Modeling institutional evolution

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A B S T R A C T

This paper proposes a formal framework to analyze the process of institutional evolution in relation with economic progress. Institutions have both formal (F) and informal (N) aspects that may exhibit varying processes of change. N is hypothesized to evolve with the level of capital stock, as in learning by doing, whereas F is chosen optimally by a government that maximizes output subject to social and political costs. F and N together define the production technology and affect the income level. Consistent with evidence, simulations of the model's solution reveal that optimum F exhibits a *punctuated* pattern.

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1. Introduction

Institutions are defined as commonly accepted rules of the game and their enforcement mechanisms that result from repeated human interactions (North, 1990). The intertwined nature of the relationship between institutions and economic performance has become a key focus of the *new development economics* literature.[1] This study offers a formal framework to analyze this relationship in view of the two prominent approaches to institutional economics: *transaction cost* and *collective action* theories. The former of these has been pioneered by Coase (1960) and developed as *New Institutional Economics* (NIE) by Williamson (1985) and North (1990) among others, while the latter is due to Olson (1965, 1982). The two approaches complement each other in understanding the nature of institutions in a given economy at a given period, as well as the factors that affect their evolution.

The transaction cost approach to institutional change focuses on the changes in productive factors and their relative prices that in turn influence the nature of institutional arrangements demanded by

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[1] The examples are many, and include: Aron (2000), Clarke (2001), Cukierman et al. (1992, 2002), Dollar and Kraay (2003), Easterly and Levine (2003), Knack and Keefer (1995), and Rodrik et al. (2002), to name just a few prominent ones.

society. According to this approach, institutions adapt both to each other and to the changing economic environment. Collective action theory, on the other hand, focuses on the circumstances that affect the formation and effectiveness of interest groups that facilitate institutional change via affecting governments' decisions.[2] While the first approach provides an efficient view of institutional choice, collective action theory underlies the dynamics of institutional change, explaining the observed inefficiencies with regard to institutional change.[3]

In view of these two approaches, this paper models the *formal* and *informal* aspects of institutions in interaction both with each other and with economic progress. As technological accumulation and demographic evolution lead to changes in the means of production, social norms and traditional ways of doing business (informal institutions) continuously adapt to those changes, albeit slowly. When the evolution of informal institutions reaches a level that is not supported with the prevailing formal institutions, new interest groups emerge and support a change in legal frameworks.[4] The prevailing formal structures have their powerful support groups, however, who would resist the change. Hence, all institutional changes resulting from these dynamics may not be Pareto improving.

Since formal institutional change is costly due to creative destruction, it is infrequent, although it may be abrupt and often inefficient due to the power struggle of interest groups.[5] Olson (1982) calls this phenomenon *institutional sclerosis* and argues that it is a main factor in explaining the low growth rates in some stable democracies.[6] As politicians face resistance from special interest groups, reforms may get delayed until the costs become too widespread and overwhelming, sometimes leading to crises. Institutions are usually reformed when their benefits exceed the cost of maintaining the existing ones on the aggregate. Political and economic crises that destroy the existing power-balances often generate an impetus for radical institutional reforms.[7] Therefore, the pattern of institutional change is commonly observed to be punctuated.

In view of the foregoing, modeling institutional evolution should distinguish between two key attributes of a production technology: (i) the set of informal rules (N) that is embedded in, or formed by, cultural or structural characteristics of a society and (ii) the set of formal rules (F) that define the formal organizational characteristics of production. As production relations (proxied by N) evolve with the accumulation of the factors of production, as in *learning by doing*, changes in laws and regulations that organize those production relations (F) may lag behind. The adoption of well-designed banking or competition laws and fiscal policy institutions are, for instance, often observed to lag behind the needs of an economy and usually follow a discontinuous pattern of development.[8]

In addition to decisions resulting from domestic political processes, international advice or aid-conditionalities of international organizations may also play a role in formal institutional changes. Many transition countries, for example, have adopted laws based on the experiences of developed countries (*best-practice institutions*), although they may not be consistent with domestic needs. Conflicts between legislations (F) and existing informal rules (N), however, have led to such reforms being dysfunctional in several cases.[9] In the same spirit, both Boettke et al. (2008) and

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[2] Coates and Heckelman (2003) and Coates et al. (2010, 2011) provide empirical evidence in support of Olson's theory. Heckelman (2007) provides a review of empirical tests of Olson's theory.

[3] See also Nabli and Nugent (1989).

[4] Kemmerling and Neugart (2009), for example, show the significant role of a developed financial sector on pension reforms in OECD.

[5] A future extension will be devoted to endogenizing the changes in the power structure in the economy to explicitly incorporate the collective action theory and thus the political economy perspective into the current model.

[6] According to Olson, stable democracies are most likely to accumulate special interest groups, leading to institutional inefficiencies of the kind later modeled in Acemoglu (2006).

[7] See, for example, Dincer and Neyapti (2008) for empirical evidence on the significant effect of crises on the adoption of banking laws.

[8] Competition law in Turkey, for example, was legislated more than a decade after its proposal, and more than 100 years after it was put into practice in the US.

[9] Transition economies, for instance, have adopted legislations that grant independence to their central banks or banking laws of developed countries at the onset of reforms in the early 1990s; those legislations, however, lacked the quality of implementability when they were not accompanied by other reforms (see Cukierman et al., 2002; Neyapti and Dincer, 2005).