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INSTITUTIONS, RATINGS AND ECONOMIC GROWTH: IN SEARCH OF RELIABLE INDICATORS

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INSTITUTIONS, RATINGS AND ECONOMIC GROWTH: IN SEARCH

OF RELIABLE INDICATORS

The ratings of political institutions are well-known and widely used in academic literature. These ratings are mostly based on expert evaluations. However, such evaluations can be subjective and occasionally driven by ideological considerations. In this paper we propose two new indicators

of institutional quality for 154 countries. These indicators are constructed in a way that

minimizes the subjectivity of the evaluations. Only the presence or absence of a particular

institutional phenomenon is identified. This puts much less weight on possible bias and makes

easy to verify. We show that these indices predict economic growth better than those commonly

used, primarily because they include information about institutions that has been accumulated

over a period of approximately two centuries.

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Introduction

There is widespread agreement among economists that institutions are important for economic growth and social development (North, 1990; Acemoglu et al., 2001; Rodrik et al., 2004). Property rights, the rule of law, competition, and the absence of corruption are necessary conditions for a healthy business climate. There is also a common belief that these inclusive economic institutions are supported by inclusive political institutions that limit the power of government and provide a system of checks and balances for the ruling elite (Acemoglu, Robinson, 2012).

The comparative analysis of the role of political institutions has blossomed since research centers like the Heritage Foundation and the Fraser Institute published their ratings of the quality of democracy in different countries. Unsurprisingly many studies showed that these indices are positively correlated with economic development. However, criticism has recently been leveled at both the indices and the results obtained by using them (Glaeser et al., 2004). Statistical estimates turn out to be unstable and vary considerably between different samples of countries, time intervals, the underlying econometric models and so on. Moreover, these ratings are subjective and occasionally driven by ideological considerations. Nevertheless, the ratings are widely used in economic studies in the absence of a possible alternative.

In this paper we propose such an alternative. We present two variables which make it possible to analyze the quality of key political institutions over the very long term. The variables are constructed to measure the presence of limited government and a system of checks and balances (for example, the media, elections, political opposition) for the ruling elite. It is based on assessing a set of binary variables that describe the institutional environment in a country. Such an approach limits the role of the expert by attesting to the presence or absence of a certain rule and its application. It is also much easier to verify than a subjective index. We show that our indices predict economic growth better than the commonly used ones.

This paper adds to a number of studies on the problems of measuring the quality of political institutions. For instance, Glaeser et al. (2004) argue that conventional measures used in the economic growth literature (for example, constrains on executive and government effectiveness) do not describe political institutions: they are outcome measures that reflect the policy choices made by rulers. Thus, they do not proxy for institutions which in their essence are constraints. The same holds for some of the Economic Freedom of the World indicators as well. The authors stress that any assessment of institutions must take into consideration the following points: (1) institutions must reflect the restrictions affecting the government; (2) they must take

into consideration the constant or, at least, the relatively long-term processes taking place in the environment. Many of the institutional indicators popular in the literature fail to meet these requirements.

A study by Doucouliagos (2005) performs a meta-analysis of the "institutions and growth" papers and compares their findings. The author pays special attention to the "publication bias," which means that findings showing significant correlation between institutions and growth are more likely to be published. The author evaluates the bias using a number of methods. For instance, when the published results feature no such bias, we should see a negative correlation between the size of the errors and the size of the sample, but that is not what we observe. The paper concludes that the extent of the publication bias in the available literature is so great, that it affords no opportunity for assessing the "pure" effect that institutions have on growth.

An important reason why there are no generally accepted robust evaluations of the mutual relationship between democracy and growth may possibly be the indirect nature of the link. It is hard to disagree with North, Wallis and Weingast (2009) that democracy and economic growth both have some additional, determining factor in common. Social norms and culture are the most probable candidates for this factor. But the notion of "social norms" is so broad that it can accommodate multiple interpretations. This doubtless includes our interpretation that both democracy and economic growth require a shared precondition: safeguards against physical violence and deprivation of liberty (Yanovskiy, Shulgin 2012). If a property owner can easily disappear, then the institution of private property disappears, and with it hopes of long-term stable economic growth.

We share the view put forth by Olson (2000), and Acemoglu, Robinson (2012) concerning the cause-and-effect relationship which exists between inclusive political institutions and economic growth, but we appeal to a more subtle connection. Economic growth calls for the institution of private property as a prerequisite. But private property does not exist in a vacuum, without ironclad guarantees of the personal freedom, including immunity of a challenger to the ruler or a "public enemy".

In a series of earlier studies (Yanovskiy, Shulgin 2012) we concluded that the most significant institutions are those which guarantee the inviolability of the individual property owner. Such guarantees are a precondition of private property rights protection. The latter is also the institution which many economists consider as fundamental and is of critical importance for economic development. We also developed an approach to describing institutions formally by

means of a finite set of logical variables. This paper is an attempt to analyze two such indicators of institutions.

The structure of the paper is as follows. First, we analyze the most significant work devoted to ratings indices, their achievements and underlying problems. Then, we describe the methodology for constructing new indices of the quality of political institutions. Next we compare the results of the regression analysis obtained by using the proposed indices with the results of the same analysis obtained by using the traditional indices.

New indicators: "Rule of Law Democracy" and "Limited Government"

We propose two new indicators of institutional quality, constructed in a way that minimizes the subjectivity of the evaluations by noting the presence or absence of a particular phenomenon. This has two advantages. First, it puts much less weight on any possible bias and second, it is easy to verify.

Our database contains 154 countries for the period from 1500 to 2006. For the period from 1500 to 1820 we consider only three points in time – 1500, 1600 and 1700. Beginning with 1820 we consider every year up until 2006. This gives us 190 points in time for every country.⁴

For each country at each of the points in time we asked three questions:

- 1. Does the ruling elite leave power and join the opposition if it loses an election (the power rotation criterion developed by Adam Przeworski⁵)?
- 2. Does the government ever lose in court and comply with the court's decision even if the litigation is significant to their prestige and authority?
- 3. Can the media and opposition criticize the government (including accusations of incompetence, immorality or committing crimes and calling for its replacement) without fear of revenge or punishment?

For each of these questions historians responded yes or no.⁶ Each of our data points (a country in a year) received a score 1 (if "yes") or 0 (if "no").

⁵ See Alvarez, Cheibub, Limongi & Przeworski, 1996; Przeworski, Alvarez, Cheibub & Limongi, 2000

⁴ In sum total number of observations is 29 260 (154 countries multiplied by 190 points in time).

⁶ This project was a part of interdisciplinary study conducted by the Institute of Economic Policy. For more detailed information about the project "Institutions, Democracy, and Economic Growth: Testing 180 Years of Development" see Yanovskiy & Shulgin, 2008.

Our first indicator "Rule of Law Democracy" (hereafter RLD) is the number of years since all three conditions are met. For instance, in 1500, 1600 and 1700 all countries receive zero score in RLD since none of the conditions are fulfilled. In 1820 only one country – the United States of America – meet all three conditions and it receives a score of 50 (in 1820 it is almost 50 years since the US Declaration of Independence). United Kingdom receives 1 in 1832 since it is a first year when the Reform Act of 1832 was introduced. In 2006 the average score of RLD for 154 countries is 16 with variation from 0 for most of the sample (119 countries) to 227 (for USA).

Our second variable, which we call "Limited Government" (hereafter LG) is the number of years since at least one of the three conditions are fulfilled. This indicator is less strict since it requires only one out of three conditions. "Limited Government" is zero for all countries in 1500. In 1600 only one country – the Netherlands – scores 1. In 2006 the average score of "Limited Government" for 154 countries is 34.5 with variation from 0 for most of the sample (104 countries) to 482 (for Netherlands).

Diagram 1a shows the values for RLD and LG for a number of countries for the whole period from 1500 to 2006.

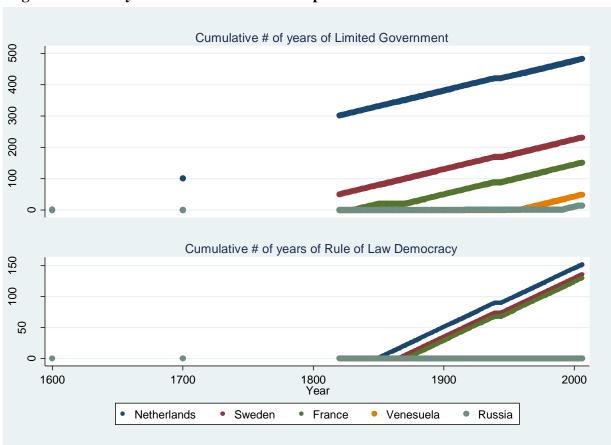
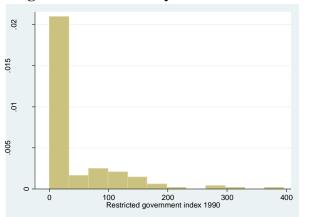
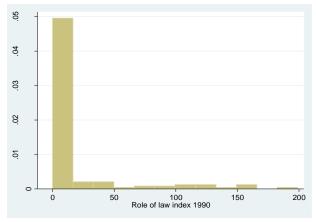


Diagram 1a. The dynamics of LG and RLD experience for a number of countries

Diagram 1b shows the distribution of RLD and LG indicators for 1990. As figures show only a few countries had reached the level of development requisite for fulfilling the "Rule of Law Democracy" conditions. Most countries have weak institutions and therefore concentrate at the zero point.

Diagram 1b. The density distribution of LG and RLD indices





Our indices make it possible to extend studies over a much longer period of time than traditional indices. This is important since a long-term perspective is crucial to establish a connection between democracy and economic growth. Since the construction of the indicators is transparent and verifiable, it is possible to construct an index for whatever time periods are necessary. Our task is to show that the indices, being more exact, will have a stronger correlation with subsequent growth than other indices. This is due to the fact that the proposed indices are free of the noise which derives from subjectivity and the shifts in expert evaluations.

In the next section we show how our measures of institutional quality predict economic growth and how they differ in their predictions from other conventional measures of institutions.

Empirical analysis: Institutions and Economic Growth

In this section we briefly describe how our institutional variables predict economic growth. We use the World Bank database as the main source of the GDP growth and the level of GDP per capita. We also use the database collected by Sala-i-Martin (1997) to establish permanently the set of control variables most frequently used in the growth literature. The database includes various geographic, historical, demographic and other factors (climate, openness of trade,

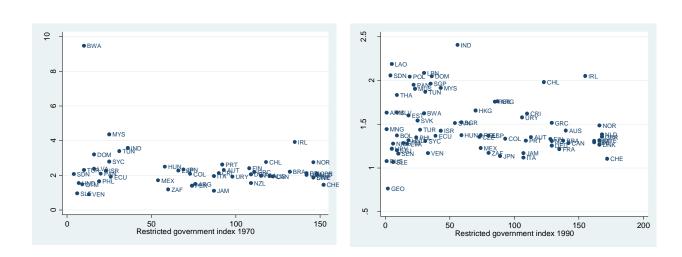
religion, military conflicts)⁷. Insofar as the database is used for cross-country analysis, most indicators are taken for the beginning of 1960. In a panel regression we use the set of control variables collected in Moral-Benito (2010), which follows up on the ideas of Sala-i-Martin (1997).

A. Simple regressions

We compare the results given by our indicators with widely used "expert indicators" in a setup where they have already been tested previously. Henceforth, two periods will be examined, 1970-2009 and 1990-2009.

Diagram 2 shows growth correlations for Limited Government indicator with GDP growth rates for 1970-2009 and 1990-2009. It becomes clear that countries group into two clusters. The left scatterplot shows growth from 1970 to 2009, with a cluster of developing countries clearly visible, in which the connection is easily traced between institutions and growth (with Malaysia and India topmost). For the second cluster, stretching from Mexico, Hungary, and South Africa to Norway and Switzerland, the connection is less obvious. The right scatterplot shows that for institutionally less developed countries the link between growth and institutions is more pronounced than among developed countries.

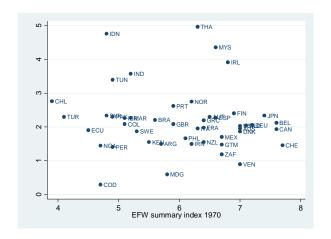
Diagram 2. Dependence of Economic Growth on LG and RLD cumulative values (for countries with non-zero ratings)

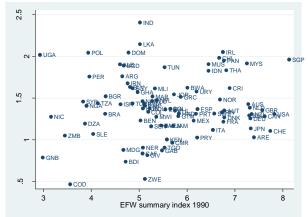


⁷ Applying "Bayesian evaluation" to the database, Sala-i-Martin, Gernot Doppelhofer and Ronald I. Miller (2004) singled out the most significant determining factors in growth of the economy. We will resort to these factors as "control variables" (for instance, for level of literacy, investment costs, share of a country's territory belonging to the tropics).

Similar graphs for the EFW index are shown in Diagram 3. There is no general trend, nor clustering of countries for which a single set of conclusions can be reached. But if the EFW index for the end of the period is considered, the connection is evident; this is precisely why many studies show a correlation between institutions and development. However, if the index for the beginning of the period is considered as in the Diagram 3, no correlation can be observed.

Diagram 3. Graph Showing Dependence of Economic Growth on the EFW Index





Now we turn to the simplest growth regressions. Table 3 presents the results for 1970-2009 period. Each column indicates its own set of control variables. The LG index significantly and positively connected with growth, especially in specifications (1) and (4) were we don't control for education. If we control for the level of education the effect of the institutions become weaker (columns 5 and 6). However, the EFW index does not predict growth in any specification (columns 7-9).

Table 3. Regression of GDP Growth (1970-2009) on the LG Index and the EFW Index

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
				Sub	sample of	f the			
	Fu	ıll Samp	le	countr	ies with	LG >0	EF	W Sample	e
Log of LG index 1970	0.246***	0.113	0.097	0.270*	0.189	0.0196			
	(0.075)	(0.075)	(0.082)	(0.154)	(0.165)	(0.201)			
EFW summary index							0.041	0.039	-0.005
1970							(0.186)	(0.158)	(0.170)
GDP per capita 1970	-0.19*	-0.33***	-0.34***	-0.25**	-0.39***	-0.33**	-0.13	-0.55***	-0.57***
	(0.11)	(0.10)	(0.11)	(0.12)	(0.13)	(0.16)	(0.13)	(0.16)	(0.17)
Education, years		1.82***	1.78***		1.71**	2.11**		3.17***	3.35***
		(0.44)	(0.42)		(0.85)	(0.88)		(0.94)	(1.03)
Log Population 1970			0.162**			0.049			0.035
			(0.065)			(0.079)			(0.11)
Oil industry, % GDP			0.626			-1.315			0.190

Fraction of GDP in			(0.439)			(0.843)			(0.576)
Mining			-2.686 (1.971)			0.184 (3.202)			-2.820 (3.706)
Observations R-squared	91 0.129	86 0.266	86 0.362	48 0.086	46 0.181	46 0.242	47 0.029	46 0.265	46 0.281

For the shorter period from 1990 to 2009 we observe a similar effect – the impact of institutions measured by the LG index is significant for growth as long as we do not control for education (Table 4). As in Glaeser et al. (2004) we observe the precedence of human capital over institutions. However, it is likely that countries with high levels of education (that is positively correlated with income and democratic experience) have also the democratic tradition (democratic capital) and the civic values necessary for the consolidation of democracy. The latter is related to the depth of democratic tradition, and once added in a regression can reduce the importance of limited government. It is important to note that for both periods, the EFW index is insignificant in all specifications. The R² is also smaller when we use EFW index instead of LG index.

Table 4. Regression of GDP Growth from 1990 to 2009 on the Limited Government Index and the EFW Index

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
	All	observatio	ons	Sub	Subsample of the			EFW Sample		
				countr	ries with	LG >0				
Log of LG 1990	0.072***	0.036	0.023	0.0859**	-0.025	-0.055				
	(0.026)	(0.030)	(0.033)	(0.0419)	(0.068)	(0.074)				
EFW summary							0.009	0.011	0.010	
index 1990							(0.046)	(0.044)	(0.045)	
	-0.065*	-0.082**	-0.073*	-0.132***	-0.141**	-0.136**	0.013	-0.075	-0.0763*	
GDP per capita 1990	(0.035)	(0.041)	(0.044)	(0.0397)	(0.0534)	(0.055)	(0.033)	(0.046)	(0.0458)	
Education, years		0.388**	0.386**		0.727**	0.885***		0.564**	0.557**	
		(0.187)	(0.186)		(0.298)	(0.316)		(0.225)	(0.225)	
Population Log			0.065**			-0.0001			0.0562*	
1990			(0.027)			(0.031)			(0.0291)	
Oil industry, % GDP			-0.073			-0.513			-0.0807	
			(0.171)			(0.307)			(0.164)	
Fraction GDP in Mining			0.0627			0.492			0.0455	
			(0.530)			(0.574)			(0.569)	
Observations	137	99	99	72	56	56	93	86	86	
R-squared	0.055	0.079	0.134	0.140	0.192	0.241	0.007	0.075	0.118	

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B. Robustness Checks

In this section we test the robustness of our results adding different control variables and closely examining subsamples of countries. As noted above, indicators of institutions are very strongly correlated with the initial GDP level. This fact makes it difficult to obtain a "pure" estimation of the impact of institutions on development – as a result of the multicollinearity, errors will be reevaluated, while evaluations of coefficients will not be stable relative to alterations in specifications. For this reason, we will consider a number of different specifications to ensure the robustness of the effect. In order to do this, we begin with simple regression with controls on initial GDP level and education adding new controls described in Sala-i-Martin, Doppelhofer and Miller (2004) as essential factors of development: the cost of investment, the share of country territory in tropical areas, a dummy variable for East Asia, a population density in the costal zone (in effect, a dummy variable for Singapore).

The results for the two periods (1970-2009 and 1990-2009) are shown in Table 5. Each column indicates its own set of control variables, and each coefficient stands for a different regression. As expected, because of the high correlation with the initial GDP level, coefficients with institutional indicators are insignificant almost everywhere. For 1990-2009 the indicator for the LG turns out to be highly significant and, unlike the EFW rating, contributes additional information, thus explaining differences in economic growth rates.

When we consider growth in the long-term, the coefficient of the RLD indicator becomes significant, especially if the sample is limited to countries with maximum per annum growth not higher than 15% (specification 10). Partial correlations are shown in Diagrams 4 and 5.

⁸ In other words, eliminating those countries where the economic statistics is doubtful.

Diagram 4. The Correlation between GDP Growth from 1990 until 2009 and the Limited Government Index

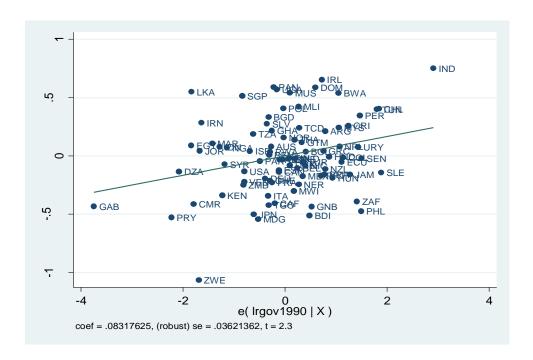


Diagram 5. The Correlation between GDP Growth from 1970 to 2009 and Rule of Law Democracy Index

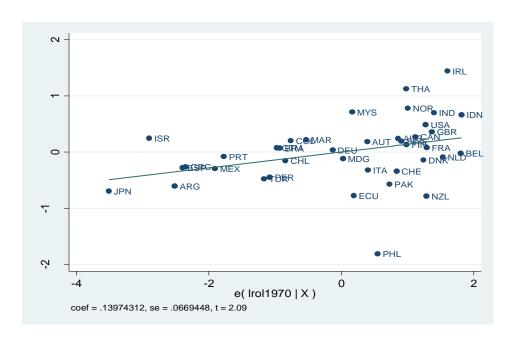


Table 5. Regression of GDP growth explained by institutional indicators in various specifications

ecifications					
	Depen	dent variable: Pe	er Capita GDP	Growth 1990-20	009
		+Population,			max yearly
	Log GDPpc	Education,	+ Tropical	+East asian	growth <
	1990	Inv.Price	area	dummy	15%
	(1)	(2)	(3)	(4)	(5)
Log of LG index	0.0488	0.0622*	0.0844**	0.0995**	0.018
Robust Std.Err	(0.0456)	(0.0361)	(0.0396)	(0.0393)	(0.050)
R-squared	0.013	0.154	0.168	0.217	0.216
Log of RLD index	-0.0271	-0.0286	-0.0352	-0.0278	-0.027
Robust Std.Err	(0.0486)	(0.0343)	(0.0338)	(0.0318)	(0.035)
R-squared	0.004	0.123	0.116	0.137	0.223
EFW summary index	0.0148	0.0137	0.0330	0.00945	-0.0008
Robust Std.Err	(0.0714)	(0.0410)	(0.0425)	(0.0455)	(0.0438)
R-squared	0.001	0.116	0.109	0.130	0.214
N	96	96	84	83	68
	Depen	dent variable: Pe	er Capita GDP	Growth 1970-20	009
	(6)	(7)	(8)	(9)	(10)
Log of LG index	0.0319	-0.00383	-0.0204	0.0570	0.0639
Robust Std.Err	(0.0679)	(0.0742)	(0.0638)	(0.0645)	(0.0571)
R-squared	0.030	0.304	0.384	0.575	0.594
Log of RLD index	0.0718	0.107	0.0941	0.106*	0.140**
Robust Std.Err	(0.0730)	(0.0750)	(0.0699)	(0.0591)	(0.0543)
R-squared	0.040	0.330	0.403	0.594	0.635
EFW summary index	0.0409	0.139	0.265	0.0626	0.127
Robust Std.Err	(0.183)	(0.166)	(0.161)	(0.119)	(0.126)
R-squared	0.029	0.316	0.423	0.570	0.593
N	47	45	45	45	39

C. Panel Regressions

In this section we examine the simplest specifications for a panel regression of growth on indices of institutions. We expect that in this case the effect of the subjectivity of the rating evaluations will be weaker and the EFW index will be significantly correlated with growth. The same is expected of our indices.

We estimate a panel regression with fixed effects to account for time-invariant factors of growth. The results for the 1970-2009 periods are shown in Table 6. We estimate a separate regression for each index of institutions. Columns 1-3 are simple regression without fixed effects, in columns 4-6 we add fixed effects, and in columns 7-9 we exclude countries with maximal per annum growth greater than 15%.

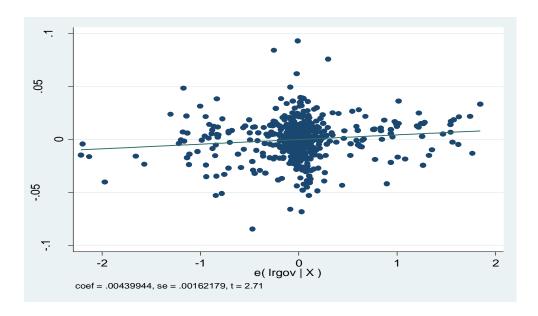
It is evident that, unlike earlier regressions, EFW is significantly correlated with growth. As expected, the "subjectivity effect" disappears in a panel regression; differences in evaluations made by the same expert become an important variable. If extremely rapidly growing countries are not taken into consideration, then our indices significantly correlate with growth (columns 7 & 8). Overall in the panel regression, the prediction capacity of the EFW index is greater than that of the proposed indicators.

Table 6. Panel Regression (five-year periods) of GDP Growth on Indices of Institutions from 1970 to 2009.

1101111770102003.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	Witho	ut fixed	effects	With	n fixed ef	fects	max year	ly growth <	15%
	0.17			0.44***			0.56**		
Log of LG	(0.11)			(0.16)			(0.14)		
		-0.20			-0.38			0.34***	
Log of RLD		(0.12)			(0.25)			(0.21)	
EFW summary			0.80***			0.80***			0.91***
index			(0.10)			(0.11)			(0.11)
Log GDP pc	-0.01	0.30**	-0.28**	0.83**	1.30***	-0.23	0.21	0.83**	0.98***
	(0.14)	(0.15)	(0.11)	(0.34)	(0.35)	(0.37)	(0.32)	(0.34)	(0.34)
Number of									
observations	637	637	637	637	637	637	523	523	523
R-squared									
(within)	0.02	0.02	0.10	0.03	0.03	0.10	0.02	0.165	0.15
Number of									
countries	112	112	112	112	112	112	89	89	89

Example of dependence from specification (7) is shown in Diagram 6.

Diagram 6. Connection of Both Five-Year GDP Growth and Index of Limited Government (with Control on Initial Level and Country-Related Effects)



At the next stage, we consider growth from 1970 to 1995, repeating the results in Moral-Benito (2010). Table 7 shows the results of some of the regressions. In all specifications the indices proposed are significantly connected with growth.

Table 7. Results of Panel Regressions of GDP Growth (1970-1995) on Institutions

Controls	Log Initial GDP	+ Population	+ Opennes measure + Labor Force	+ Time FE	Country FE
	(1)	(2)	(3)	(4)	(5)
Log of LG index	0.0262***	0.0191***	0.0142**	0.0177**	0.0130***
Robust Std. Err	(0.0079)	(0.0068)	(0.0060)	(0.0070)	(0.011)
R squared (within)	0.102	0.0630	0.153	0.194	0.317
Log of RLD index	0.0182***	0.0140***	0.0113***	0.0112***	0.0103***
Robust Std. Err	(0.0055)	(0.0045)	(0.0029)	(0.0021)	(0.0025)
R squared (within)	0.0786	0.0219	0.150	0.180	0.330
EFW summary index	0.0423***	0.0401***	0.0273***	0.0263***	0.002
Robust Std. Err	(0.0080)	(0.0076)	(0.0097)	(0.0091)	(0.0096)
R squared (within)	0.0849	0.0640	0.169	0.218	0.162
Number of countries	69	69	69	69	69
Observations	369	369	369	369	369

In column (1) we regress GDP per capita growth in 1970-1995 on initial GDP per capita and different indices of institutions. All indices are statistically and economically significant. In column (2) we add population as a control variable. In column (3) we add an openness measure and the share of labor force in the population. This does not change our results.

In columns (4) and (5) we add time and country fixed effects respectively. In this case our measures of institutions remain significant with smaller coefficients. The EFW index, however, becomes insignificant.

Conclusions and Perspectives for Future Research

In this paper we develop new measures of institutional quality. These measures are based on the presence or absence of some important institutional phenomena. They are less subjective and easier to verify than commonly used measures.

We show that our measures predict economic growth better that commonly used indices, especially in a panel data analysis. The primary reason is that they include information about institutions that has been accumulated over a historically significant period (approximately two centuries). Over relatively brief intervals, when institutions are more stable, our indicators exhibit less explanatory capacity than EFW index. This is all the more true considering that including points in the course of a time span mitigates the chief shortcoming of rating expert evaluations, which is their subjectivity.

Future ratings can be constructed using indicators that reflect the historically accumulated "institutional capital", as well as measurable indicators of Doing Business and EFW.

References

- Acemoglu D., Johnson S., Robinson J., 2001. "The colonial origins of comparative development: an empirical investigation." // The American Economic Review, 91, 1369–1401.
- Acemoglu D., Robinson J. 2012. "Why Nations fail" Crown Business, NY.
- Alvarez, M., Cheibub J. A., Limongi F. and Przeworski A., 1996. "Classifying political regimes". // Studies in Comparative International Development 31, 1-37.
- Cohen, Joseph N. "Neoliberalism's relationship with economic growth in the developing world: Was it the power of the market or the resolution of financial crisis?" City University of New York, Queens College 15. July 2010 http://mpra.ub.uni-muenchen.de/24399/
- Doucouliagos C., 2005. "Publicution Bias in the Economic Freedom and Economic Growth Literature" // Journal of Economic Surveys Vol. 19, No. 3.
- Glaeser E.L., La Porta R., Lopez-de-Silanes F., Shleifer A., 2004. "Do Institutions Cause Growth" // Journal of Economic Growth, 9, 271-303.
- Gwartney, J., Lawson R., 2006. "Economic Freedom of the World: 2006 Annual Report." Frasier Institute, Vancouver.
- Miller T., Holmes K., 2010. Index of Economic Freedom // http://www.heritage.org/index/download

- Moral-Benito, E., 2012. "Determinants of Economic Growth: A Bayesian Panel Data Approach." // Review of Economics and Statistics 94:2, 566-579.
- North D.C. Institutions, institutional change and economic performance. Cambridge University Press, 1990.
- North D.C., Wallis J.J., Weingast B.R., 2009. Violence and Social Orders. A conceptual Framework for Interpreting Recorded Human History. Cambridge University Press.
- Olson, Mancur, 2000. Power and Prosperity: Outgrowing Communist and Capitalist Dictatorships. Oxford University Press.
- Persson, T., Tabellini G. "Democratic Capital: The Nexus of Political and Economic Change." // American Economic Journal: Macroeconomics, 1(2):. 2009.
- Polity IV Project: Political Regime Characteristics and Transitions, 1800-2010 Monty G. Marshall, Director http://www.systemicpeace.org/polity/polity4.htm
- Przeworski A., Alvarez M.E, Cheibub J.A., Limongi F. "Democracy and Development. Political Institutions and Well-Being in the World 1950–1990" Cambridge University Press, 2000.
- Rodrik, Dani, Subramanian Arvind, Trebbi, Francesco, 2004. "Institutions Rule: the Primacy of Institutions over geography and integration in economic Development" // Journal of Economic Growth 9, 131-165.
- Sala-i-Martin, X., 1997. "I Just Ran Two Million Regressions" // American Economic Review, Vol. 87, No. 2.
- Sala-i-Martin, X., G. Doppelhofer and R. Miller, 2004. "Determinants of Long-Term Growth: A Bayesian Averaging of Classical Estimates (BACE) Approach" // American Economic Review, Vol. 94, No. 4.
- Yanovskiy K., Shulgin S., 2012. "Institutions, Democracy and Growth in the Very Long Run" // Acta Oeconomica.

Appendix 1. New indices: Rule of Law Democracy and Limited Government

Countryname	Code	Rule of Law Democracy	Limited Government
Netherlands	NLD	152	482
Switzerland	CHE	177	287
United Kingdom	GBR	171	283
Denmark	DNK	152	231
Sweden	SWE	136	231
Norway	NOR	118	231
United States	USA	227	227
Belgium	BEL	167	227
Ireland	IRL	89	171
Canada	CAN	131	158
Australia	AUS	97	156
France	FRA	130	151
New Zealand	NZL	91	145
Germany	DEU	58	145
Greece	GRC	34	145
Finland	FIN	88	144
Austria	AUT	67	129
Costa Rica	CRI	57	126
Portugal	PRT	33	125
Italy	ITA	62	123
Jamaica	JAM	0	123
Uruguay	URY	0	122
Argentina	ARG	0	112
Spain	ESP	30	96
Romania	ROM	17	90
Czechoslovakia	CZE	37	89
Bulgaria	BGR	31	75
Hungary	HUN	17	75 75
Slovenia	SVN	16	70
Ecuador	ECU	0	56
Dominican Republic	DOM	0	53
Venezuela, RB	VEN	0	49
Poland	POL	17	35
Estonia	EST	32	34
Honduras		0	
	HND		34
Latvia	LVA	16	33
Guatemala	GTM	0	30
Lithuania	LTU	16	25 25
El Salvador	SLV	0	25
Bolivia	BOL	0	24
Croatia	HRV	7	21
Georgia	GEO	0	18
Armenia	ARM	0	17
Macedonia, FYR	MKD	16	16
Serbia	SRB	6	16

Ukraine	UKR	2	16
Moldova	MDA	0	16
Russian Federation	RUS	0	14
Kyrgyz Republic	KGZ	0	9
Kazakhstan	KAZ	0	4
Albania	ALB	15	0
Afghanistan	AFG	0	0
Algeria	DZA	0	0
Angola	AGO	0	0
Azerbaijan	AZE	0	0
Bahrain	BHR	0	0
Bangladesh	BGD	0	0
Belarus	BLR	0	0
Benin	BEN	0	0
Bosnia and Herzegovina	BIH	0	0
Botswana	BWA	0	0
Brazil	BRA	0	0
Burkina Faso	BFA	0	0
Burundi	BDI	0	0
Cambodia	KHM	0	0
Cameroon	CMR	0	0
Cape Verde	CPV	0	0
Central African Republic	CAF	0	0
Chad	TCD	0	0
Chile	CHL	0	0
China	CHN	0	0
Colombia	COL	0	0
Comoros	COM	0	0
Congo, Dem. Rep.	ZAR	0	0
Cote d'Ivoire	CIV	0	0
Cuba	CUB	0	0
Czech Republic	CZE	0	0
Djibouti	DJI	0	0
Egypt, Arab Rep.	EGY	0	0
Ethiopia	ETH	0	0
Gabon	GAB	0	0
Gambia, The	GMB	0	0
Ghana	GHA	0	0
Guinea	GIN	0	0
Guinea-Bissau	GNB	0	0
Haiti	HTI	0	0
India	IND	0	0
Indonesia	IDN	0	0
Iran, Islamic Rep.	IRN	0	0
Iraq	IRQ	0	0
Israel	ISR	0	0
Japan	JPN	0	0
Jordan	JOR	0	0
Kenya	KEN	0	0

Korea, Dem. Rep.	PRK	0	0
Korea, Rep.	KOR	0	0
Kuwait	KWT	0	0
Lao PDR	LAO	0	0
Lebanon	LBN	0	0
Lesotho	LSO	0	0
Liberia	LBR	0	0
Madagascar	MDG	0	0
Malawi	MWI	0	0
Malaysia	MYS	0	0
Mali	MLI	0	0
Mauritania	MRT	0	0
Mauritius	MUS	0	0
Mexico	MEX	0	0
Mongolia	MNG	0	0
Morocco	MAR	0	0
Mozambique	MOZ	0	0
Myanmar	MMR	0	0
Namibia	NAM	0	0
Nepal	NPL	0	0
Nicaragua	NIC	0	0
Niger	NER	0	0
Nigeria	NGA	0	0
Oman	OMN	0	0
Pakistan	PAK	0	0
Panama	PAN	0	0
Paraguay	PRY	0	0
Peru	PER	0	0
Philippines	PHL	0	0
Qatar	QAT	0	0
Rwanda	RWA	0	0
Saudi Arabia	SAU	0	0
Senegal	SEN	0	0
Seychelles	SYC	0	0
Sierra Leone	SLE	0	0
Singapore	SGP	0	0
Slovak Republic	SVK	0	0
Somalia	SOM	0	0
South Africa	ZAF	0	0
Sri Lanka	LKA	0	0
Sudan	SDN	0	0
Swaziland	SWZ	0	0
Syrian Arab Republic	SYR	0	0
Taiwan	TWN	0	0
Tajikistan	TJK	0	0
Tanzania	TZA	0	0
Thailand	THA	0	0
Togo	TGO	0	0
Tunisia	TUN	0	0
Tunisia	TUN	0	0

Turkey	TUR	0	0
Turkmenistan	TKM	0	0
Uganda	UGA	0	0
United Arab Emirates	ARE	0	0
Uzbekistan	UZB	0	0
Vietnam	VNM	0	0
Yemen, Rep.	YEM	0	0
Zaire	ZAR	0	0
Zambia	ZMB	0	0
Zimbabwe	ZWE	0	0

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