

Can We Buy Health?

Government Health Expenditure and Population Health in the Developing World

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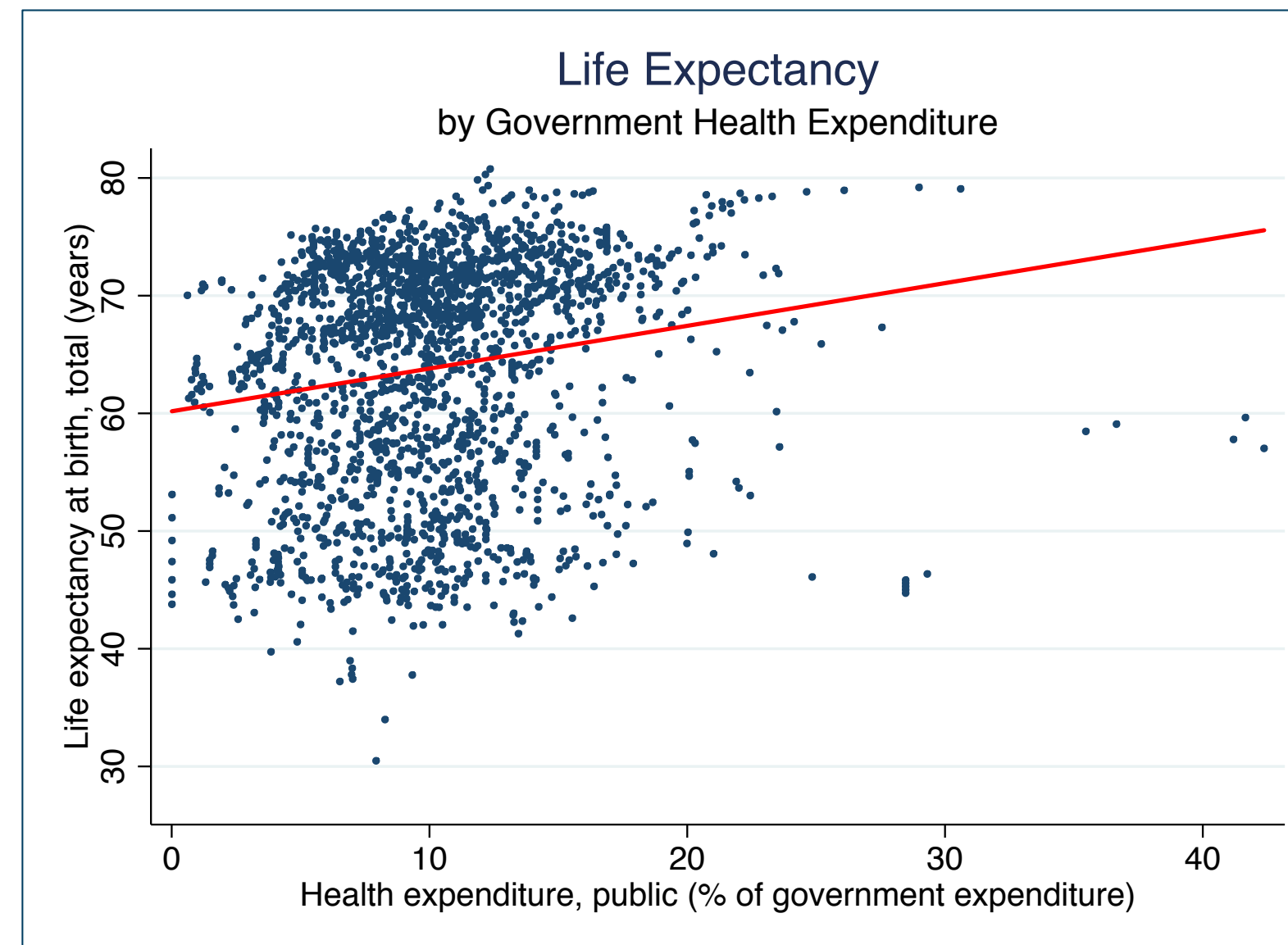
Previous Literature

- Literature on government health expenditure and population health in developing countries as a group is relatively sparse and new
- Some have found a strong, positive relationship between the two^{1, 2, 3, 4, 5, 6}
- Some have found only a slight correlation or an interaction relationship^{7, 8, 9, 10, 11, 12}
- Relationship often depends on external factors^{3, 5, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18}
- A few have found no overarching relationship whatsoever^{15, 19}
 - May be due to gap between potential and realized ability of government expenditure to effect change¹⁹
 - May affect only certain populations within a country⁸

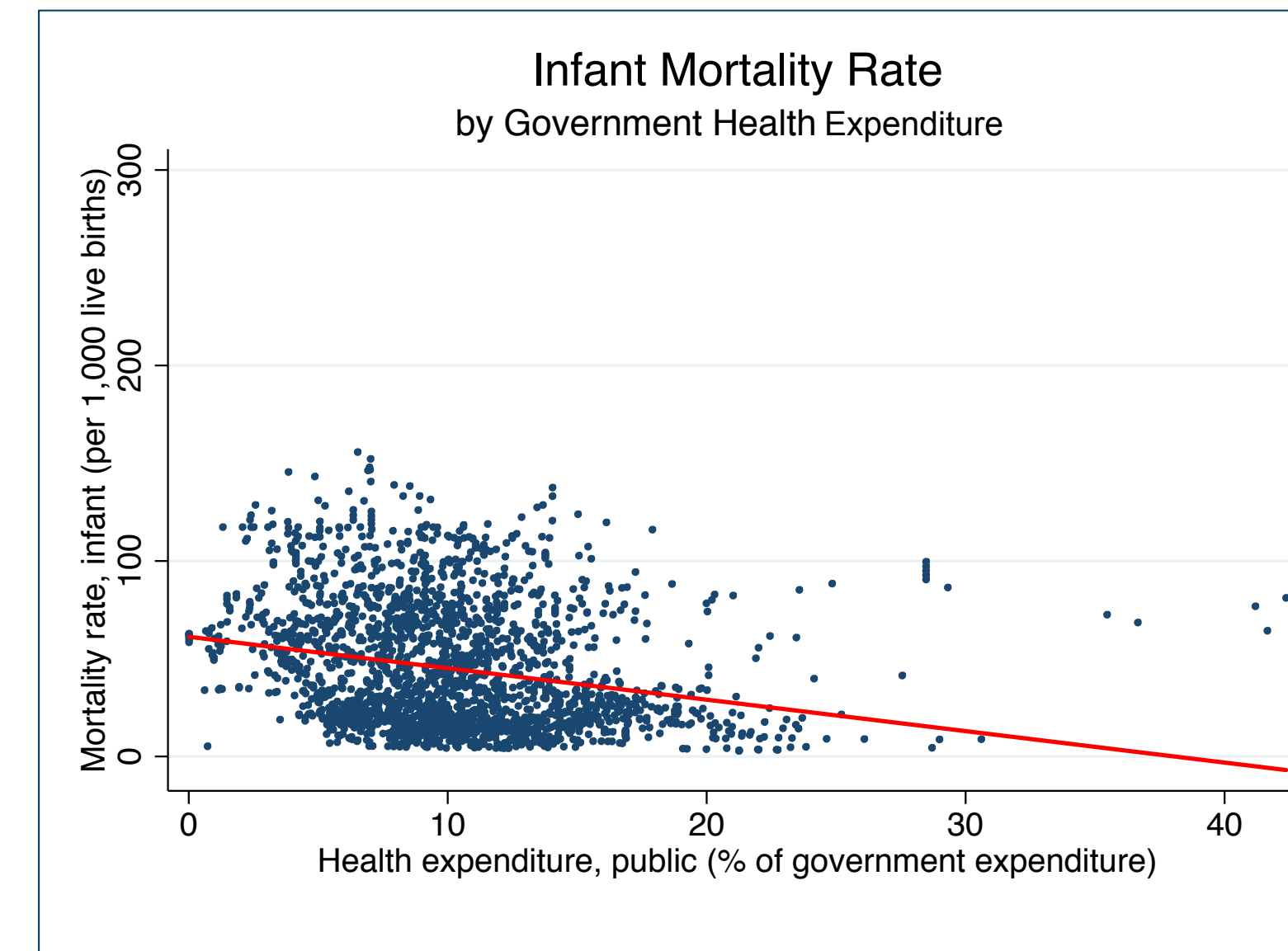
Theory

- Health problems in developing countries often have effective and relatively inexpensive solutions
 - Examples: malaria, diarrheal disease^{20, 21, 22, 23}
 - Related to the importance of primary care
 - However, there are often other barriers to implementation
- As primary care systems become better established in the developing world, further improvements in population health become more expensive and often less cost-effective^{3, 10, 12}
 - Diminishing rate of returns
 - This will likely become increasingly evident in coming years

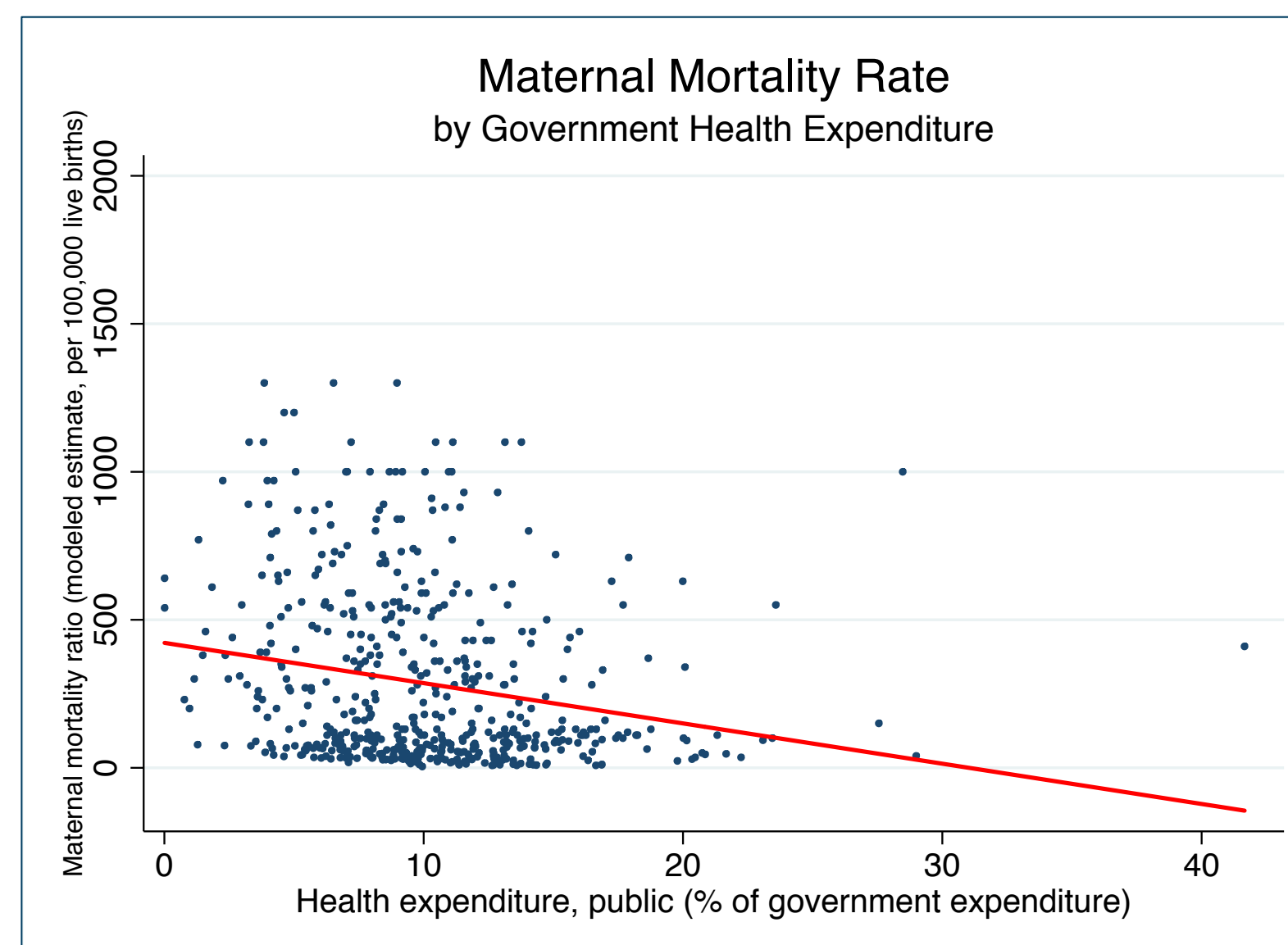
Data



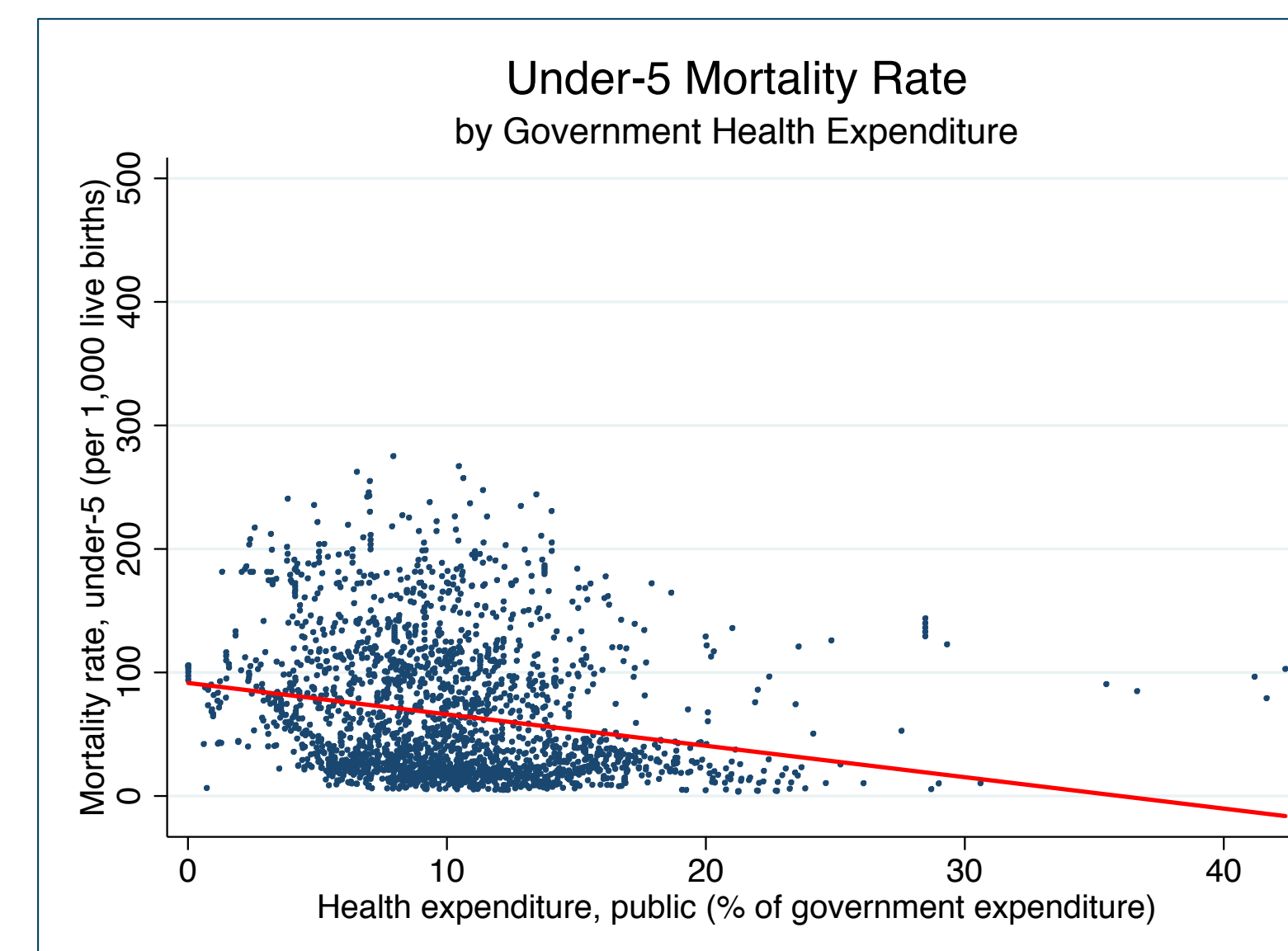
P-value: 0.0
Adjusted R-squared: 0.6972
N = 349
Data: World Bank²⁴, WHO²⁵



P-value: 0.0
Adjusted R-squared: 0.7801
N = 349
Data: World Bank²⁴, WHO²⁵



P-value: 0.001
Adjusted R-squared: 0.7917
N = 79
Data: World Bank²⁴, WHO²⁵



P-value: 0.0
Adjusted R-squared: 0.7834
N = 349
Data: World Bank²⁴, WHO²⁵

Hypothesis & Method

- Hypothesis: Government expenditure on health measured as a percentage of GDP increases population health in those countries
- Included developing countries for which data exists at any point from 1960 to 2012
 - Used World Bank's definition of a developing country²⁶
- Used regression analysis to test relationship between government health expenditure as a percentage of GDP²⁵ and four measures of health: infant mortality rate, under-5 mortality rate, maternal mortality rate, and life expectancy²⁴
 - Graphs to the left show regression fit lines
- Controlled for per capita GDP, poverty, primary education attainment²⁴

Conclusions

- Strong relationship – positive for life expectancy, negative for mortality rates
 - Supports hypothesis
- Low P-values indicate statistical significance
- High adjusted R-squared values indicate government health expenditure explains much of the variance in measures of health
- Some outliers
- Some multicollinearity
 - Indicates government health expenditure has a fairly similar effect on measures of primary and secondary care in the developing world
- Would like to follow up with more data on health adjusted life expectancy (HALE) and corruption