



# The effect of institutions on economic growth: A global analysis based on GMM dynamic panel estimation

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## ABSTRACT

This study examines how institutional indicators influence economic growth in a theoretical framework proposed by North (1981). Thirty-one indicators each covering 84 countries over a span of 5 years have been used to extract factors based on principal component analysis. Factors based on these indicators are classified as institutional and policy rents, political rents and risk-reducing technologies. These institutional factors are then used in a formal growth model employing panel OLS and GMM-based estimation methodologies. The findings suggest that favorable institutions positively affect economic growth. This study also shows that for a developing country the institutional and policy rent is more important than other two indices that curb political rents and those that reduce transaction risks. This study also highlights the positive complementarities between index of political rents and index of risk-reducing technologies.

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## 1. Introduction

The theoretical and applied issues of the relationship between institutions and economic growth have thoroughly been examined both in the developed and in developing countries. This study revisits the issue and tests the role of institutions in economic growth using new methodology and three newly constructed sets of institutions. North and Thomas (1973) argued that institutions affect economic growth by influencing property rights, incentive structures and transaction costs. Rodrik (2000) explained the pivotal role of various non-market institutions in creating complete and contingent markets.

Institutions contribute to growth and to development by reducing the risk of doing business, thus directing resources toward innovation rather than protecting property rights or earning predatory rents.

Empirical literature has identified numerous institutions that influence economic growth, including governance, law enforcement, justice, regulations, tax administration, and institutions that manage monetary and fiscal policies.<sup>2</sup> Moers (1999) found that a broader measure of institutions has the strongest effect on growth. Acemoglu et al. (2001, 2002), and Acemoglu and Johnson (2005) show that qualities of institutions have a stronger effect

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<sup>2</sup> See Soto (1989, 2000), Barro (1997, 2000), Schleifer and Vishney (1994), Knack and Keefer (1995), Mauro (1995), Sachs and Warner (1995), Frye and Shleifer (1997), Johnson et al. (1998), Easterly and Levine (2002), Kauffman and Kraay (2002), Rodrik et al. (2004), Rodrik and Subramanian (2003), Méon and Sekkat (2004), Kauffman et al. (2005), Jalilian et al. (2007), for example.

on long term growth than in the short run. Méon and Weill (2006) and Olson et al. (1998) found evidence that institutional factors influence total factor productivity and that those countries with better institutions exhibit higher productivity. A few studies have used instrumental variable techniques to indicate evidence of causality running from institutions to economic performance (Olson et al., 1998; Acemoglu et al., 2001; Rodrik et al., 2004).

Institutions are multi-dimensional. Commercial organizations including Political Risk Service (PRS) and Business Environment Risk Intelligence (BERI), and non-commercial organizations including the World Economic Forum (WEF), Global Integrity, Freedom House, Fraser Institute (FI) (Gwartney and Lawson, 2008), Heritage Foundation (Miller et al., 2009), and Bertelsmann, Marshall et al. (POLITY) have been developing diverse indicators to measure institutional quality across countries. Some of these indicators have been used in the empirical literature.<sup>3</sup> Their aim was to select those indicators that explore the dimensionalities as proposed by North (1981), Dawson (1998), and Rodrik (2000). However, each of them was deficient in this area (Kormendi and Meguire, 1985; Knack, 2002; Kaufmann and Kraay, 2008; and Van de Walle, 2005).

There are statistical limitations to the use of diverse indicators in a single regression framework as the strong correlation among indicators creates a risk of multicollinearity (Moers, 1999). This might be the reason why studies such as Méon and Sekkat (2004) and Acemoglu et al. (2001) have used different indicators separately in different equations. Alternatively, various studies have attempted to aggregate different indicators by means of simple averages. Francisco and Antonio (2004), Hall and Jones (1999), and Knack and Keefer (1995) standardized and averaged five indicators of PRS and four similar indicators from BERI in two indices, while Mauro (1995) averaged eight indicators from BI (now EIU) in two indices. An advantage of aggregating indicators is that it cancels out source specific measurement error<sup>4</sup> (Laura and Knack 2010; Knack and Nick 2000; Knack, 2002 and Mauro, 1995). The literature acknowledges that as compared to individuals, the aggregate indicators are more reliable as these organize and summarize very large and disparate information in very concise way (Catrinescu et al., 2009, Kaufmann and Kraay 2008, and Van de Walle, 2005). However, Knack and Nick (2000) and Kaufmann and Kraay (2008) emphasized that the gain in reliability from aggregation comes at the expense of a loss in specificity and conceptual precision.

World Governance Indicators (WGI) (Kaufmann et al., 2008) is a widely used indicator to measure the quality

of institutions across countries.<sup>5</sup> It attempted to cover a wide range of institutions by categorizing six “governance indicators.” Its validity, however, is being questioned in different studies on conceptual as well as empirical grounds. First, the governance indicators are poorly identified, multi-faceted and lack proper theoretical basis as pointed out by Martin and Petra (2011), Laura and Knack (2010), Arndt and Oman (2006), Johnston (2007), and Thomas (2007). These studies show evidence of overlap between six different categories of WGI and seem to be tautological, which makes it difficult to delineate them separately. Secondly, these studies also show that the WGI encounters difficulties on the empirical front, as most of its categories have an extremely high degree of inter-correlation, exceeding 95 per cent in some cases. Thirdly, the WGI indices are affected by lack of dimensionality. Martin and Petra (2011), and Laura and Knack (2008, 2010) indicate that there is only a single dominant factor in the WGI indicators, which shows that the indices in fact measure the same basic concept. That could be reason why various empirical studies such as Al-Marhubi (2004), Bjornksov (2006), Easterly (2002), and Easterly and Levine (2002) averaged all six WGI indices in their analysis. Finally, the WGI aggregated indicators failed to depict political institutions that are crucial to this analysis. This point is highlighted in a recent empirical growth study by Glaeser et al. (2004), who conclude that ICRG and WGI both fail to include political constraints whereas POLITY indicators are narrowly political; in sum each of these indicators is an incomplete and imperfect proxy for institutions.

The present study addresses all of the above-mentioned shortcomings by constructing three indices to measure institutional qualities. This study performed exploratory factor analysis on 31 diverse institutional indicators from different data sources. Three dimensions of institutions were identified, namely the factor of Institutional and Policy Rents (RiiF1), the Factor of Political Rents (RpiF2) and the factor of Risk-reducing Technologies (SiiF3). The RiiF1 assesses institutions’ ability to limit rent-seeking opportunities that divert innovation and resources from productive avenues, whereas RpiF2 focuses on political competition and participation. The SiiF3 measures the quality of institutions that reduce transactional risk through proper enforcement of property rights. Weak risk-reducing institutions increase transaction cost as people divert their resources from productive activities to private arrangements. RiiF1 and RpiF2 represent two dimensions of institutions—risk-reducing and anti-rent-seeking, which are theoretically motivated by Douglass North’s two theories of the state—a “contract theory” and a “predatory theory.” Three factors are then aggregated into the Index of Institutionalized Social Technologies (IIST) which measures the overall quality of institutions.

The paper is organized as follows. Section 1 introduces the paper and the relevant literature. Section 2 explains the methodology and rationale for the indices. Section 3

<sup>3</sup> For example Kormendi and Meguire (1985), Barro (1996), Helliwell (1994), Scully (1988), and Isham et al. (1997) used civil liberties index of freedom house Acemoglu et al. (2001, 2002), Knack and Keefer (1995), and Hall and Jones (1999) used protection against expropriation risk indicator from PRS, and (Dawson, 1998) used Economic Freedom of the World (EFW) index of FI.

<sup>4</sup> Kaufmann and Kraay (2008) provided empirical evidence of these measurement errors between different indicators measuring the same concept.

<sup>5</sup> See (Rodrik et al., 2004; Dollar and Kraay, 2003; Kauffman and Kraay, 2002; Méon and Sekkat, 2005; Naude, 2004; Islam and Montenegro, 2002) for empirical applications.

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