

HEALTH INDICATORS OVER TIME

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INTRODUCTION

This project examines how economic development relates to health outcomes across countries using the “Countries of the World” data set.

Based on the data set, our research question is: “How does a country’s economic development based on GDP per capita relate to its health outcomes, specifically infant mortality rates? Does this relationship differ by region?”

OUR DATA

region	Mean Agriculture	Mean Industry	Mean Service
Asia (Ex. Near East)	0.178	0.302	0.520
Baltics	0.045	0.293	0.662
C.w. Of Ind. States	0.192	0.328	0.480
Eastern Europe	0.092	0.309	0.599
Latin Amer. & Carib	0.091	0.256	0.651
Near East	0.064	0.406	0.530
Northern Africa	0.135	0.426	0.432
Northern America	0.014	0.199	0.787
Oceania	0.175	0.215	0.609
Sub-Saharan Africa	0.284	0.267	0.450
Western Europe	0.044	0.246	0.715

Table 2

Summaries of median percentage of a population that works in agriculture, industry, and service by region.

Table 1

Summaries of mean percentage of a population that works in agriculture, industry, and service by region.

region	Median Agriculture	Median Industry	Median Service
Asia (Ex. Near East)	0.161	0.281	0.495
Baltics	0.040	0.294	0.666
C.w. Of Ind. States	0.198	0.330	0.460
Eastern Europe	0.082	0.310	0.591
Latin Amer. & Carib	0.070	0.259	0.618
Near East	0.035	0.352	0.584
Northern Africa	0.132	0.357	0.426
Northern America	0.010	0.204	0.787
Oceania	0.150	0.171	0.644
Sub-Saharan Africa	0.276	0.219	0.426
Western Europe	0.022	0.245	0.720

region	SD Agriculture	SD Industry	SD Service
Asia (Ex. Near East)	0.147	0.125	0.167
Baltics	0.009	0.032	0.040
C.w. Of Ind. States	0.096	0.084	0.080
Eastern Europe	0.063	0.052	0.040
Latin Amer. & Carib	0.077	0.113	0.132
Near East	0.065	0.180	0.167
Northern Africa	0.054	0.119	0.086
Northern America	0.007	0.097	0.103
Oceania	0.122	0.129	0.166
Sub-Saharan Africa	0.182	0.166	0.152
Western Europe	0.058	0.104	0.103

← Table 3

The standard deviation of percentage of a population that works in agriculture, industry, and service by region.

Table 4 →

The mean, median, standard deviation of infant mortality per 1,000 births by region.

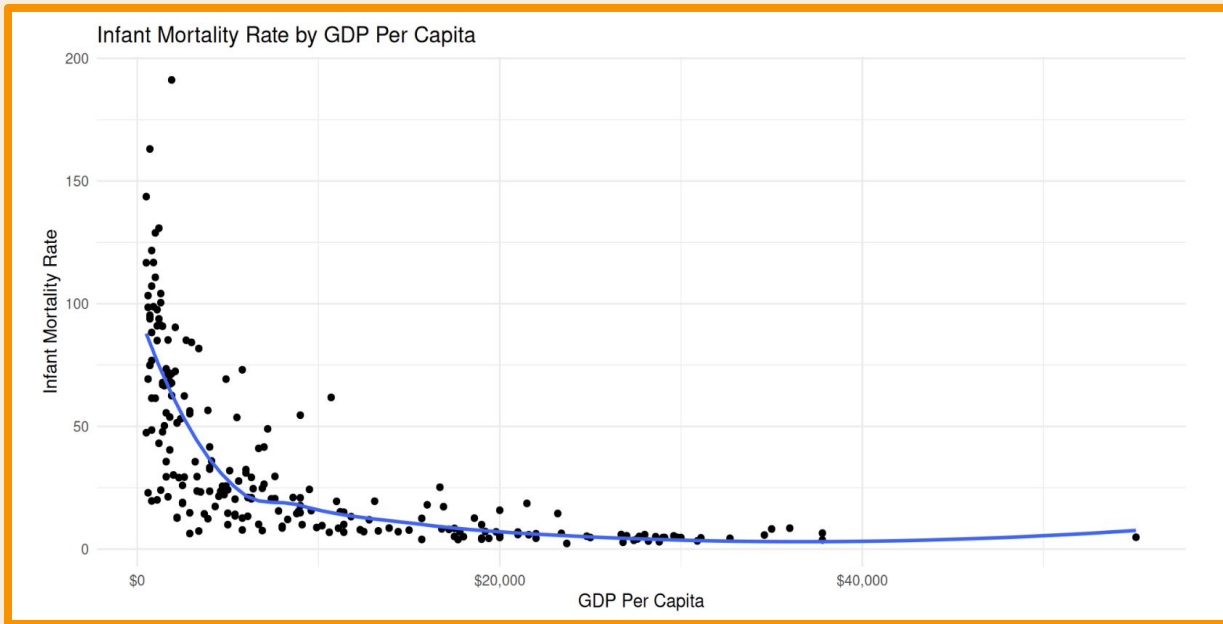
region	Mean Infant Mortality	Median Infant Mortality	SD Infant Mortality
Asia (Ex. Near East)	41.780	30.775	36.753
Baltics	8.103	7.870	1.345
C.w. Of Ind. States	44.410	32.425	31.841
Eastern Europe	12.687	9.330	7.666
Latin Amer. & Carib	20.093	18.050	12.748
Near East	23.378	19.060	15.370
Northern Africa	30.916	31.000	6.983
Northern America	8.628	7.540	4.257
Oceania	20.204	12.620	16.159
Sub-Saharan Africa	80.039	76.830	33.440
Western Europe	4.730	4.705	0.834

OUR DATA:

HYPOTHESIS ONE

GDP per capita: numerical (predictor variable)

Infant mortality rate: numerical (outcome variable).

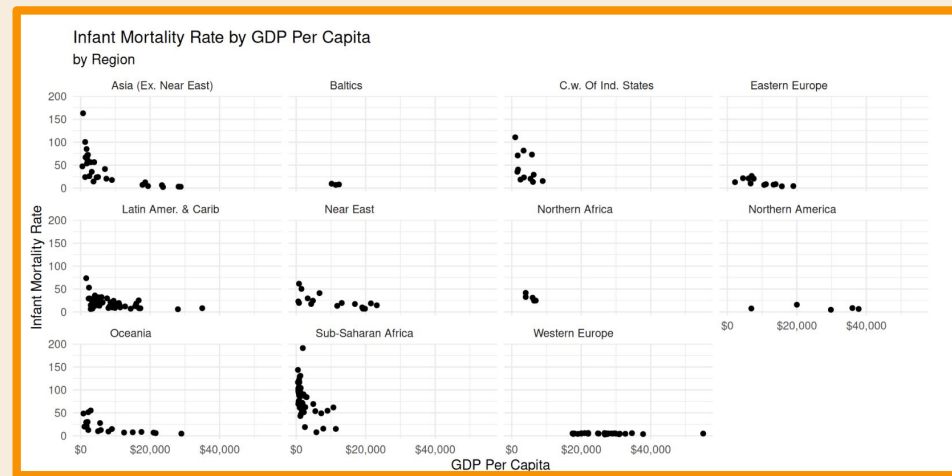
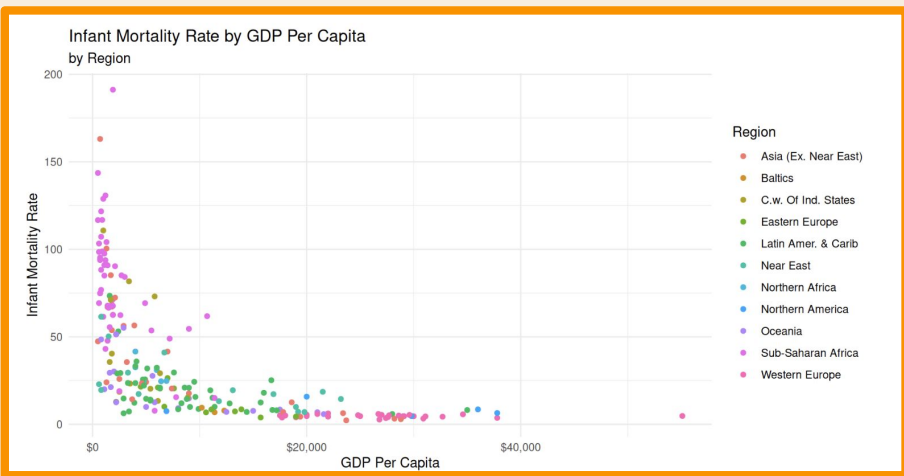


This plot shows a negative relationship between GDP per capita and infant mortality rate. As GDP increases, infant mortality tends to decrease. At higher GDP levels, the relationship flattens, suggesting that increases in GDP have a smaller effect on reducing infant mortality beyond approximately \$20,000.

HYPOTHESIS TWO



GDP per capita: numerical (predictor variable), infant mortality rate: numerical (outcome variable), and region: categorical (grouping / moderating variable).

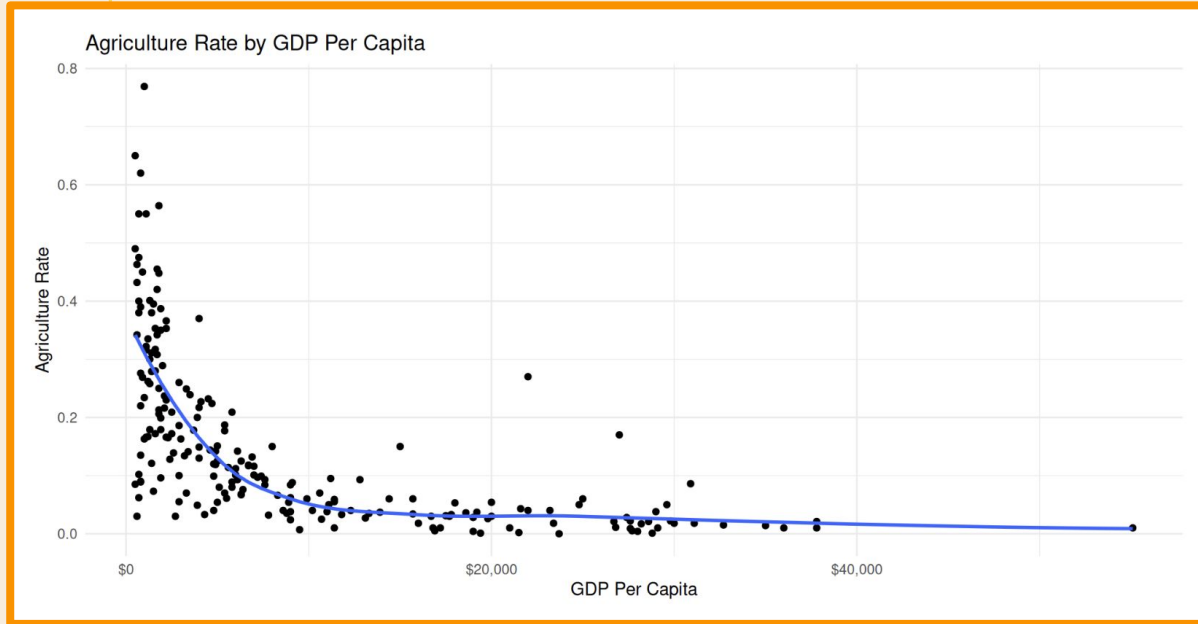


These plots reveal that the relationship between GDP and infant mortality varies by region. In more developed regions, infant mortality rates are consistently low, regardless of GDP. In contrast, less developed regions show a stronger negative relationship, with higher infant mortality rates at lower GDP levels. This suggests that regional factors, such as infrastructure, access to healthcare systems, food security, and education influence the strength of this relationship.

HYPOTHESIS THREE



Agriculture/Service/Industry %: numerical (predictor variable) and GDP per capita: numerical (outcome variable)



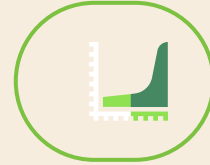
(Process repeated for service and industry)



There is a moderately strong negative relationship between GDP per capita and the percentage of the population working in agriculture. Countries with more workers in agriculture tend to have lower GDP per capita, while more developed countries have fewer agricultural workers and more higher-paying jobs due to advanced technology. This suggests that greater dependence on agriculture is associated with lower GDP and lower economic development.



CONCLUSION



FINAL THOUGHTS

These plots and analyses support the hypothesis that higher GDP per capita is associated with lower infant mortality rates. This relationship is not uniform across regions, indicating that additional contextual and regional factors play a role in infant mortality rates and overall health.

DISCUSSION

These discoveries highlight the connection between economic development and public health.

CRITIQUE

It is important to note that these findings and relationships do not imply causation, as there are many other unmeasured factors that may influence both GDP and infant mortality. While the data are official, there may be inaccuracies or biases in reporting by some countries.

THANK YOU!

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