

EC402 - Problem Set 5

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Introduction

Today we will try to understand how to use IV by

- discussing one of its **most famous applications** and
- **your own ideas**.

Introduction

Colonial Origins of Comparative Development: An Empirical Investigation (*AER*, 2001)

Long time economists believed all kind of things to be important for development, e.g. schooling policy, health policy or macro-economic policies. Only relatively recently the debate focused largely on **institutions**, e.g. the protection of property rights and many more.

The empirical question is: Are institutions really important for economic growth and if so, how much?

Unfortunately, this is **one of the harder questions around**, since institutions normally do not fall from the sky but are themselves the consequence of or determined jointly with economic outcomes.

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Colonial Origins of Comparative Development: An Empirical Investigation (AER, 2001)

Acemoglu, Johnson and Robinson became famous (in our world: very famous) for coming up with an instrumental variable idea:

Settler Mortality

So they estimate the system of equations

$$\begin{aligned} \log(y_i) &= \mu + \alpha R_i + x_i' \gamma + \epsilon_i \\ R_i &= \zeta + \beta \log(M_i) + x_i' \delta + \nu_i \end{aligned}$$

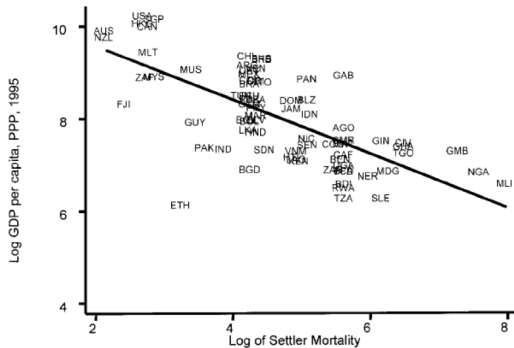
where y_i is income per capita, R_i is modern day property rights, X_i is a vector of covariates and M_i is early settler mortality.

For this to be a valid instrument, what do they need to argue?

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A. 'Proof of valid instrument' ?

They present the following graph



Question: Does this prove that settler mortality is a valid instrument?

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B. Does the 'exclusionary restriction hold'? And what does it mean?

Question:

- i *Some argue that diseases prevalent in Africa and Latin America, such as malaria, are important causes of poverty and low GDP. Why might this be a problem for the instrument in equation (4)?*

- ii *How could the authors solve this?*

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C. 2SLS versus OLS: Understanding the magnitudes

Question:

- i *The authors find that the 2SLS estimates are larger than the OLS estimates. Is this what you would have expected?*

- ii *What could explain this?*

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D. A recent criticism

Question:

A recent criticism of the Acemoglu, Johnson, Robinson paper suggests that much of the correlation between early settler mortality and later institutions comes from soldiers deaths during military campaigns. When you adjust for this, there is not a robust correlation between early settler mortality and current property rights.

- i If this is correct, why might this be a problem for the paper?*

- ii Should they adjust for soldier deaths?*