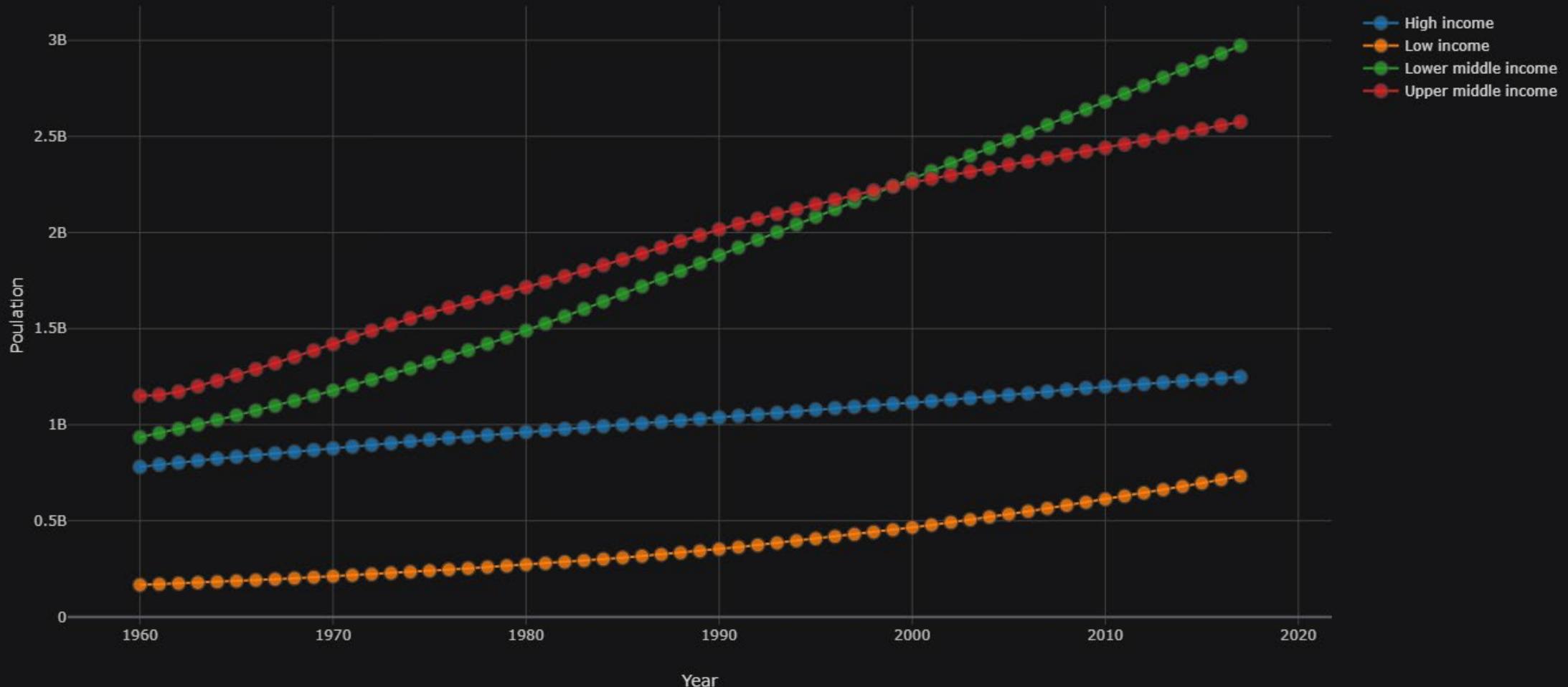
C: High-income countries

This is the snapshot in 2017, with the total population being 7.5 Billion

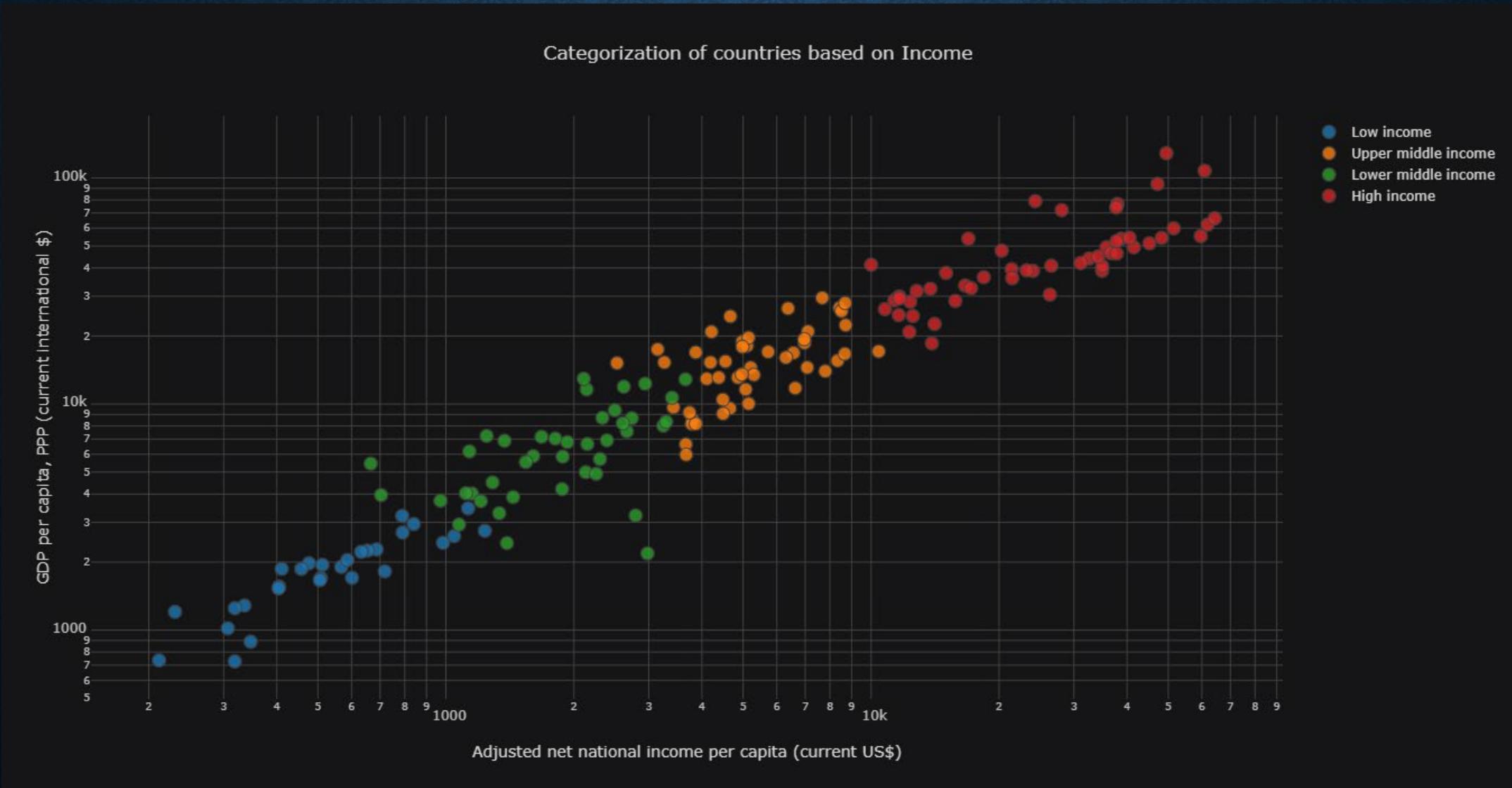


DISTRIBUTION ACROSS THE TIME

World Population distribution by Income Level



IS THIS THE RIGHT DISTRIBUTION?



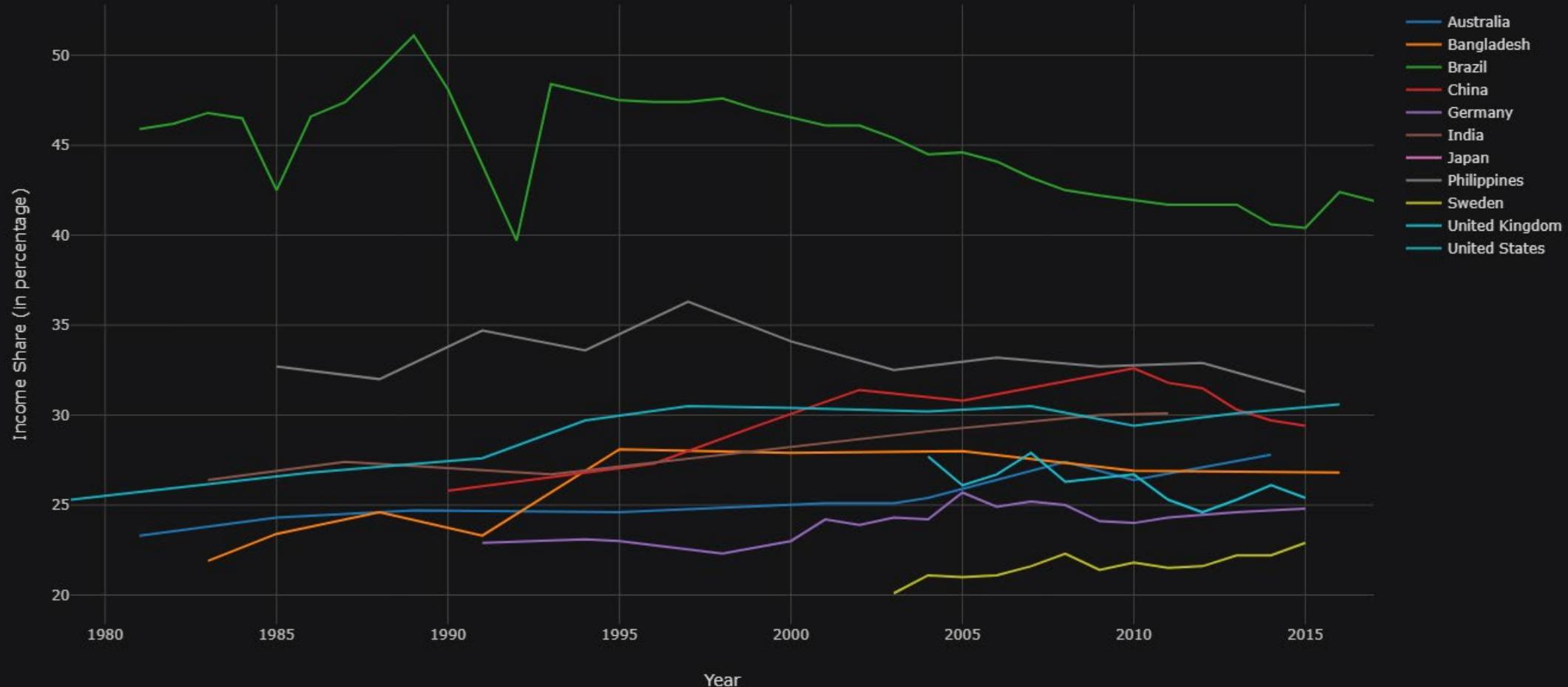
INCOME DISPARITY

We regularly hear about how the rich are getting richer and poor are getting poorer. The gap is increasing day by day. So, let's explore these claims through data and establish some facts.



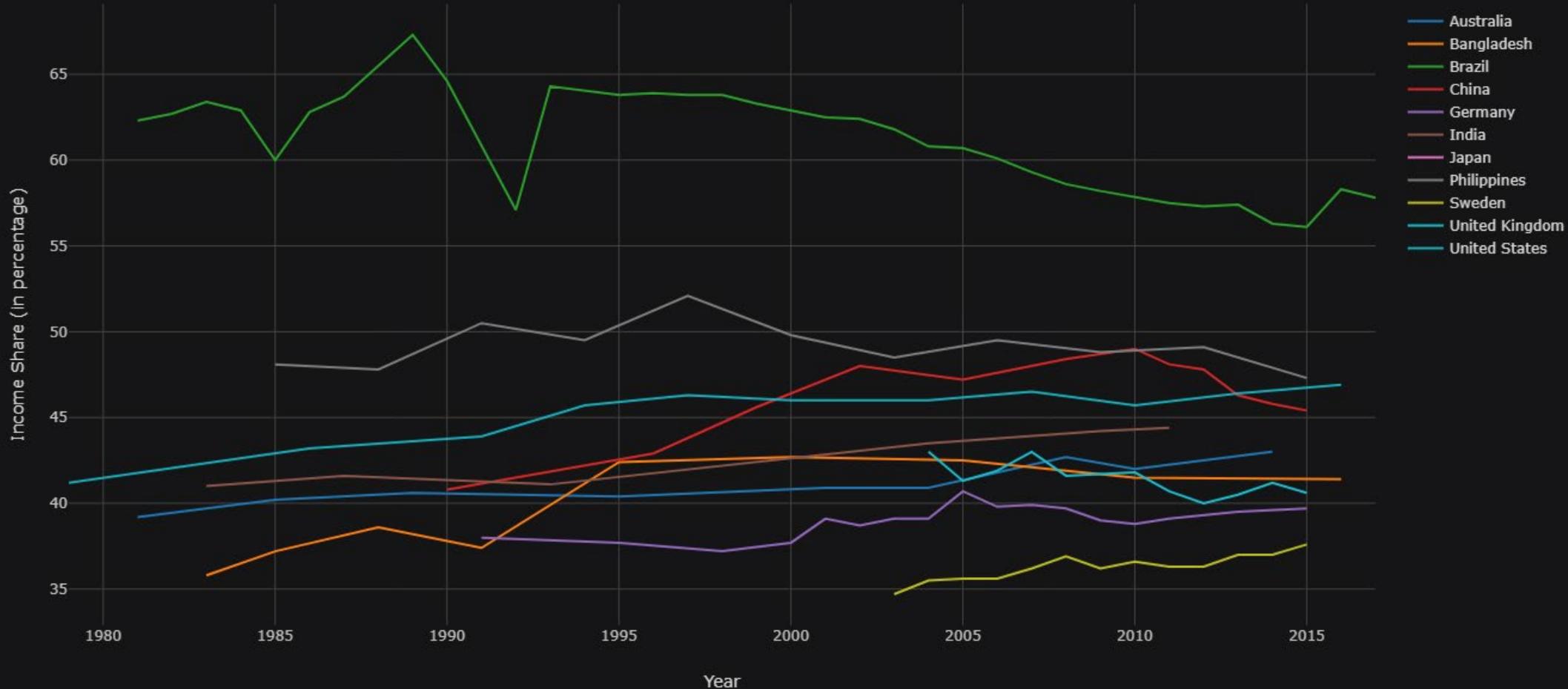
INCOME SHARE RICHEST 10%

Income share held by the richest 10%



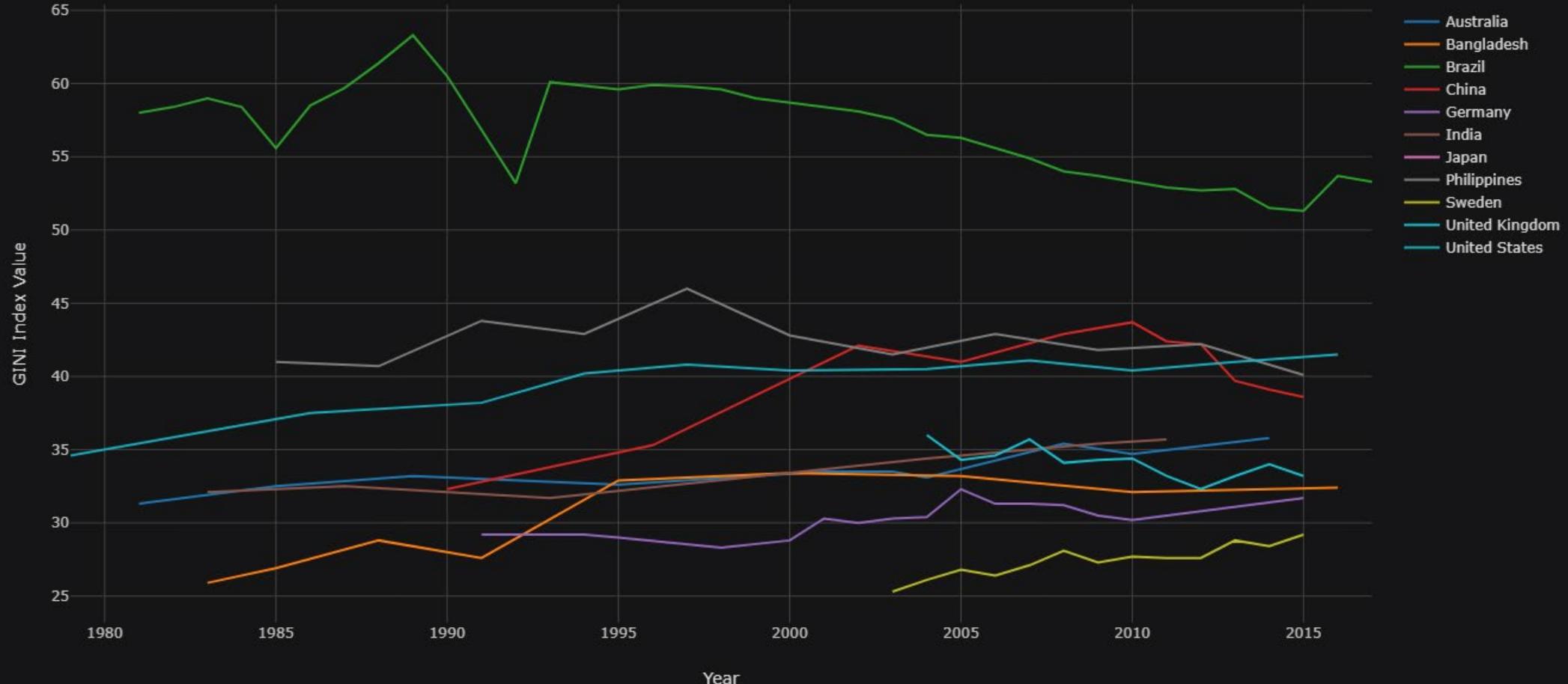
INCOME SHARE RICHEST 20%

Income share held by the richest 20%



INCOME DISPARITY (GINI INDEX)

GINI Index 0(Perfect Equality) - 100 (Perfect Inequality)



POVERTY

In the last 20 years, the proportion of the world population living in extreme poverty has ...

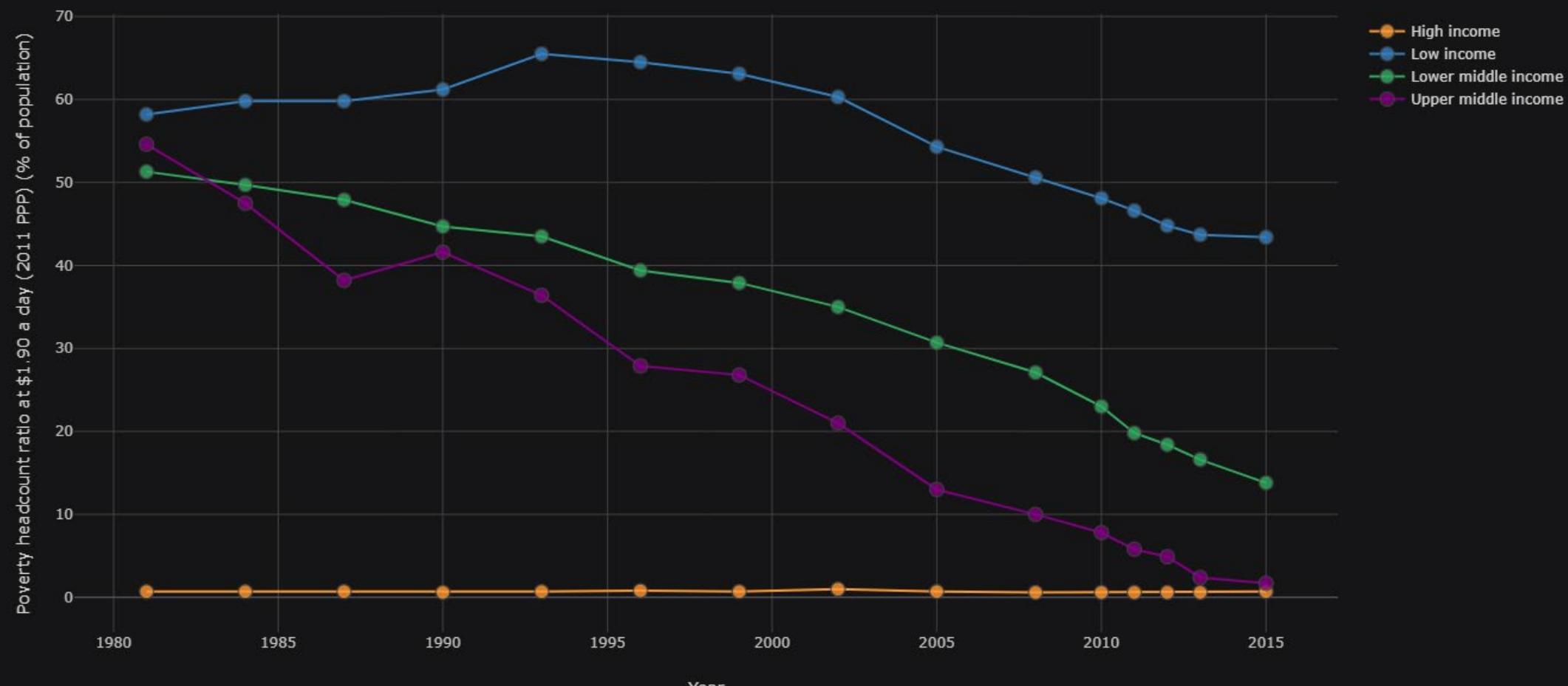
A: almost doubled

B: remained the same

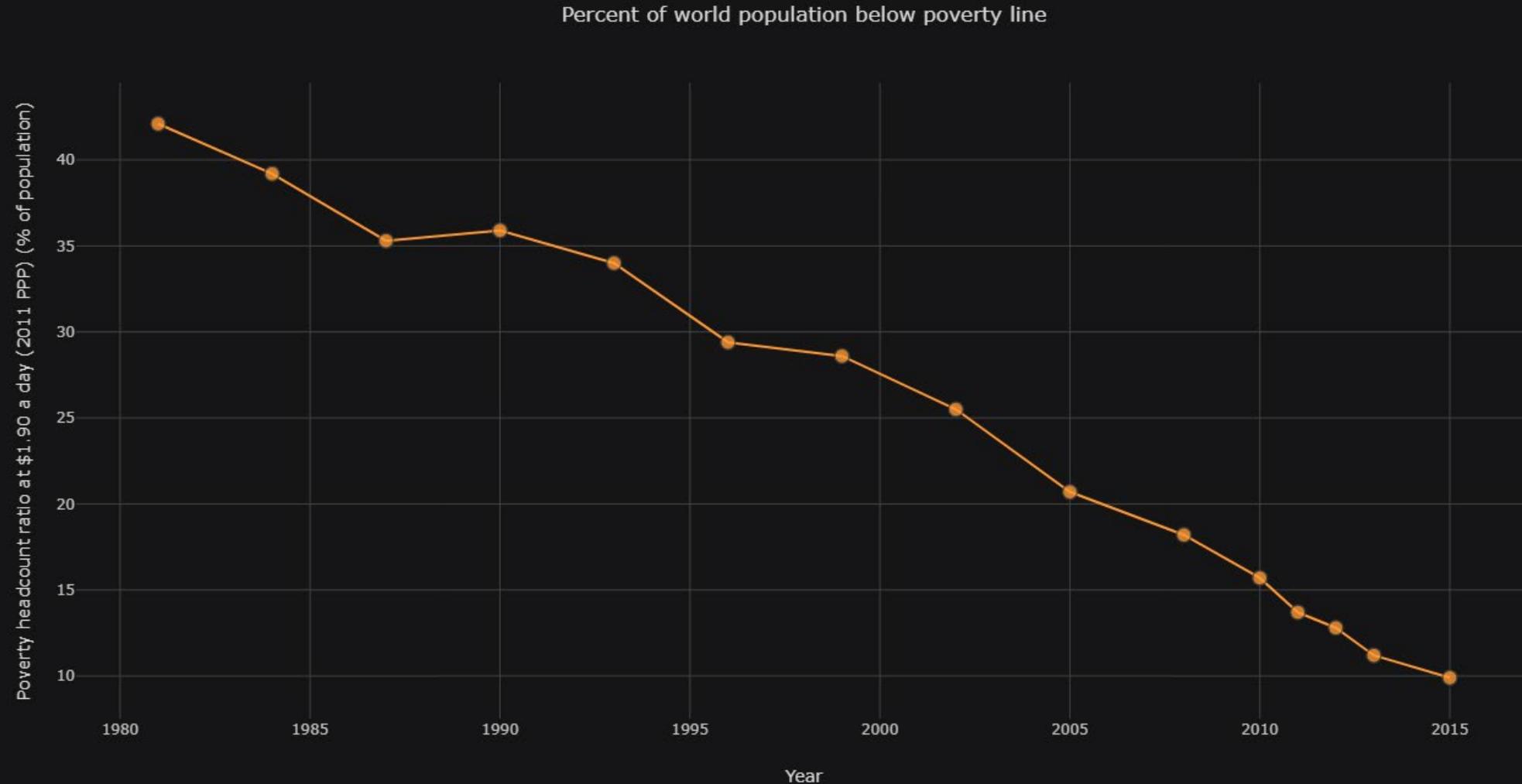
C: almost halved



POVERTY HEADCOUNTS AT \$1.90 (PPP)

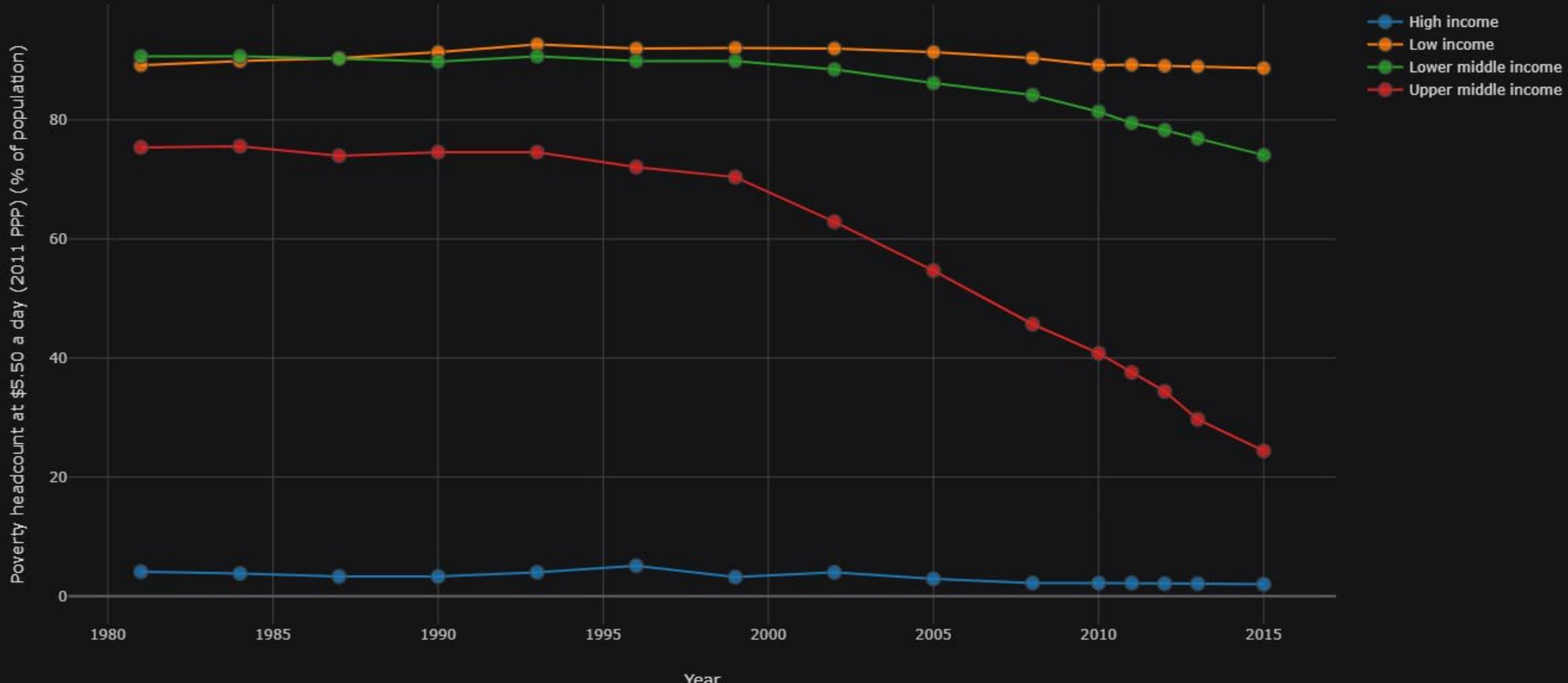


ANSWER TO THE QUESTION

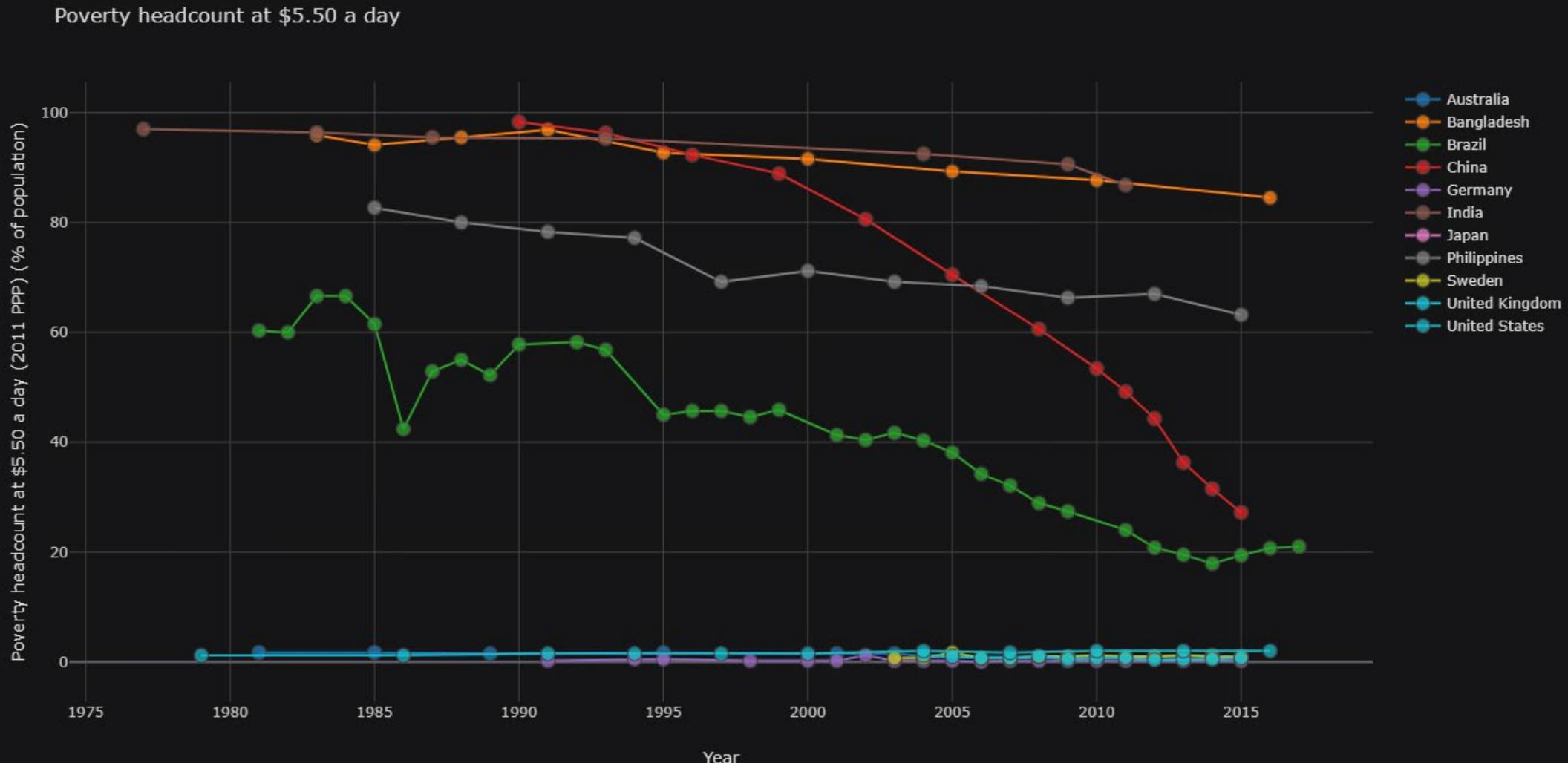


HOW ABOUT \$5.50 A DAY?

Poverty headcount at \$5.50 a day by income level



HOW ABOUT \$5.50 A DAY?



LIFE EXPECTANCY

What is the life expectancy of the world today?

A: 50 years

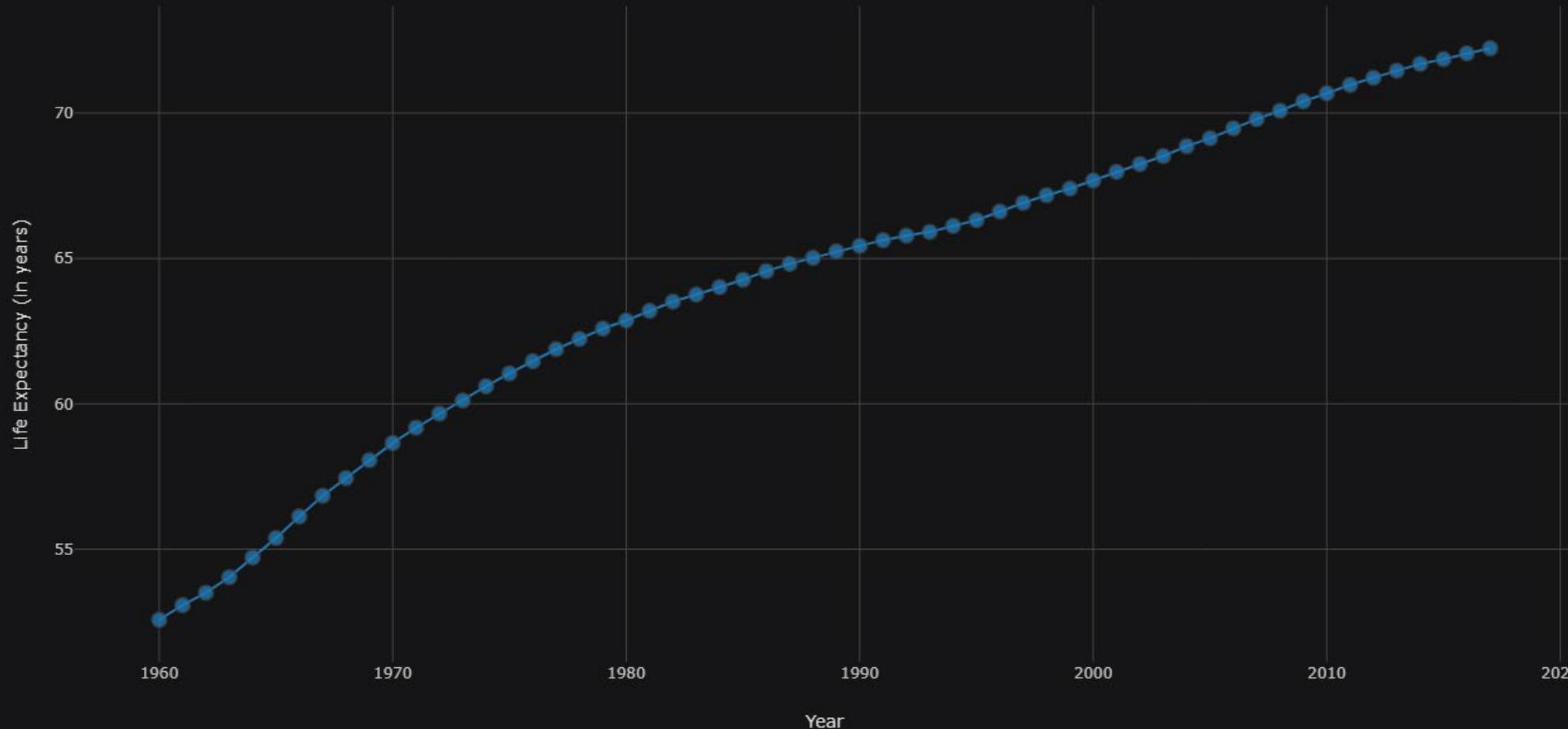
B: 60 years

C: 70 years



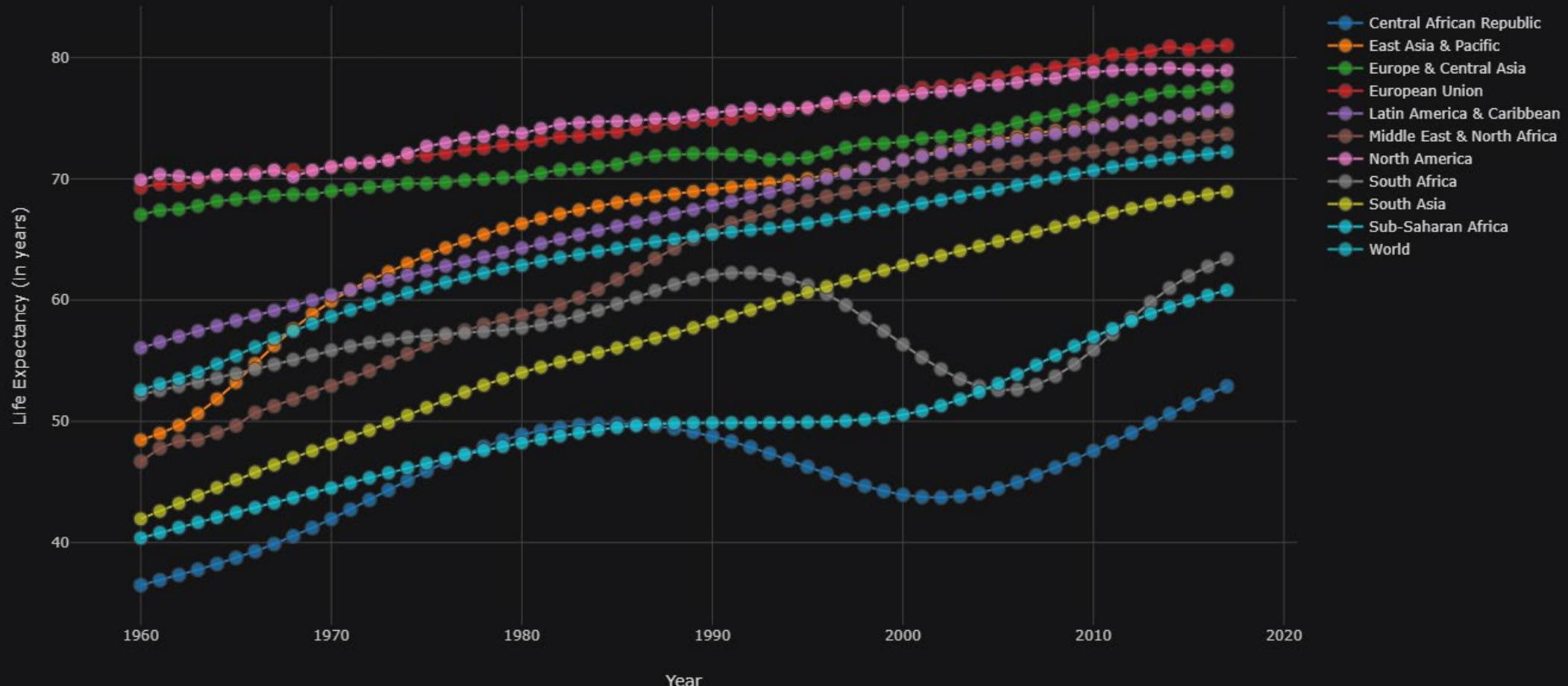
LET'S GET STRAIGHT TO THE ANSWER

Average life expectancy in the World



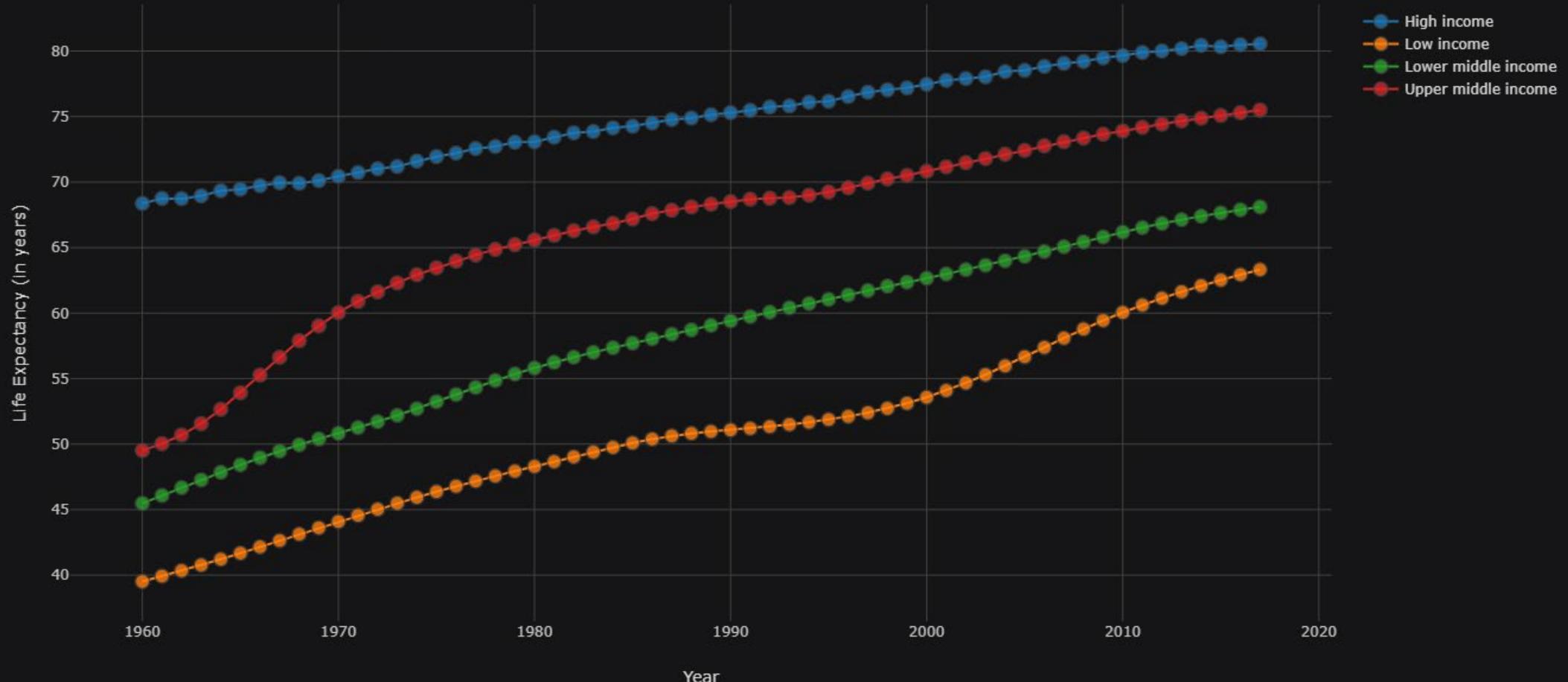
AVERAGE LIFE EXPECTANCY - REGION

Average life expectancy across regions



AVERAGE LIFE EXPECTANCY - INCOME

Average life expectancy across income levels



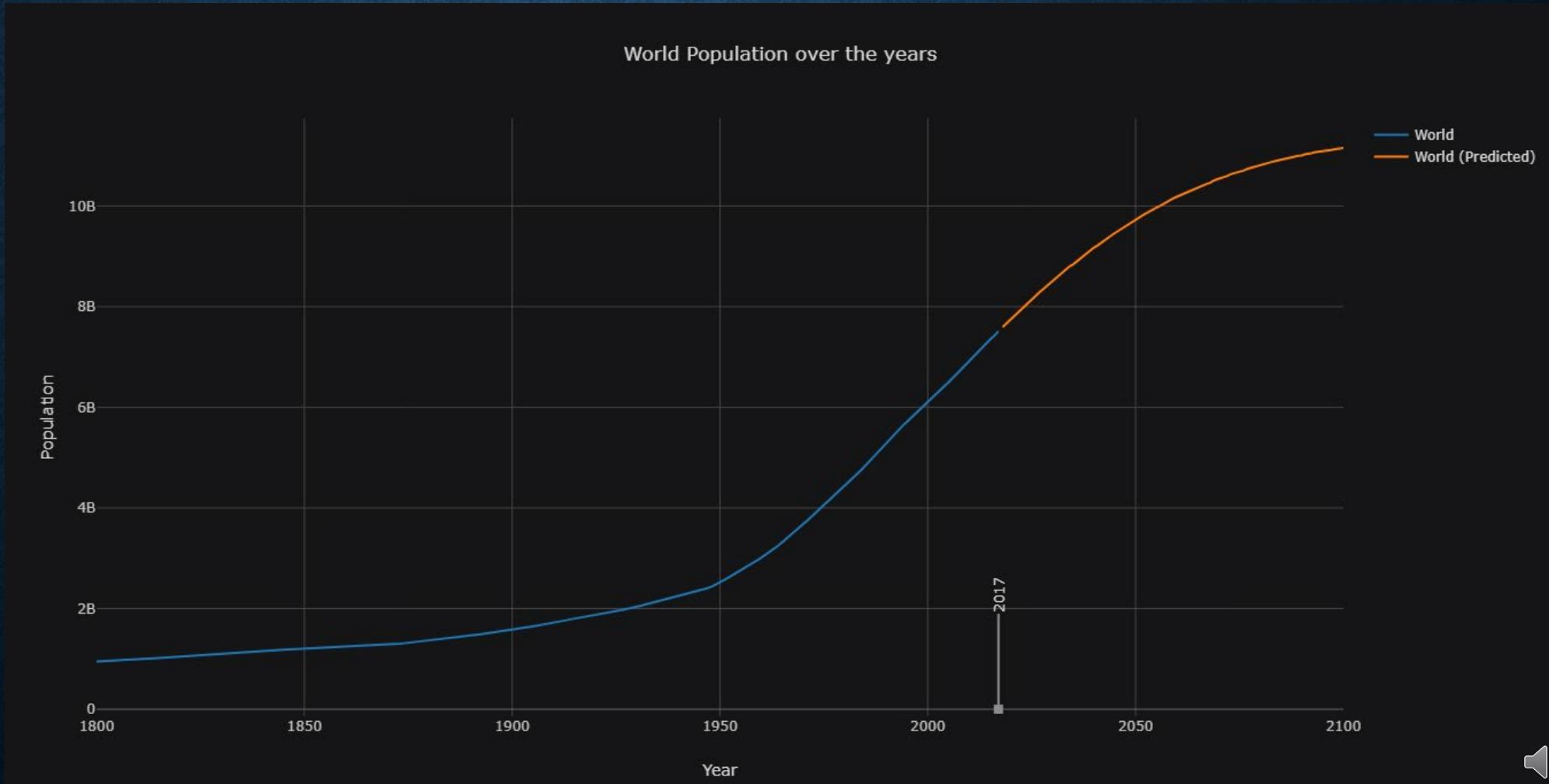
WORLD POPULATION

There are 2 billion children in the world today, aged 0 to 15 years old. How many children will there be in the year 2100, according to the United Nations?

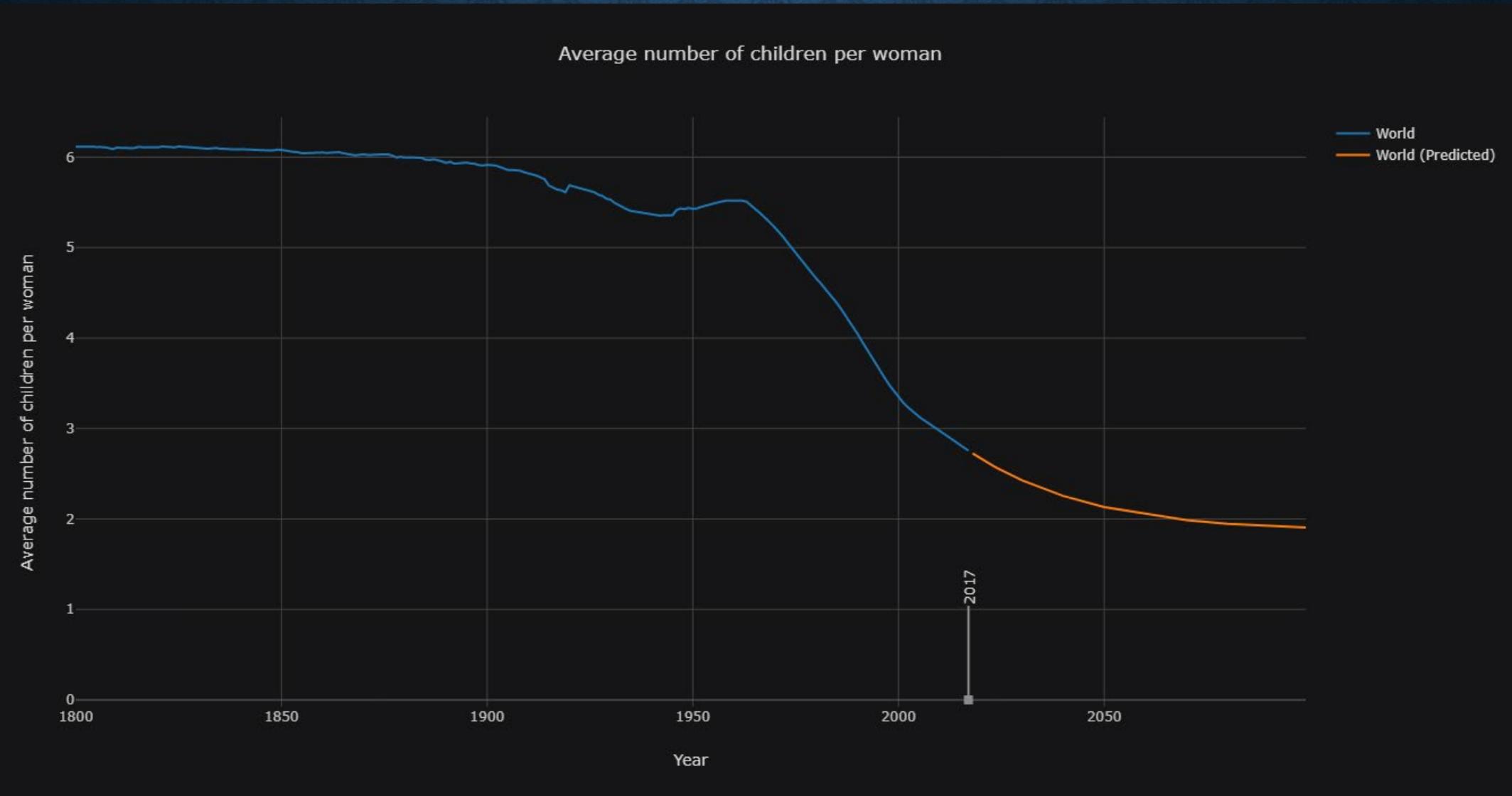
A: 4 billion

B: 3 billion

C: 2 billion



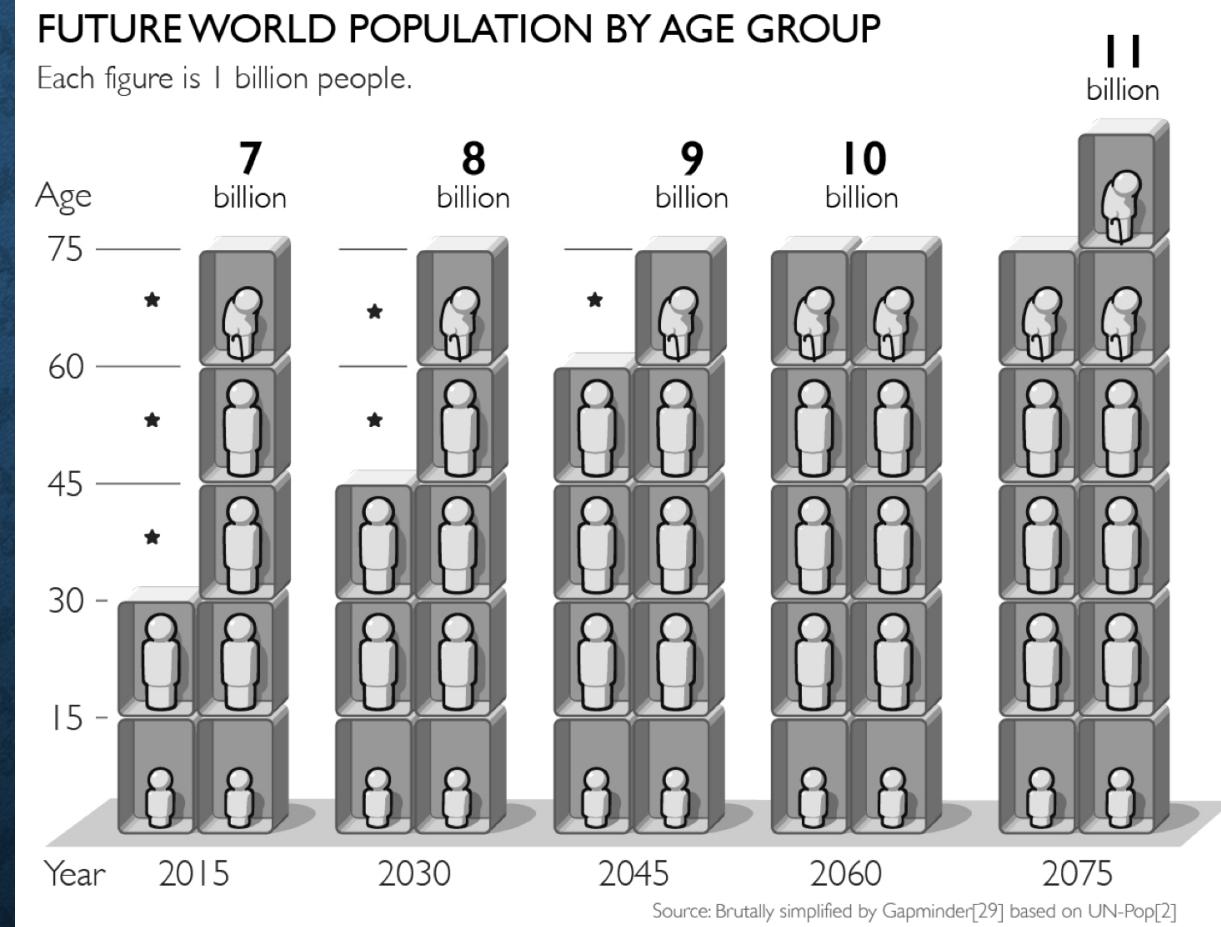
AVERAGE NUMBER OF CHILDREN PER WOMAN



MOST INTERESTING RELEVANT WORK

I found this chart from the book and by Gapminder based on the UN data to be the most interesting visualization.

- Clearly shows distribution among ages
- A lot of info in 2D



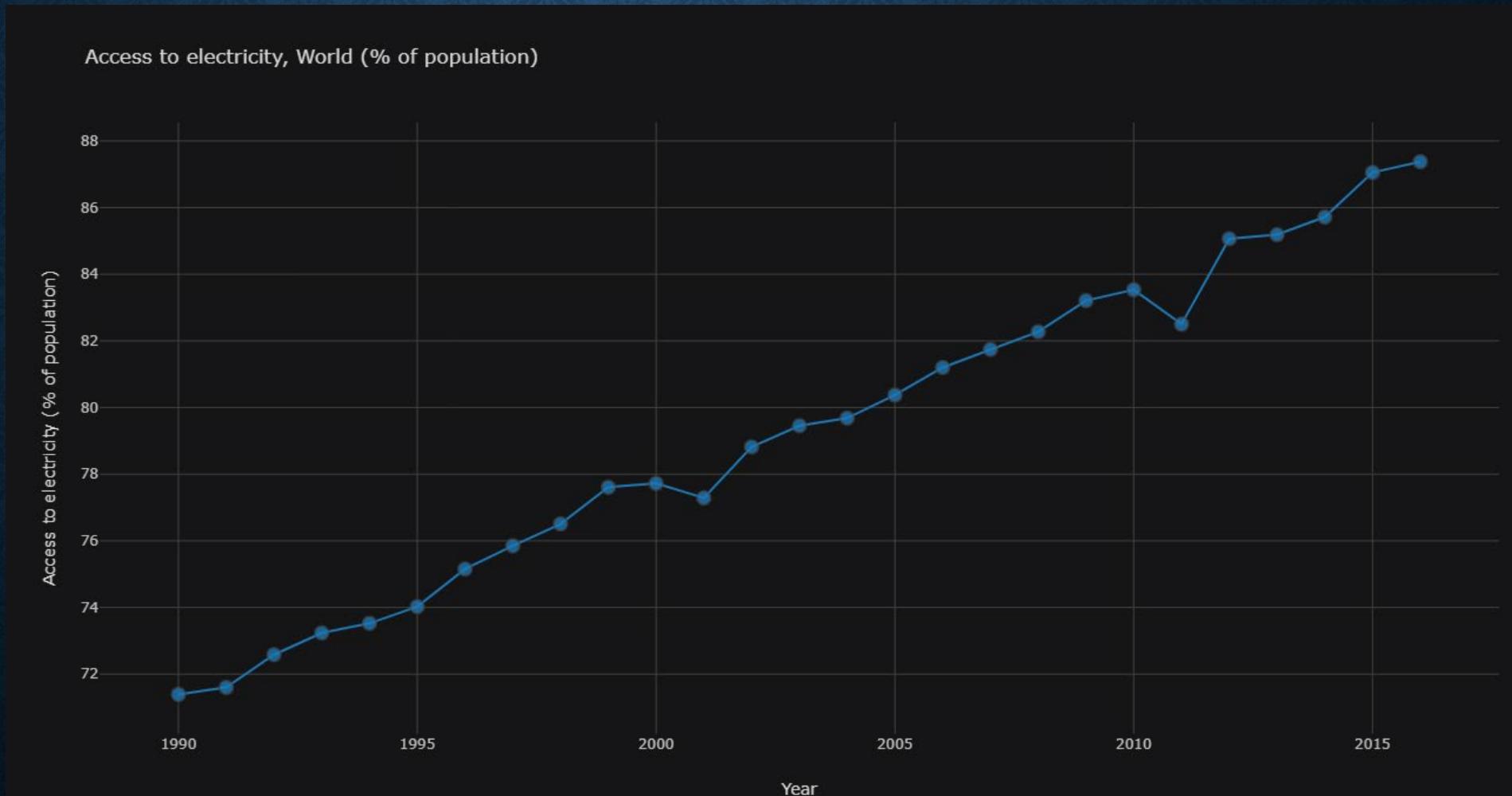
ACCESS TO ELECTRICITY

How many people in the world have some access to electricity?

A: 20 percent

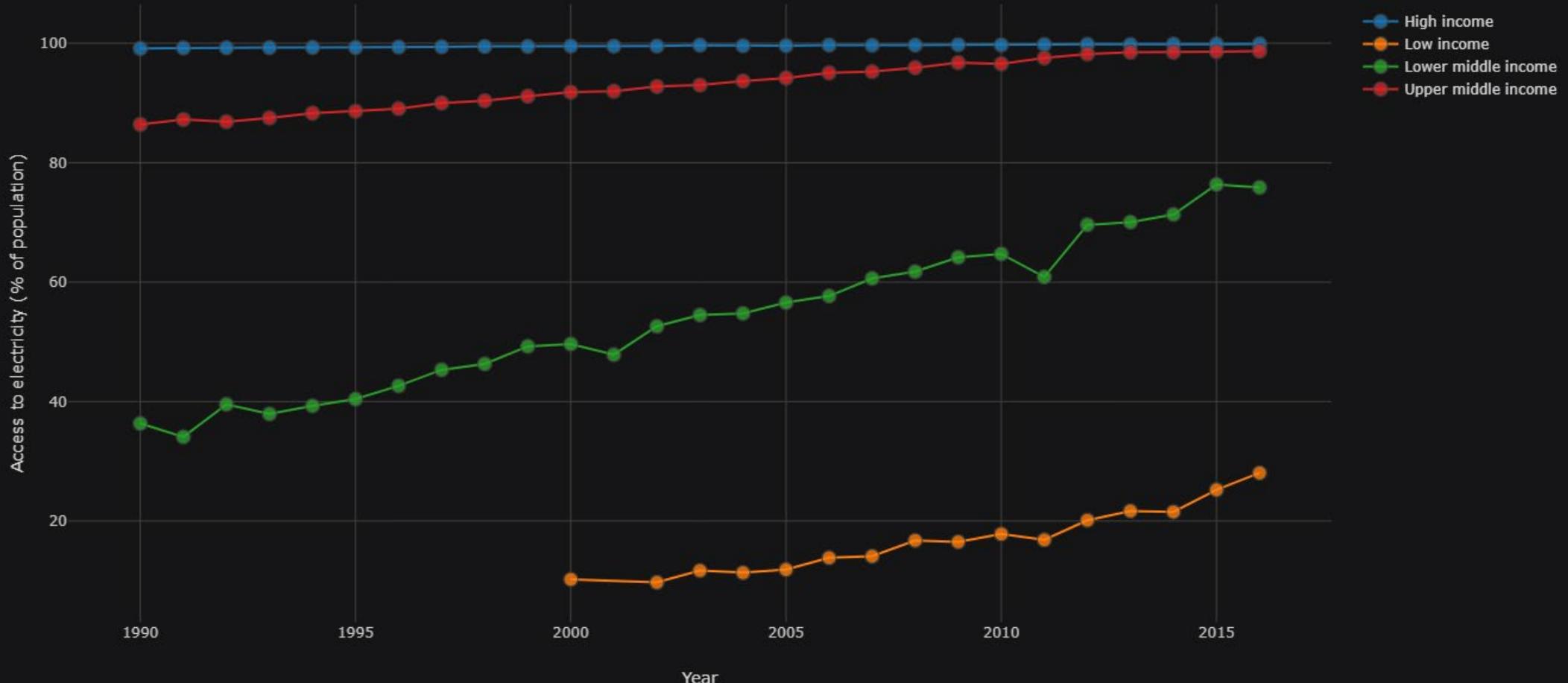
B: 50 percent

C: 80 percent



ACCESS TO ELECTRICITY RURAL

Access to electricity, Rural (% of population)



CONCLUSION AND FUTURE WORK

World is definitely improving!

Future work:

- Explore more factors at all the different levels: Region, Country, Income Level.
- Try other visualization techniques such as choropleth

