

Exploring the Impact of Country Status on Life Expectancy: Insights from Socioeconomic and Healthcare Indicators

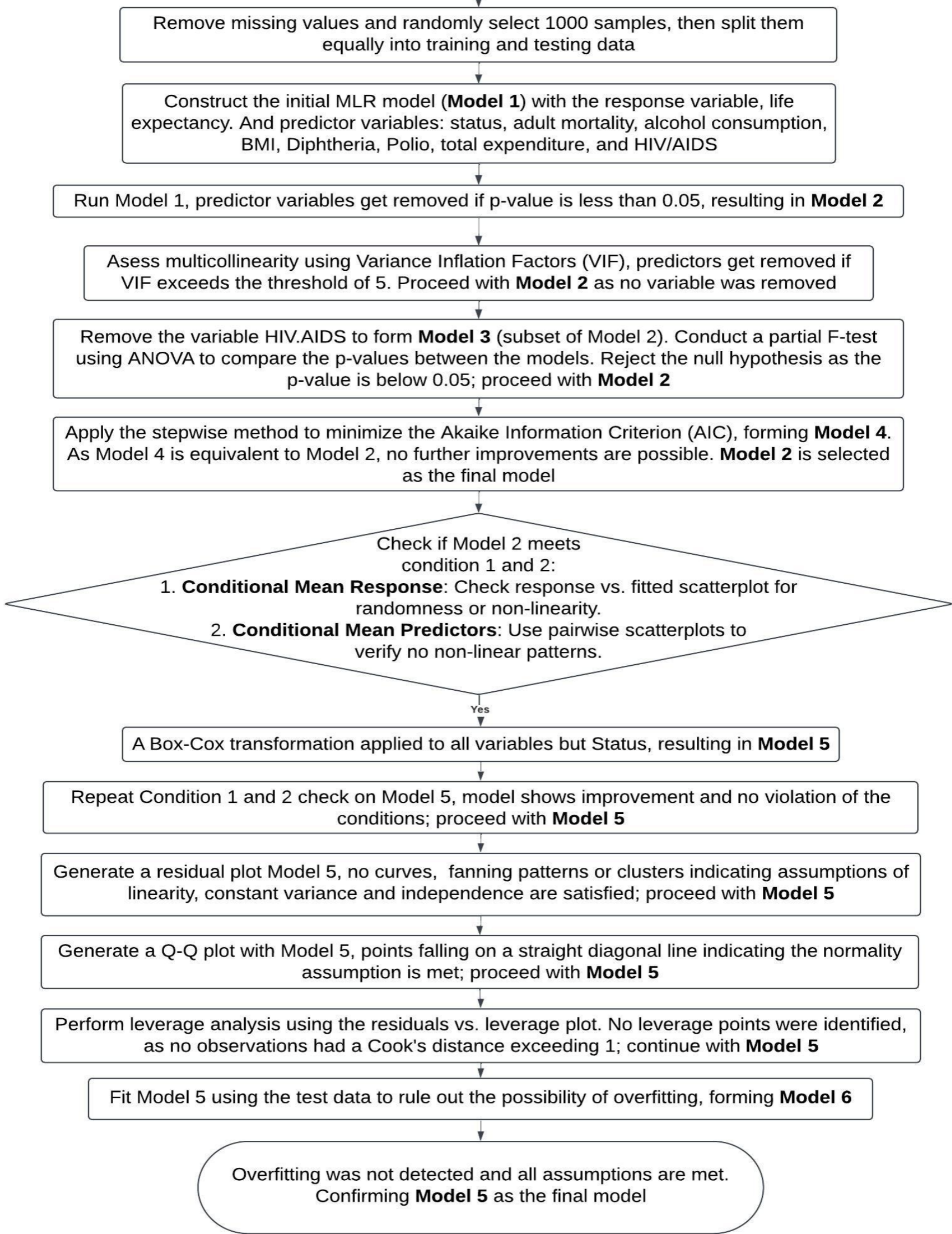
Motivation and Research Question

How does Country Status Influence the Relationship Between Socioeconomic and Healthcare Indicators and Life Expectancy?

This research investigates how country status (developed or developing) affects life expectancy by analyzing socioeconomic and healthcare factors. Understanding these dynamics is crucial for informing resource allocation. Inspired by literature highlighting complex interrelations among these indicators, the study seeks to uncover patterns reflected in the dataset.

Methods of Analysis

Start Terminator



References

He, L., & Li, N. (2020). The linkages between life expectancy and economic growth: some new evidence. *Empirical Economics*, 58(5), 2381-2402.

Kabir, M. (2008). Determinants of Life Expectancy in Developing Countries. *The Journal of Developing Areas*, 41(2), 185–204. <http://www.jstor.org/stable/40376184>

Peeters, A., Barendregt, J. J., Willekens, F., Mackenbach, J. P., Mamun, A. A., Bonneux, L., & for NEDCOM, the Netherlands Epidemiology and Demography Compression of Morbidity Research Group

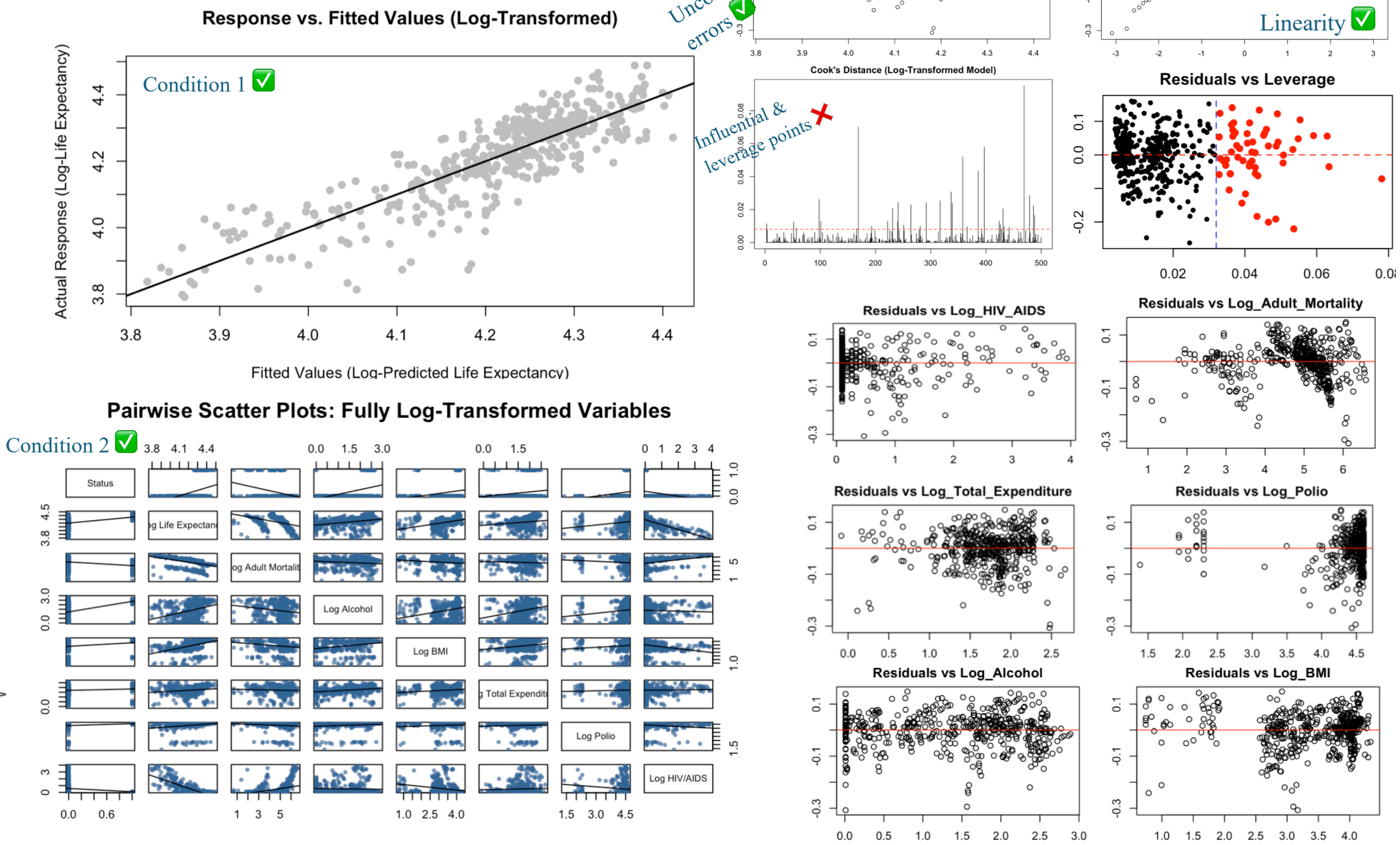
Data Collection

The data, sourced from Kaggle and the WHO's Global Health Observatory (Rajarshi, 2017), spans 15 years (2000–2015) with 20 predictors and 2,938 observations across 193 countries. Collected by the WHO and UN, the dataset is reliable and supports the research by categorizing countries as developed or developing and including diverse health and socioeconomic indicators.

Results and Conclusions

Final Model:

$$\begin{aligned} \widehat{\text{Log(Life Expectancy)}} = & 4.12934 + 0.041776 \times \text{Status} - 0.014151 \times \\ & \text{Log(Adult Mortality)} + 0.027959 \times \\ & \text{Log(Alcohol)} + 0.022718 \times \\ & \text{Log(BMI)} + 0.028631 \times \\ & \text{Log(Total Expenditure)} + 0.010781 \times \\ & \text{Log(Polio)} - 0.112766 \times \\ & \text{Log(HIV/AIDS)} \end{aligned}$$



Developed countries are benefiting from advanced healthcare, living standards, and resources! With 4.27% higher life expectancy. Negative factors like HIV/AIDS and adult mortality affect developing countries more, while positive factors like alcohol use, BMI, and expenditure have stronger effects in developed countries.

Limitations

- Incomplete Data:** The dataset depends on data from countries with varying reporting quality, leading to potential biases and reduced model accuracy.
- Generalized Classification:** Grouping countries as 'developed' or 'developing' overlooks regional disparities, such as differences between Africa and Southeast Asia, potentially distorting the model.
- Data Imbalance:** Test data outperforms training data due to unequal country representation, indicating potential overfitting; further validation is needed.