Institution, Human Capital and Economic Development — Comment on Theories of Daron Acemoglu and Edward Glaeser

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Abstract: Institution and economy, two fields on which the operation of modern human society depends, and the various elements related to them, have always been the subject of much discussion. Daron Acemoglu argues that institutions lead to a logical chain of causality for economic development, and Edward L. Glaeser argues that it is human capital, not institutions, that lead to economic conditions after regions are colonized. This paper compares its conclusion with the interactive model of geographical development put forward by scholars in different periods, and analyzes its formation, evolution logic, and impact on economic performance. In the aspects of climate, local epidemiology, land quality, geology and landform, geographical location, natural resources, etc., many studies lack the causal logical chain. Therefore, this paper, from the perspective of comparative economics, analyzes the different interaction and iterative effects of these factors on the development of colonial economy in different regions.

***Keywords*:** institution, economic development, human capital

1. Introduction

Today, the international community is facing two major development challenges worldwide: how to ignite growth and how to establish democracy. Economic research has identified several broad approaches to addressing these challenges. In these research methods, we can see that economists are explaining an old and key question: what leads to the prosperity of some countries and the long-term poverty of others? Since Adam Smith, this problem has aroused the long-term interest of economists. This paper describes and evaluates the theories of Daron Acemoglu et al (Abbreviated as AJR) and Edward Glaeser et al (Abbreviated as GLLS) respectively, and critically compares the two methods.

2. The theory of AJR — institution, development stages and performance

2.1 Theoretical description

Acemoglu[1] (2001) used the mortality of early colonists as an instrumental variable to investigate the institutional causes of colonial development differences. They believed that differences in colonial environmental conditions would lead to fundamentally different colonial policies, but all of them were aimed at seizing resources. Different institutions were developed under different colonial policies. In other words, when colonists were unable to adapt to local conditions (high mortality caused by disease), this led them to choose to establish predatory institutions(Barro, 1991)[2]. On the contrary, if the colonists thought the colony was a good place to live, they established an inclusive institution, which continues to this day in some places. Due to path dependence, the government and institution of the early colonies will continue to exist after independence.

Based on the significant correlation between the existing institution and the early institution, colonist mortality can be used as an effective instrumental variable of the existing institution. In this way, "colonist death" → immigration activities → early institution → current institution → current economic performance". A close logical chain has been formed. It is precisely because there is a certain degree of correlation between the existing institution and the early institution that makes the economic success of these regions. Using mortality as a tool also helps to estimate the great impact of institutional differences on per capita income. They use the logarithm of mortality of white colonial soldiers, sailors and missionaries in the 17th and 19th centuries as a systematic tool. It is found that nearly 75% of the per capita income difference in the original colonies can be explained by systematic differences.

2.2 The key related studies before and after AJR

The papers before and after AJR put forward at least three basic models of geographical development interaction, as

shown in Figure 1:

Figure 1 (a) shows that geographical location mainly affects per capita income through institutional channels. For example, Hall and Jones [3](1999) believe that the correlation between latitude and development is regulated by institutions, especially in Europe.

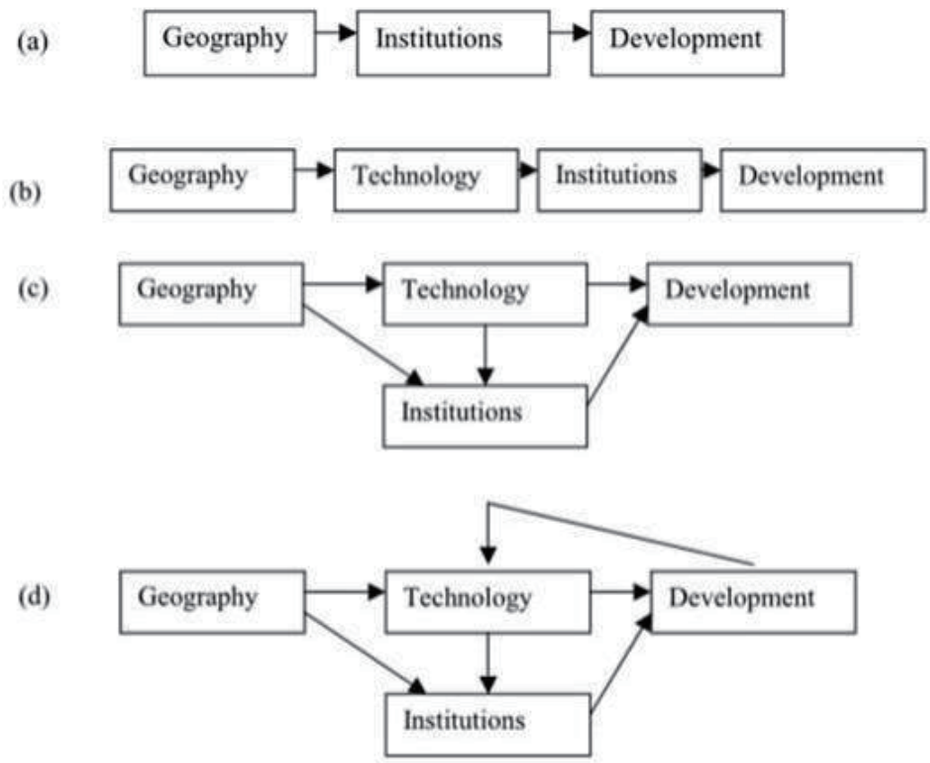

Figure 1. (Source: Author's Arrangement)

Figure 1 (b) modifies Figure 1a to show that climate (or disease) affects technology, which is broadly defined as including human health and agricultural production technology. Technology affects institutions, such as slavery and free labor, or plunder and the rule of law, and institutions ultimately determine GDP and economic growth (Engerman and Sokoloff[4], 1997).

Figure 1 (c) shows that geography affects economic development not only through institutions (or technology), but also through external productivity. For example, Gallup et al[5] (1998) believed that the unfavorable geographical environment will reduce agricultural productivity and health, thus directly hinder development. The unfavorable geographical environment will also promote national plunder, leads to the predatory institution and poor development.

Figure 1 (d) adds a specific path to Figure 1 (c). Climate once again plays a direct role by affecting technologies and institutions, but over time, the feedback of market size on future technological innovation may amplify this impact (Sachs, 2000)[6].

It is obvious that the AJR model ignores the impact of climate, disease, and regional differences on the colonial economy and tries to explain economic differences only from the superficial logical institution. In addition, AJR does not consider the interaction and iterative effect of climate, technology and geographical environment on economy, this means that AJR has only one causal relationship, which is obviously inconsistent with the facts.

3. GLLS theory — the impact of human capital

3.1 Theoretical description

GLLS tests their hypothesis by comparing the impact of institutional measures and human capital accumulation on income growth(Glaeser et al., 2002)[7]. It is difficult to establish a causal relationship between institution and economic growth, but the causal relationship between human capital accumulation and economic growth and democratization is more direct and obvious than that between institution and economic development (Glaeser et al., 2004)[8]. Additionally, Economic development improves the institution, due to the accumulation of human capital, the institution will become more and more

democratic (Diamond, 1997)[9].

Besides, the impact of education on economic development is more far-reaching than the institution in time. Education can promote the growth of human capital, because human capital refers to labor force and its knowledge, skills, health and other production factors, which are in technological innovation (Djankov et al, 2003)[10]. At the same time, good human capital will also bring healthier politics and institutions.

3.2 Endogeneity

GLLS mentioned that the accumulation of human capital can promote economic development. In the case of high mortality mentioned in AJR, human capital fundamentally lacks development opportunities, which will lead to the disadvantage of human capital and be unfavorable to economic development. Therefore, AJR's use of mortality as an instrumental variable may not be the best choice. Meanwhile institution and economic development may be causal, and they already have endogeneity.

Correlation usually does not mean causality. An unobserved variable may affect high-level economic development and high-level institutional quality. GLLS model emphasizes human capital (Education). The correlation between human capital and national income is very high. In addition, countries with good policies often make considerable contributions to economic development. Therefore, there is an endogenous positive correlation between improving institutions and human capital.

An important part of using the IV approach is the selection of tool variables. AJR chose the mortality rate as the instrumental variable, which required that the mortality rate had no relationship with economic growth. However, there is a certain degree of causality between mortality rate & institution and economic growth. Therefore, the mortality rate itself may not meet the limiting conditions and is inherently endogenous.

Taking education as an instrumental variable, for example, the logical relationship between education and institution is that education promotes human capital, and human capital helps economic development and economic growth. Moreover, such growth feeds back to the improvement of institutional institution. It seems that both endogeneity and restriction conditions in this chain are satisfied.

3.3 2SLS equations

Equation of AJR is:

$$\log y_i = \mu + aR_i + xy + \varepsilon_i \tag{1}$$

$$R_i = \zeta + \beta \log M_i + x\delta + v_i \tag{2}$$

Where log y_i is the economic outcome, R_i is the measure of institutions, x_i represents other variables, ε is the error term, a is the coefficient they are looking for, which represents the impact of institutions on economic growth.

Equations of GLLS is:

$$\ln(y_i) = \beta_0 + \beta_1 + \ln(y_{0i}) + \beta_2 + S_{0i} + \beta_3\, QI_{0i} + \beta 4 z_i + \varepsilon_i \tag{3}$$

Where $\ln(y_i)$ is the average income per capita, $\ln(y_{0i})$ is the initial GDP, S_{0i} is the initial level of education, QI_{0i} is the measure for initial institutional quality z_i, is for other variables.

4. Comparison

Firstly in causality, there may be a defect in the logic between institution and economic development In AJR. The defect of this logic stems from the colonist sapos; neglect of primitive culture and resource endowment. From the research of many economists, it can be seen that the institution has a positive impact o economic development, but regional development differences are largely limited by geographical location, culture and other resource endowment (Diamand[8], 1997; Engerman and Sokoloff[4], 2002; Rodrik et al.[11], 2004). In addition, Linden (2001)[12] also pointed out that "high quality" institution needs high cost, and backward countries are establishing "high quality". The institution needs to reach a specific stage of development before obtaining institutional dividends.

Secondly in data collection, In the process of using tools to analyze the causes of economic growth, AJR prefers tropical or subtropical countries in the selection of geographical factors. Due to the difference of geographical environment, the difference of human production and life original capital and human development are determined the difficulty of reproduction and reproduction in this environment. McArthur and Sachs[13] (2000) found that geographical differences can directly affect

today's economic growth, regardless of whether the institution is right or wrong.

Thirdly in institutional measurement standards, AJR uses the risk of government expropriation, government effectiveness and administrative constraints to measure the effectiveness of the institution (North and Thomas[14], 1973). However, the first two indicators do not reflect the political institution, but the quality of the government. What is more fatal is that the Firstly two indicators are the economic growth caused by the eco-institution. This leads to the confusion of causality. The third measure is to limit the administrative department,which is in principle the same as the restriction on the government. In some developing countries, even such measures are not stable and cannot be reasonably interpreted as reflecting the lasting rules, procedures or norms referred to by "institution" this time(Shleifer, 2004)[15]. In fact, the three traditional standards of institutional measurement have nothing to do with the constitutional constraints on the government that scholars have just begun to use.

Fourthly in human capital, AJR regards human capital elements as instrumental variables. AJR's results show that in the European colonies, the settler mortality and population density in 1500 predict today's institutional quality and economic development level. However, these results do not establish the role of institutions. Specifically, the Europeans who settled in the new world may not bring their institutions, but themselves, that is, their human capital. The research of GLLS[7] (2004) shows that the institutional tools used in the literature are more relevant to human capital today and 1900, and the performance of human capital is better than the institution in the instrumental variable specification for predicting economic growth. At the same time, GLLS believes that when using measurement tools to measure the institution, the variables of human capital are better than the settler model. Therefore, the criticism of human capital mainly comes from the controversial measurement institution of indicators and indicators.

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