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| Tutorial 6(Week starting on 4-abr-2021) |

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| **Objectives**   * Continue to analize the concept of institutions * Take a first glance into endogeneity issues * Take a first step towards understanding instrumental variables   **Working materials**   * Acemoglu D., S. Johnson, and J. A. Robinson. [2001]; “The Colonial Origins of Comparative Development: An Empirical Investigation” *American Economic Association*, Vol. 91, No. 5, 1369-1401. |

**Exercise guide**

The exercises marked with an asterisk (\*) are compulsory and must be submitted to the virtual campus **before 12.00 on Wednesday 13th April**. To the mark obtained on the evaluation of this assignment,**0.05 points will be subtracted for each minute late**. Consult the course program with regards to the formalities of the presentation.

1. (\*) Explain in just a few words what question Acemoglu et al. [2001] are trying to answer and how they attempt to do so. What are the main results?
2. (\*) What are the three premises on which the authors base their theory on institutional differences in countries colonized by Europeans? Explain in your own words.
3. How is it possible that the type of institution is an endogenous variable when trying to explain economic development? To avoid this problem, the authors use an econometric technique called Instrumental Variables, what variable will they use to instrument the type of institution developed during the colonies? Using your common sense, how does the instrument solve the endogeneity problem?
4. What measure does Acemoglu et al. [2001] use to differentiate the type of institutions? How is it related to the two different institutions, mentioned by the authors, that existed during colonization? What is the main issue of using said measurement?
5. (\*) In Table 2, the regression of the logarithm of the GDP per capita in 1995 over the type of institution is shown. How is the 0,54 interpreted (first row, second column)? How is the 0,52 interpreted (first row, third column)? What is the main conclusion that the autos derive from this table?
6. 1. He is trying to explain why some countries are richer than others and finds institutions are causing this differential growth. They propose that types of institutions that some colonies developed led to greater growth, considering certain instrumental variables to measure institutions and the effect they have, particularly, on initial institutions. This way they control them for European settlement patterns, latitude and the continents the countries belong to and find it’s mostly where Europeans settled, measured by settler mortality, that defines institutions and long-term economic performance.
7. 2. The main premise in the paper is that Europeans created extremely extractive institutions in some countries while they installed almost carbon copies of their own in others. The next premise is that the former were influenced by high mortality due mainly to disease, while the former prospered thanks to a friendlier environment. The last premise is that even after these countries became independent the initial institutions persisted.
8. 3. As we understood it, the type of institution could be endogenous because, at least in this case, there is a chance that there are some omitted variables that muddle the proposed correlation that the paper wants to find. Since it is a natural experiment, there couldn’t ever be a perfectly exogenous variable, so the proposed independent variables are going to be related to the residuals of the regression for other reasons not accounted for in the model. To solve this they take an instrumental variable, settler mortality, controlling for different variables like latitude, geography, or disease as an instrumental variable into the regression for institutions and GDP growth. The independent variable is then taken to be a dependent variable in a different equation controlling for the possible endogeneity. He uses settler mortality which serves as exogenous variation for this purpose because it is related to growth only through institutions and therefore fulfills the exclusion restriction. As proposed, settler mortality affected settlement patterns and that then affected initial and current institutions, and these could be what determines GDP growth, so the instrumental variables let them interpret how every variable in each step of the proposed process affects the final dependent variable of growth.
9. 4. Institutional differences are measured through an index of risk of expropriation and another of constraint on the executive and are measured against gpd growth although they note the initial estimation will be incomplete without employing an instrumental variable.
10. 5.     The 0.54 tells us about the relation between risk of expropriation and the logarithm of GDP per capita is given by the function =71 %, which means that the first increase in the measure of institutions grows GDP in 71%. 0.52 gives the same information but instead of the measure for every country, it calculates for ex-colonies for which there is settler mortality data (68%). They conclude this shows indeed some correlation between institutions and growth, but they note it is not necessarily a causal relation in the direction from institutions to growth and also that there might be omitted variables like geography.