



Democracy and economic growth: The role of intelligence in cross-country regressions

Raufhon Salahodjaev*

*Institute of Forecasting and Macroeconomic Research, Movoraunnahr 1, Tashkent 100000, Uzbekistan
Westminster International University in Tashkent, 12 Istiqbol St., Tashkent 100047, Uzbekistan*

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ABSTRACT

Empirical literature has long conjectured that institutional arrangements, proxied by democracy, social capital and intelligence, are relevant determinants in cross-country differences in economic performance. Related literature, however, predominantly documents that democracy has either a negative or not significant impact on economic growth, while intelligence is assumed to have strong and direct effect on economic performance. We propose that the effect of democratization is mediated by the degree of the approval to such policies, and that intelligence may alleviate or diminish the negative effect of weak institutions on economic growth. We empirically investigate the interactive effect of democracy and intelligence on economic growth, using data from 93 nations, over the period 1970–2013. The results show that the relationship link between democracy and the real GDP growth varies with a nation's level of cognitive abilities. The results remain robust to various estimation techniques, control variables and time periods.

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1. Introduction

Since the seminal work of Barro (1991), the empirical literature on the cross-national determinants of economic growth has mushroomed (e.g. Acemoglu, Johnson, & Robinson, 2005; Beck, Levine, & Loayza, 2000; Temple, 1999). One potential antecedent that attracted substantial attention from researchers is the effect of political regimes on economic growth, with a notable focus on democratic institutions. Despite the widely recognized relevance of democratic institutions for economic development (e.g. Feng, 1997; Gerring, Bond, Barndt, & Moreno, 2005; Libman, 2012; Piątek, Szarzec, & Pilc, 2013), 'the impact of democracy on economic growth is less straightforward and has been a matter of much more controversy among scholars' (Jaunky, 2013 p. 990). Some studies document negative or not significant effect, while others argue that democracy fosters economic growth

(Adelman & Morris, 1967; Banks, 1970; Dick, 1974; Drury, Kriekhaus, & Luszti, 2006).

A separate line of empirical literature questions the direct effect of democracy conjecturing that democracy is endogenous in economic growth regressions and that quality of human skills, cognitive structures, national capacity, social capital and regime stability ("natural order" as suggested by Hoppe (2001)) are exogenous antecedents of economic growth (e.g. Glaeser, La Porta, Lopez-de-Silanes, & Shleifer, 2004; Oosterdiekhoff, 2014). Abundant evidence reported in cross-national studies also suggests that the indirect effect of political regime on economic growth is captured by political stability, low levels of corruption and higher human capital accumulation (Baum & Lake, 2003; Helliwell, 1994).¹

¹ Knutsen (2013) suggests that 'there is still much uncertainty and debate on the economic effects of [democratic institutions] and whether such effects are context-dependent'. Moreover, empirical evidence seems to suggest that 'the resources necessary for investment cannot be accumulated by democratic means' (Rao, 1984–1985 p. 74).

* Corresponding author.

E-mail address: rsalaho1@binghamton.edu.

This study further contributes to the literature that investigates how democracy and economic growth are related, and is motivated by recently published articles in this journal that report statistically significant link between intelligence and institutional arrangements (e.g. Carl, 2015; Kanyama, 2014; Salahodjaev, 2015). This paper links the related studies in the sense that intelligence and political regimes are complementary in inducing the foundations for long run economic growth. In particular, we propose that there are two possible explanations for anticipating significant interactive effect between intelligence and democracy on economic growth, the first of which is cognitive capacity. According to Kanyama (2014) “intelligence captures the level of the national ability to understand the principles and rules that govern national institutions and to orient their structure toward market-oriented policies, with the ultimate objective of benefiting the general population” (p. 45). In particular, Potrafke (2012) documents that corruption is lower in high-IQ societies because economic agents with higher cognitive abilities are more likely to detect and punish rent-seeking actions (Galston, 2001). In a similar vein, Salahodjaev (2015) tested the hypothesis that the size of shadow economy is lower in high-IQ nations, using cross-country data for the period 1999–2007. The study finds that intelligence predicts the size of informal economy even after controlling for reverse causality between institutional arrangements and the quality of human capital devoted to productive activities.

Second, intelligence and education are closely correlated and there is plenty evidence that education determines the quality of democratic institutions (e.g. Lipset, 1959, 1960). According to Aristotle/Lipset hypothesis education as an essential antecedent of “civic culture” and democratic behavior. Almond and Verba (1989 p. 315) argue that “[t]he uneducated man or the man with limited education is a different political actor from the man who has achieved a higher level of education”.

In data from the USA and the UK, Milligan, Moretti, and Oreopoulos (2004) find positive link between extra schooling caused by mandatory schooling laws and the probability of becoming politically involved. Likewise, Glaeser, Ponzetto and Shleifer (2007), using data from 34 countries, document that education increases benefits of political participation and promotes society-wide support for democratic institutions. In line with the education-as-a-cause view, intelligence as a proxy for individual's cognitive abilities is instrumental to political orientations. In addition, factors such as, political interest, social attitudes and voter turnout are also the basis of the cognitive abilities (e.g. Deary, Batty, & Gale, 2008b; McCourt, Bouchard, Lykken, Tellegen, & Keyes, 1999). A number of articles in this journal have presented evidence that intelligent individuals are more likely to vote for a party with a democratic agenda (Rindermann, Flores-Mendoza, & Woodley, 2012), and attend demonstrations and petitions (Deary, Batty, & Gale, 2008a).

In sum, we conjecture that democracy does not have statistically significant effect on economic growth in regressions where the interrelation between cognitive abilities of citizens and democratic institutions is not accounted. Rather, we anticipate the indirect impact of political regimes through intelligence of nations in weak democratic countries. While authoritarian regime might have negative effect on economic growth, there is evidence that authoritarian countries, with high-IQ population, in East Asia managed to escape rent-seeking and

politically motivated policy failures (Haggard, 1990) because more intelligence of economic agents is associated with longer time horizons (Shamosh & Gray, 2008).

The anticipated link between democracy, intelligence and economic growth is explored on a sample 93 nations for the period 1970–2013. This paper contributes to empirical literature in a number of ways. First, ours is the first study that considers the interaction effect of intelligence and political regime on democracy-growth nexus. With the dataset by Lynn and Vanhanen (2012), we revisit how previous findings change when we include the national IQ scores in the growth models.

Second, to maximize the sample size and to retain comparability with related literature, we investigate the impact of democracy on long-term and short-term economic growth. We utilize two sample periods: 1970–2013 and 1990–2013.

This study documents that the association between democracy and economic performance in non-linear and depends on the intelligence of nations. In particular, we find that the interaction between IQ and democracy is negative, suggesting countries with higher level of cognitive abilities (higher than the threshold = 85.6 national IQ points) can neutralize the negative effect of non-democratic institutions on economic growth.

2. Model and data

We now turn to a discussion of the main data we use in our empirical analysis. The main results cover the years 1970–2013 and we include both developed and developing nations in our sample. Summary statistics for the data are presented in Table 1. The dependent variable in our article is average annual GDP growth rates ($GROWTH_{7013}$) at market prices based on constant local currency from 1970 to 2013. Annual percentage growth rate of GDP in our sample averaged 3.81%, and this average change ranged from –5.41% (South Sudan) and 16.96% (Equatorial Guinea). The data is retrieved from World Development Indicators (WDI).

Our key independent variable is democratic index ($DEMOCRACY_i$) calculated as an arithmetic mean of civil liberties and political rights indices. Political rights allow citizens to join political parties and organizations, compete for public office, vote freely for distinct alternative candidates in legitimate elections, and elect representatives who have a real impact on

Table 1
Descriptive statistics.

Variable	Description	Mean	Std. dev.
GROWTH7013	Average annual GDP growth rates, 1970–2013	3.8119	2.1971
DEMOCRACY	Democracy index	3.6732	2.0136
IQ	National IQ	84.1026	10.8476
LogGDP per PERSON	Logged initial GDP per capita	7.7171	1.5534
INVESTMENT	Gross fixed capital formation (% of GDP)	22.9574	8.3431
SCHOOLING	Average years of schooling at all levels	4.3087	2.6328
POP_GROWTH	Population growth (annual %)	1.7552	1.2228
TRADE	Trade (% of GDP)	83.5279	43.9915
GS	General government final consumption expenditure (% of GDP)	17.4101	8.9821

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