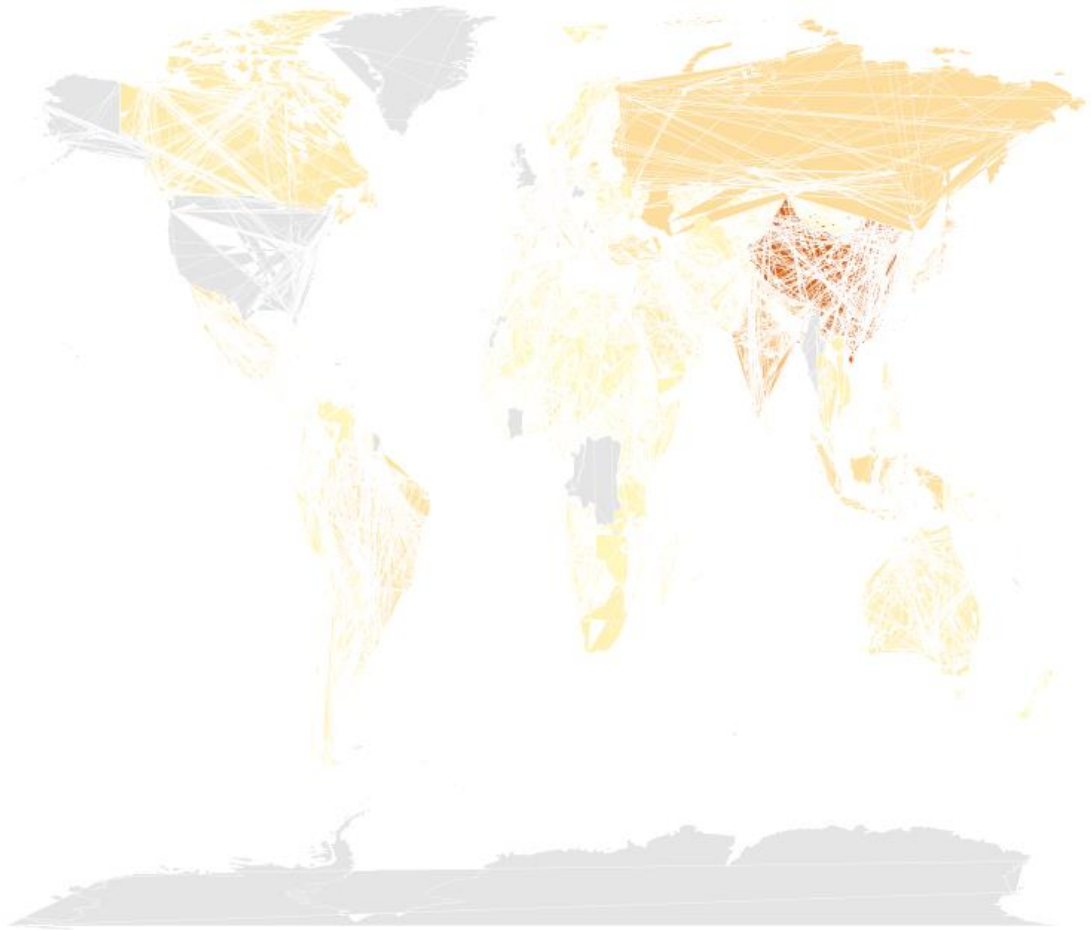Name: Tesfaye Erbeto

08/02/2026

Analysis: Exploring relationship between life expectance at birth and GDP
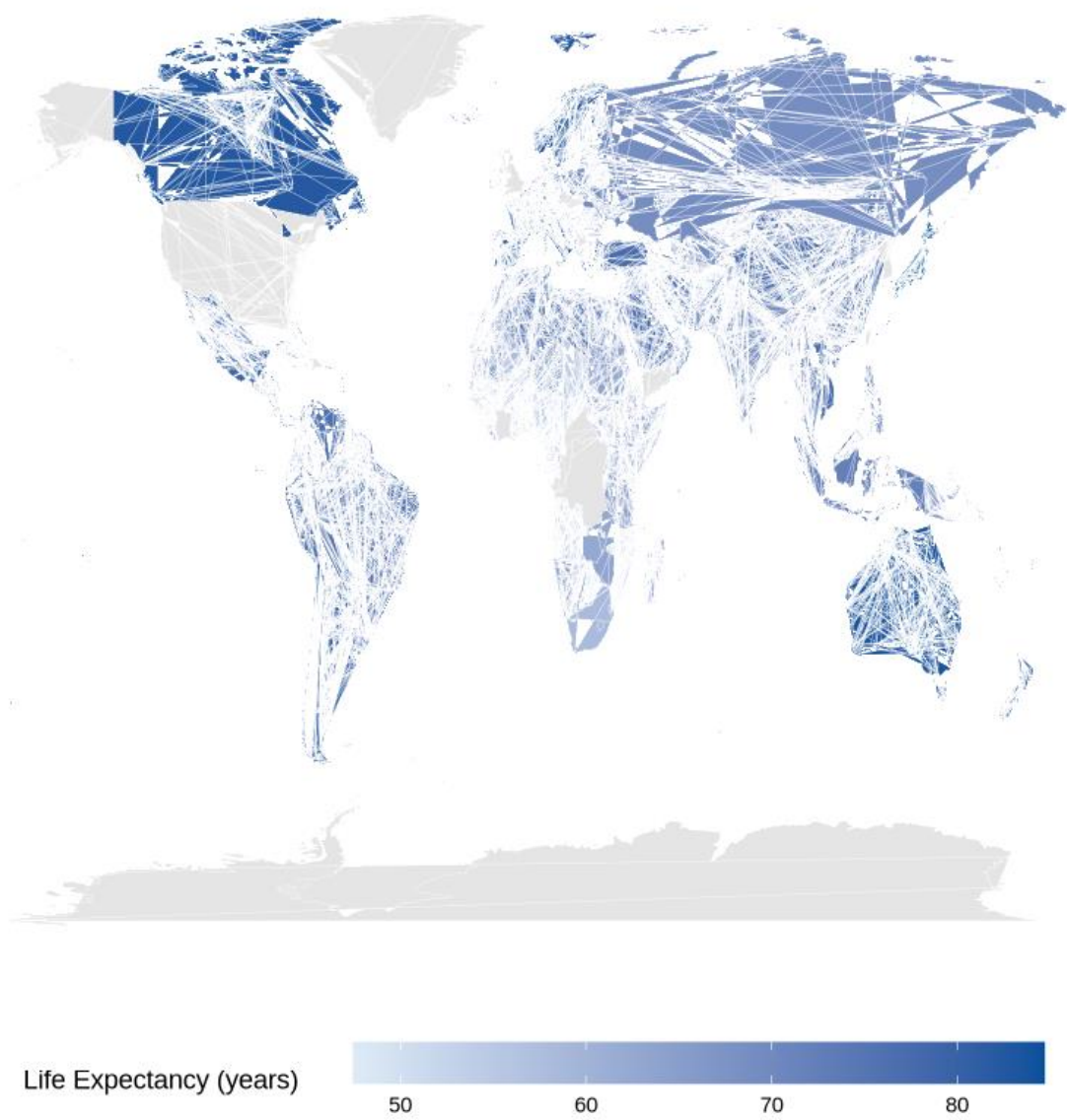

GDP Total PPP (Inflation Adjusted) by Country - 2020
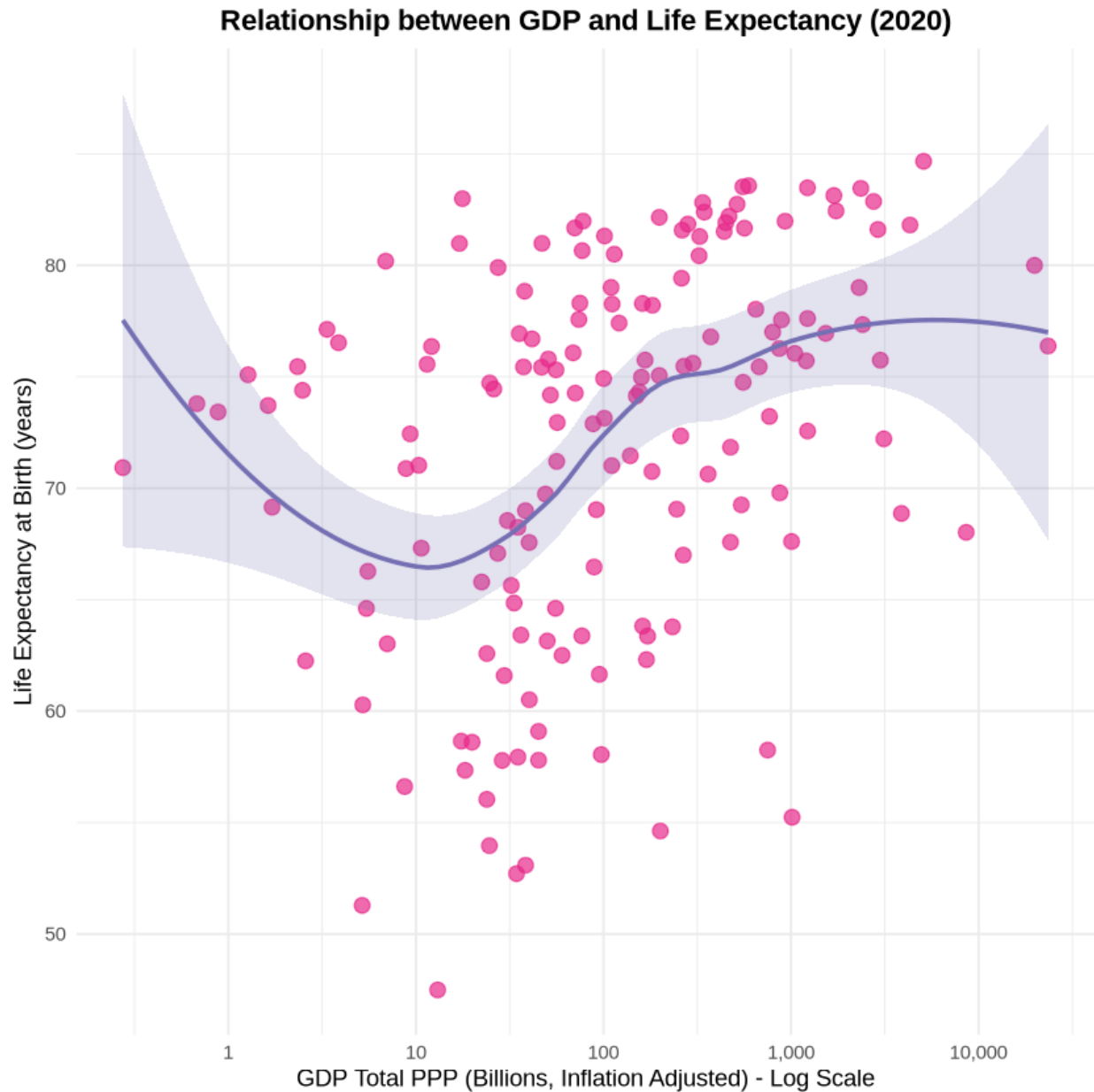
Life Expectancy at Birth by Country - 2020

Life Expectancy (years)

50   60   70   80

Relationship between GDP and Life Expectancy (2020)

5. Interpretation

The relationship between GDP and life expectancy in 2020 shows a **moderate positive correlation (r = 0.357)** when using log-transformed GDP values.

Key findings:

- **Positive relationship**: Countries with higher GDP tend to have higher life expectancy, though the relationship is not perfectly linear

- **Diminishing returns**: The LOESS curve shows that the relationship is strongest at lower GDP levels, with life expectancy gains flattening out as GDP increases

- **Variation at all levels**: There's considerable variation in life expectancy at every GDP level, suggesting that factors beyond economic wealth (healthcare systems, lifestyle, education, inequality) play important roles

- **Threshold effect**: Once countries reach a certain GDP level (around $100-1000 billion), additional wealth produces smaller gains in life expectancy

This pattern aligns with the Preston Curve, which demonstrates that economic development improves health outcomes, but with diminishing marginal returns at higher income levels.

Factors Beyond GDP That Affect Life Expectancy

While GDP shows a moderate correlation with life expectancy (r = 0.357), many other factors significantly influence how long people live:

Healthcare System Factors

- Quality and accessibility of healthcare services

- Healthcare spending per capita (not just total GDP)

- Universal healthcare coverage vs. private systems

- Preventive care and public health programs

- Medical technology and infrastructure

Social & Educational Factors

- Education levels (especially female education)

- ncome inequality and wealth distribution

- Social safety nets and welfare systems

- Gender equality

- Social cohesion and community support

Lifestyle & Behavioral Factors

- Diet and nutrition quality

- Physical activity levels

- Smoking and alcohol consumption rates

- Drug use prevalence

- Obesity rates

Environmental Factors

- Air and water quality

- Sanitation infrastructure

- Climate and geography

- Exposure to pollution and toxins

- Natural disaster frequency

Political & Institutional Factors

- Government stability and effectiveness

- Corruption levels

- War and conflict

- Rule of law

- Public health policy quality

This explains why countries at similar GDP levels can have very different life expectancies - some invest more effectively in health, education, and social programs than others.
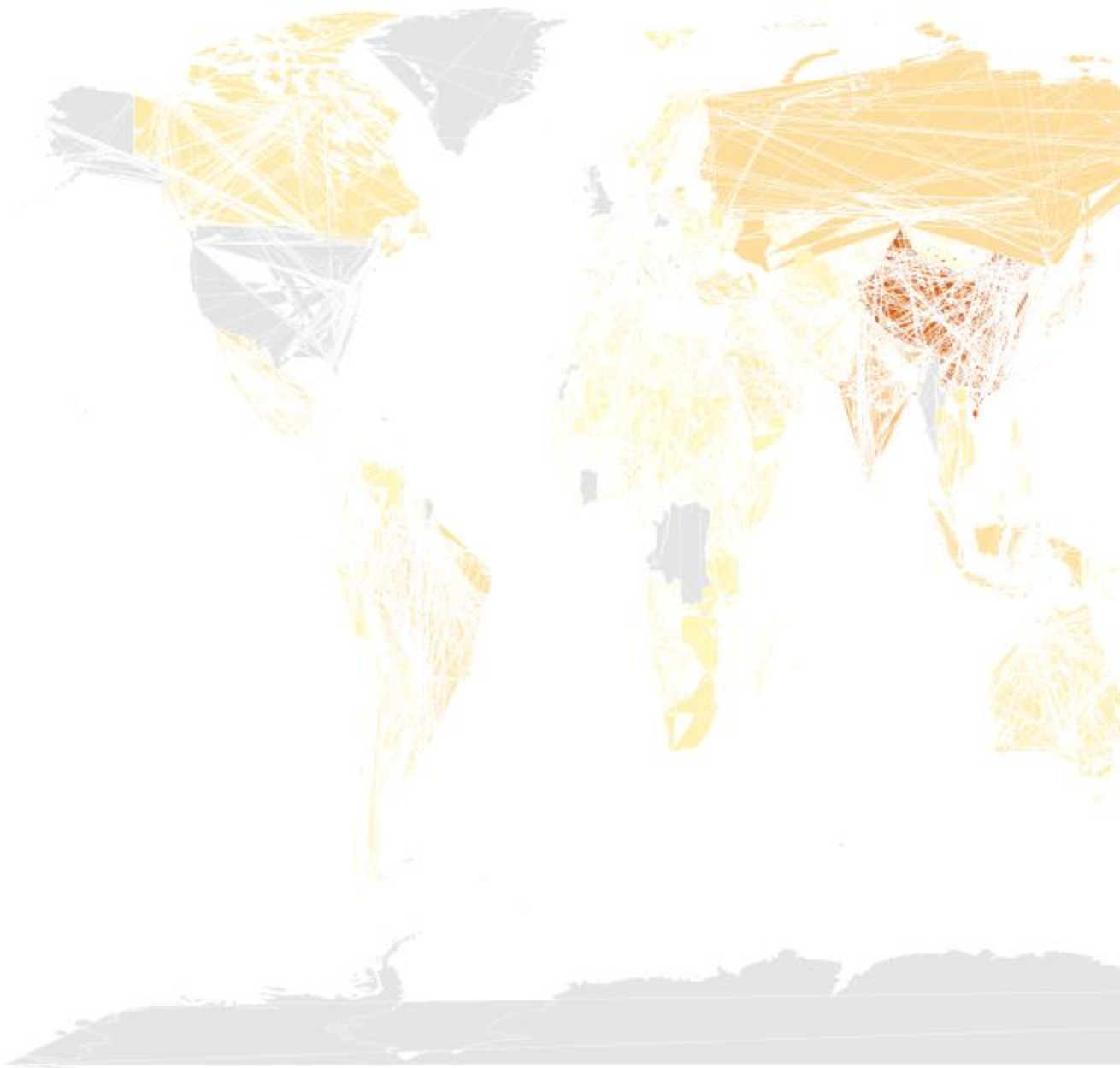
Relationship between GDP and Life Expectancy (2020)
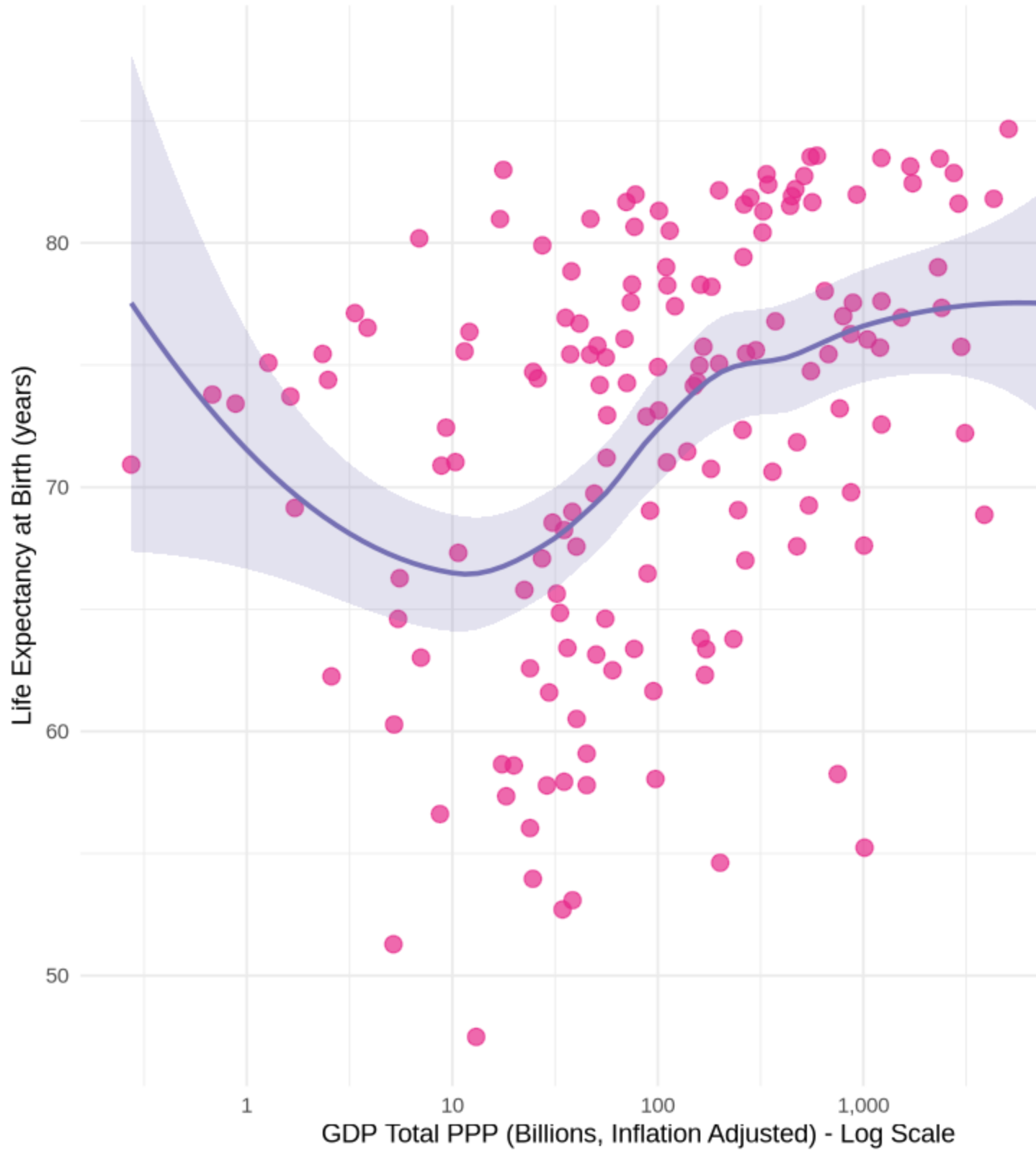
GDP Total PPP (Inflation Adjusted) by Country - 2020

GDP (PPP, Inflation Adjusted)

5,000,000,000,000 100,000,000,000 150,000,000,000 200,000,0