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Institutions, human capital, and growth: The institutional mechanism

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ABSTRACT

This paper contributes to the debate on the relationship between human capital, institutions, and economic growth. The paper first develops a micro-foundation model linking institutions to human capital. The advantage of our modeling strategy is that the human capital accumulation function is derived from an endogenous process. The theoretical model shows that improvements in the quality of institutions foster human capital accumulation, decrease income inequality and change the historical development path. The paper uses cross-country panel data from 1965 to 2005 to test some of the model's propositions and finds that deep structures or structural institutions – which are very persistent and rooted on the historical development path of an economy – affect long-term economic performance, while political institutions are uncorrelated with productivity and long-term economic growth. The empirical estimates also show that growth of physical and human capital – instead of levels – determines long-run economic growth.

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1. Introduction

The literature examining the importance of institutions as a major driver of economic development can be traced as far back as Smith (1776, chap. VII), but has only gained prominence in the mainstream economic literature recently (e.g. Wolf et al., 1955; North and Thomas, 1973; North, 1990; Hall and Jones, 1999; Rodrik, 2000; Rodrik et al., 2004; Acemoglu et al., 2001, 2003, 2005a,c). However, the links through which institutions impact income, technological change and factor accumulation, particularly human capital, is still the subject of an ongoing debate (Engerman and Sokoloff, 2002; Glaeser et al., 2004; Acemoglu et al., 2005b; Castelló-Climent, 2008; Tebaldi and Elmslie, 2008, 2013; Coe et al., 2009).

This study fits within the literature that examines how human capital, institutions and economic growth are related, and is motivated by a controversy on how institutions and human capital are interconnected. Lipset (1960) argues that human capital accumulation contributes to shape efficient policies, less violence and more political stability. Consistent with this view, Glaeser et al. (2004, p. 282) provides empirical evidence that human capital positively affects political institutions and, therefore, fosters economic growth. Castelló-Climent (2008) also finds evidence that an educational improvement experienced by the majority of the population influences democracy via both implementation and sustainability of democracies. Contrary to these ideas, Acemoglu et al. (2005b) show that the effect of education on democracy disappears when country heterogeneity is accounted for. Moreover, they also find that there is no significant effect from education on other measures of political institutions. Acemoglu et al. (2003, 2005c) suggest that the institutional arrangement is the key determinant of the joint evolution of economic and political developments.[1]

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[1] "Our main argument is that in institutionally weak societies, elites and politicians will find various ways of expropriating different segments of the society, ranging from macroeconomic to various macroeconomic

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This paper provides a bridge between these views in the sense that human capital and institutions are interrelated in producing the foundations for long run economic development; therefore, we provide a more elaborated model that enlightens this long run process. In particular, this paper develops a micro-foundation model linking institutions to human capital. The advantage of our modeling strategy is that the human capital accumulation function is derived from an endogenous process. However, the human capital accumulation process does not occur automatically; it comes from a decision that weights the intertemporal rewards from the accumulation of human capital against its costs. Institutions play a crucial role in this process as they affect the rate of return to education. Institutions that provide a well-functioning human capital market increase the return to education, thus stimulating human capital accumulation. Therefore, the amount of human capital available in the economy depends on the quality of institutions. Since the productivity of an economy depends on the accumulation of human capital, economic development is linked to the quality of the institutions.

This paper uses system GMM estimates to examine the model and shows that institutions positively affect economic growth. Moreover, controlling for institutional quality, this paper finds evidence that the accumulation of both physical and human capital plays an important role in explaining economic growth. The empirical estimates show that growth of physical and human capital – instead of levels – determines long-run economic growth. The empirical findings, together with the theory developed in the paper, support the view that human capital accumulation and institutions are jointly determined, thus creating a historical development path.

The rest of the paper is organized as follows: Section 2 presents the literature review, which discusses different views of the role of institutions on economic development and emphasizes what type of institution is most conducive to economic development. Section 3 develops an economic model that shows how institutions operate at a micro-level in the economy. Section 4 presents an econometric analysis that uses cross-country panel data from 1965 to 2005 to test some of the model's propositions. Section 5 summarizes the paper's findings.

2. Literature review

Most economists recognize the importance of institutions for economic development. However, establishing the linkages through what institutions operate still poses significant challenges to the profession. For instance, well-known growth models, including Lucas (1988) and Romer (1990), do not explicitly model institutions, but offer only a general framework that allows for making conjectures regarding how institutions operate. More precisely, Lucas (1988) asserts that economic development is related to the knowledge accumulation process, which produces an institution or social capital represented by the average knowledge in a society. As a result, the production system interacts with this average knowledge resulting in increased productivity. Romer (1990) demonstrates that knowledge is not a public good because patents grant monopoly power to innovators. Patents, therefore, serve as engines of knowledge creation as they provide the right incentives for those engaged in R&D to make investments that will eventually lead to knowledge creation. This process greatly depends on the quality of institutions because "good institutions contribute to facilitate the process of registering new patents, to disseminate ideas and promote cooperation across researchers, to speed up diffusion of scientific knowledge, to improve enforcement of property rights and to reduce the uncertainty of new projects; all factors that stimulate R&D activities" (Tebaldi and Elmslie, 2008, p. 36). Dias and McDermott (2006) develop a model that associates efficiency of public institutions to the market incentive for input accumulation. They show that government efficiency is the mechanism that sets up the long run growth process of the economy, and that economies plagued by rent seekers will possess "wrong institutions." Nonetheless, the authors do not discuss how the quality of institutions affects the decisions of individuals to accumulate knowledge.

The importance of institutions for knowledge creation has also been empirically examined. For instance, Coe et al. (2009) find evidence that better institutions increase the returns to R&D investments, and also increase the benefit from international R&D spillover and human capital formation.[2] Seck (2011) shows that countries with strong institutions experience a significant increase in the absorption of the international R&D spillover. Tebaldi and Elmslie (2013) show that control of corruption, market-friendly policies, protection of property rights and a more effective judiciary system boost an economy's rate of innovation.

Knowledge creation is strongly dependent on human capital, as widely documented in the literature (e.g. Lucas, 1988; Romer, 1990; Coe et al., 2009; Seck, 2011). Therefore, one could conjecture that institutions impact knowledge creation both directly (as discussed above) and indirectly via human capital. Moreover, institutions seem

policies. It is the presence of this type of expropriation and the power struggle to control the state to take advantage of the resulting rents that underlie bad macroeconomic outcomes and volatility. A logical implication of this view is a seesaw effect: if the elites are prevented from using one particular instrument, as long as institutional weaknesses remain, a likely outcome is that they will pursue their objectives using other instruments." Acemoglu et al. (2003, p.54). Acemoglu et al. (2005b) find evidence that "property rights institutions have a major influence on long-run economic growth, investment, and financial development, while contracting institutions appear to affect the form of financial intermediation but have a more limited impact on growth, investment, and the total amount of credit in the economy (p. 988)."

[2] Stiglitz (1999) makes an interesting point about worldwide knowledge dissemination: "Patents provide the exclusive right to the inventor to enjoy the fruits of his innovative activity over a limited period of time (17 years), but in return, the inventor must disclose the details of his invention. The fact of the invention, let alone the details provided in the patent application, make an enormous amount of knowledge freely available. The development of rayon provided other researchers with enormous information: it demonstrated the feasibility of a synthetic fiber – knowledge which itself was of enormous commercial value and which enhanced incentives for others to look for other synthetic fibers. Indeed, research in chemicals often consists of looking for slight variations of the original chemical."

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