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Indices, Institutions and Economic Growth: In Search of Reliable Indicators (recount)

The ratings of economic and political institutions are well-known and widely used in the Social Science literature. These ratings are heavily relied on Experts' evaluations with subjective ordinal ranking (i.g., from -10 to 10 points). Such evaluations can be occasionally driven by ideological considerations. Much worse – they are essentially incompatible with each other, and therefore inapplicable in a comparative study at some one specific point in time chosen for observation (i.e., for a cross-section analysis). 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 it easy to verify. We show that these indices predict economic growth at least not worse, than those commonly used. The indicators proposed, include information about institutions that has been accumulated over a period of approximately two centuries and our expert's evaluations are less vulnerable to political bias and provide better compatibility of the estimations of various experts for various countries.

Current version of the paper contains data analysis upgraded (based on the data published before July, 1, 2014)[4].

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Introduction

There is a 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 2013).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 2013) 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.

"Brilliance and Poverty" of the Ratings

Here we cast some doubt on the reliability of some numbers of the most famous ratings – Polity IV database and Economic freedom of the World index. Table 1 shows selected examples comparing different countries with similar ratings of democratization, based on POLITY IV – 2010 (for 2009). Table 2 shows economic freedom ratings based on the EFW – 2010 (for 2009) index. As the tables make clear, both ratings involve substantial discrepancies (especially the first one).

Table 1. Comparison of Anti-democratization Record Breakers According to POLITY IV[5]

"Marker" Regimes	Regimes with the same rating
The Kingdom of Denmark prior to 1834, Prussia during the same period, and many other European monarchies (-10),[6] Russian Empire and Norway prior to 1905; during the same period (-7); US-, British-, and French-occupied zones of West Germany in 1945-58 (-6); the Netherlands of the first half of the 19th century (-6 - -7)	The Chinese Empire of the early 19th century – 6 Stalinist USSR 1933-1952 -9 Maoist PR of China 1948-1975 (-8-9) Hitler's Germany (-9)

[5] http://www.systemicpeace.org/polity/polity4.htm,2009

[6] As a rule, different forms of consultative estate representation were in evidence in these countries, from the local level to the state; freedom of exit, including the evidently more free countries, relative freedom of entrepreneurship and hire, relative protection for private life and property; absence of anything even remotely resembling mass repressions against potential opposition (USSR, China) or even persons potentially capable of doubting the rightness of actions undertaken by the authorities (Democratic Cambodia). In Norway (-7), a constitution thoroughly liberal by the standards of the time was in effect, and served as a model for the requirements for a liberal constitution in Denmark (Busk, Paulssen, 2007).

	"Democratic Cambodia" (Cambodia ruled by the "Khmer Rouge") -7 – unique case of negative political competition: citizens competed for inclusion in the unique one million selected for survival (rather than the authorities or political parties competing for citizens' support, or at least both citizens and politicians being "indifferent" to each other with zero-level competition, and so on).
The Russian Federation 1992 +5; 1993-99 +3	The Russian Federation 2000 – 2006 +6; 2007-2010 +4

One possible explanation of the underlined discrepancies is that the index often measures not freedom, but the quality of state management in the country. This can be understood if the correlation is evaluated between the index and other indices of governance (Cohen (2009)). A different problem is the representativeness of the analysis constructed by the EFW: because of the limitations of the EFW both in countries and in time, it is impossible to judge the conclusions based on the studies.

Many of the evaluations of the quality of property protection ignore the level of protection afforded to the property owner. This is probably due to the fact that from the point of view of American and Western European economists, such protection of property owners is assumed to be implicitly extant. But the difference between the old democracies and the rest of the world is easily reducible precisely to the issue of availability or absence of such protection of the property owner as a precondition (a sine qua non) for the protection of his or her property (Yanovskiy, Shulgin, 2013).

Among the most influential and long-standing projects for the evaluation of quality of institutions is Freedom House "Freedom in the World" (Gastil Index). The methodology of this index is distinguished by thoroughly working through a list of factors making up the components of rights and freedoms. The specialist is provided with a detailed set of instructions for making each evaluation, a fact which ensures achieving what is probably the highest level of compatibility of evaluations by country using expert ranging.

Comparative list of pretty doubtful expert assessments for countries which got the same or close EFW score having incomparable quality of private property safeguards presented in the Annex 2.

Even for EFW we detected a numerous assessments of countries institutions, which look obviously vulnerable for critics[7]. These doubtful cases do not necessarily tied to experts' work being of low quality. Experts are as a rule knowledgeable about one or a number of countries, a circumstance which precludes juxtaposing their evaluations in a cross-section statistical analysis, and even undermines these evaluations' dynamics. Ultimately, simply replacing an expert with a different one contributes its share, replacements being inevitable when a long-term project is in progress (long-term projects being obviously preferable for evaluation). Evaluating the quality of institutions by rating (based on point count) is ineluctably subjective even when well-developed criteria and requirements are clearly spelled out. The evaluation process involves making full use of an expert's knowledge of the situation, but does not easily lend itself to independent verification of the expert.

Especially conspicuous is the tendency to inflate evaluations of institution quality in countries where the individual person is not well protected, or is not protected at all from violence; that is, from arbitrary deprivation of freedom and even of life. At the same time, along with expert evaluations (ranking, weights assignment), more or less objective indicators are resorted to as part of well-known projects: Doing Business[8]of the World Bank, along with the Economic Freedom in the World project[9]mentioned earlier. They take into consideration many of the costs of founding and running a business, the tax burden, and so on.

In a series of earlier studies we have reached the conclusion that the most significant indicators are the ones that generalize the condition of institutions which provide guarantees for the life and inviolability of the individual person of the property owner. Such guarantees are the precondition of due guarantees protecting private property. The latter is also the institution which a wide spectrum of economists consider to be fundamental and of critical importance for economic development. We also developed the 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 based on the following data.

[7] The list of pretty doubtful expert assessments for countries, which got the same or close EFW score, having incomparable quality of private property safeguards, is presented in the Annex 2.
[8] http://www.doingbusiness.org/
[9] http://www.freetheworld.com/

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 156 countries for the period from 1820 to 2011. This gives 192 points in time for every country.[10]

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 Przeworski[11])?
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.[12]Each of our data points (a country in a year) received a score 1 (if "yes") or 0 (if "no").

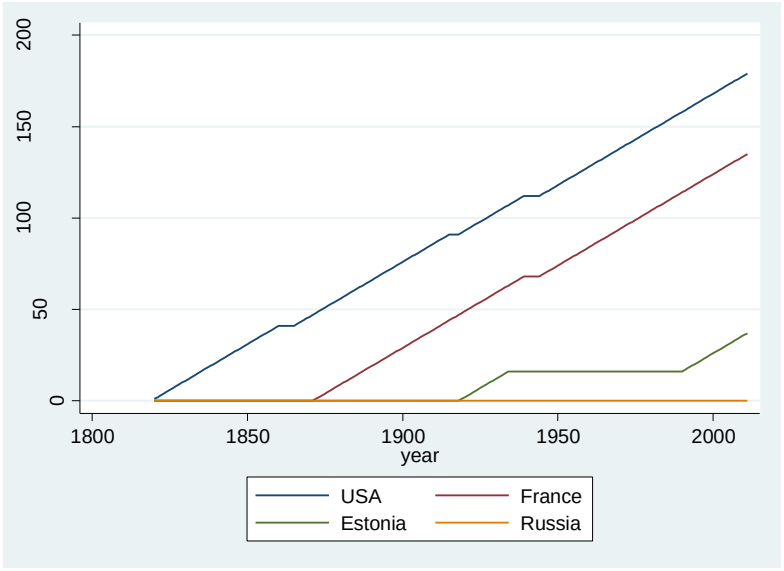
Our first indicator "Rule of Law Democracy" (hereafter RoLD) is the number of years since all three conditions are met. For instance, in 1820 all countries except one receive zero score in RoLD since none of the conditions are fulfilled. In 1820 only one country – the United States of America – meets all three conditions and it receives a score of 1.In 1832 United Kingdom receives 1 since it is a first year when the Reform Act of 1832 was introduced. In 2011 the average score of RoLD for 156 countries is 20 with variation from 0 for most of the sample (113 countries) to 179 (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. In 1820 only five countries –Belgium, the Netherlands,

[10]Total number of observations is 29 952 (156 countries multiplied by 192 points in time).
[11]See Alvarez, Cheibub, Limongi & Przeworski, 1996; Przeworski, Alvarez, Cheibub & Limongi, 2000
[12]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.

Norway, UK and USA –scores 1. In 2011 the average score of “Limited Government” for 156 countries is 47 with variation from 0 to 188 (for UK). Diagram 1a shows the values for RLD and LG for a number of countries for the whole period from 1820 to 2011.

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



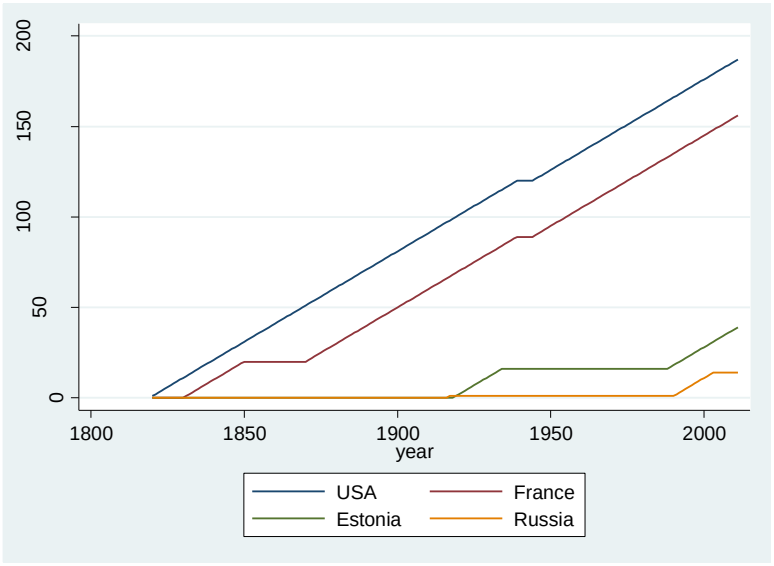
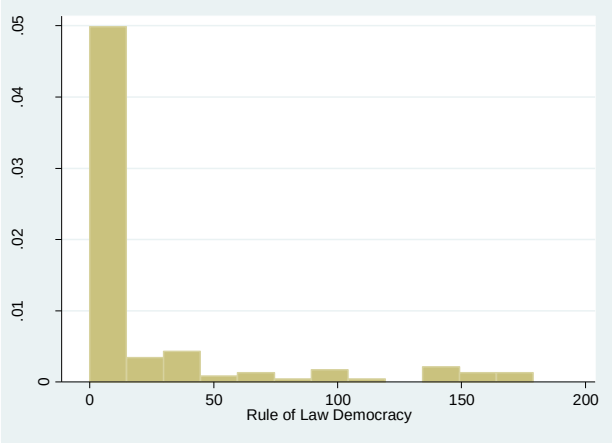
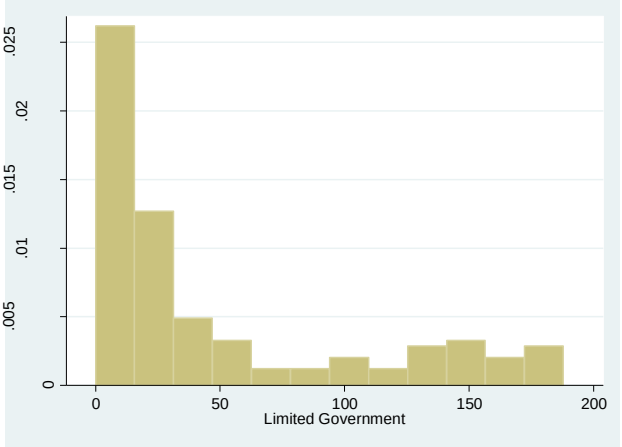


Diagram 1b shows the distribution of RLD and LG indicators for 2011. As figures show only a few countries had reached the level of development requisite for fulfilling the “Rule of Law Democracy” conditions. Most countries have weak institutions and therefore concentrate at the zero point. The distribution for “Limited Government” is less skewed to zero.

Diagram 1b. The distribution of RoLD and LG indices in 2011





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 in dices 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 World Bank database as a main source of the GDP growth and the level of GDP per capita[13].

[13]We also use the database collected by Sala-i-Martin (1997) to establish permanently the extended set of control variables most frequently used in growth literature. The database includes various geographic, historical, demographic and other factors (climate, openness of trade, religion, military conflicts). 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). Insofar as the database is used for cross-country analysis, most indicators are taken for the beginning of the period which is the year of 1960. In panel

Let us attempt a comparison of the capabilities of the following composite indices: EFW, Polity IV, and our variables, in explaining the relationship between institutions and economic growth.

First, the data panel will be used to explain economic growth during the 1970-2011 period (the average growth rates for the years 1970-1975 … - 2000, and the annual ones for 2000-2010). Data available through EFW indices make it possible to run a comparison of the indicators of the values accumulated for the variables of RoLD and LG (logarithms of values) with the indicators for the EFW summary Index and EFW regulation Index.

Our next step will involve examining the relationship between the RoLD variable (current values) and the values of the Polity 2 index (Polity IV) with some control variables (widespread religion, legal origin, wars, etc.). We will also try using Polity and RoLD in conjunction with various control variables for purposes of explaining economic growth rates for the sample years 1810-2010 (Geary-Khamis 1990 Historical Dollars – Maddison Project, Bolt, van Zanden, 2013).

Data

EFW summary Index and EFW regulation Index – 17 observations (1970, 1975, 1980 … 2000; 2000-2011)

GDP per capita, constant 2005 US$ (World Development Indicators, World Bank - WDI)

Here we will try to compare two possible versions of variables based on the evaluations proposed by us of limitation of power (rule of law democracy) with economic freedom indices (EFW, Fraser Institute).

Evaluations by economic freedom indices are available for the years 1970, 1975, … 2000, and annually thereafter up through 2011. In all cases, the variable to be explained is the increase in per capita GDP in 2005 fixed dollars (WDI, WB).

EFW indices:

regression we use the set of control variables collected in Enrique Moral-Benito (2010), which follows up on the ideas of Sala-i-Martin (1998) – see Menyashev, Natkhov, Yanovskiy, 2013.

Tables 1-2 EFW Indices for to explain Economic Growth

Dependent variable: GDP per capita growth rate	(1) FE	(2) FE	(3) FE	(4) FE	(5) FE	(6) GLS
$EFW_{Leg\&Prop}$	1578.4***			1292***	1299***	1629***
	(117)			(119)	(119)	(118)
$EFW_{regulation}$		1758***				
		(135)				
$EFW_{summary}$			2023.8***			
			(126)			
Common Law				-929	-934	-693
				(1465)	(1465)	(1183)
Wars				739	744	803
				(704)	(704)	(719)
African					-1717	-7988***
					(2307)	(1456)
OilGasRent						1666
						(2612)
TransitEcon						-7087**
						(2558)
Constant	1958*	-483	2343.3*	4274***	4628***	4320***
	(1060)	(1401)	(1258.6)	(754)	(892)	(1192)
Observations	1987	2076	2091	1987	1987	1987
R-squared	0.505	0.186	0.32	0.52	0.53	0.46
Number of N	123	134	134	123	123	*123*

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Rule of Law Democracy and Limited government – based indices for to explain Economic Growth:

Dependent variable:	(1)	(2)	(3)	(4)	(5)	(6)
GDP per capita growth rate	FE	FE	FE	FE	FE	GLS
$Lg(RoLD_{accrual})$	4784***					
	(436)					
$RoLD_{accrual}$		536.1***		536***	536***	469***
		(9.4)		(9.4)	(9.4)	(8.4)
$LimGov_{accrual}$			292.3***			
			(7.46)			
Common Law				93	93	-389.9
				(709)	(709)	(678)
Wars				-284	-284	-288
				(315)	(316)	(327)
African						47
						(1068)
OilGasRent						13199***
						(2034)
TransitEcon				80		
				(2792)		
Constant	6888***	-735***	-3815***	-755	-743**	-747
	(277)	(191.7)	(353)	(486)	(240)	(797)
Observations	2754	2574	2754	2754	2754	2754
R-squared	0.47	0.61	0.47	0.61	0.61	0.65
Number of N	153	153	153	153	153	

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

The RoLD, LimGov, and EFW indicators are indices (see regression 1-3, Table…) featuring complex variables which reflect multiple influences and events. To different extents, they are indicators of the quality of the guarantees enjoyed by private property owners and by private property itself.

In both cases – for our variables and for EFW indices – we firs choose the complex variable representing the quality of institutions and having the greatest explanatory capacity. We then make an attempt in addition to introduce control variables. In both cases, the complex institutional variable absorbs multiple factors; when used simultaneously, it subsumes the significance of the control variables (i.e., it "pushes out" the control variables, eliminating their significance). That is, the additional independent variables are subsumed, with the result that the statistical significance of the EFW rates and RoLD does not fall; these rates' statistical significance remains at the same level. By contrast, the control variables added turn out to be statistically insignificant under the Fixed Effect panel, with some proving to be statistically significant under the GLS panel.

All this holds while the type (or origin) of the legal system is for all intents and purposes "entirely" subsumed by the complex variable, as is the significance of the periods of war. Also subsumed are the negative aspects of the petroleum revenue payments operating by means of lowering the quality of institutions. It is therefore likely that only the petroleum revenue payments (with a positive sign) and the location of the country in Sub-Saharan Africa (type of culture apparently not entirely subsumed by the complex institutional variable – hence, with a negative sign) prove to be significant if given GLS.

***

For earlier version of empirical analysis which contained broader set of control variables for periods 1970-1990 see Menyashev, Yanovskiy, 2013[14] and Menyashev, Natkhov, Yanovskiy, 2013[15]

Rule of Law Democracy vs. Polity

The per capita GDP growth rate is the dependent variable for all tests in this panel. The per capita GDP growth rate presented is the following:

$$\text{per capita GDP growth rate} = 100 * \ln(\frac{\text{GDP}_{\text{p.c t}}}{\text{GDP}_{\text{p.c t}-1}})$$

[14] http://ssrn.com/abstract=2236352
[15] http://ssrn.com/abstract=2380573

In all the tests, the variable to be explained is the per capita GDP growth rates (presented as the difference between the logarithms of the level of the per capita GDP of the current year in comparison with the preceding one:

$$100 * \ln(\frac{\mathrm{GDP}_{\mathrm{p.\,c\,t}}}{\mathrm{GDP}_{\mathrm{p.\,c\,t-1}}})$$

Granger Causality Test

In what follows, we will try to explain economic growth essentially by means of two variables in conjunction with a set of control variables. But first let us note that some control variables can influence the democracy indicators themselves. It makes a logical supposition that wars do not contribute to the fortification of democratic institutions. Abundant textual materials available on the "curse of resources," which, inter alia, touches upon the problem of lower civil interest in subjecting authority to control, when authority turns into a "breadwinner" or a source of revenue payment redistribution.

War could affect the economy both directly and indirectly – namely, by leading to changes in the economic or the political institutions. The same is true of a number of other control variables which we are going to use later both to explain Polity and RoLD and in conjunction with democracy indicators for purposes of explaining economic growth.

Granger Causality Analysis, Lags 2-10 years

Both Polity project evaluations and ours (RoLD, LimGov) make it possible to study the relationship between certain political institutions and other factors over a stretch of 200 years and more. This makes the study and analysis of temporal series individually by country a meaningful undertaking. We will therefore attempt a comparison of the usefulness of the Polity indicators and ours for purposes of analyzing the causal relationship between democracy (the limitation and competitiveness of power) and economic growth.

In this particular case, in order to maximize comparability with the Polity indicator (evaluation of democracy from -10 to 10), were sorted not to our two variables, Limited Government (LimGov) and Rule of Law Democracy (RoLD), but the specially constructed variable LimGov-RoLD: given LimGov = 0, this variable takes on the value of "-1"; given LimGov = 1, RoLD = 0, the variable assumes the value of "0"; given RoLD = 1, LimGov-RoLD = 1.

Because of the ordered nature of Polity and LimGov-RoLD indicators, we used the models for ordered choices in the cases where they were the explained variables.

Country	Principal outcomes of the test Polity - Growth	Principal outcome of the test LimGov-RoLD - Growth
USA	GDP growth does not Granger-cause Polity; Polity doesn't Granger-cause GDP growth at all lags (2-10)	GDP growth doesn't Granger-cause LimGov-RoLD; LimGov-RoLD doesn't Granger-cause GDP growth at all lags (2-10)
UK	GDP growth doesn't Granger-cause Polity except at lags 2, 5, 10 (no lagged values of polity were used because of computation problems); Polity doesn't Granger-cause GDP growth at all lags	GDP growth doesn't Granger-cause LimGov-RoLD; LimGov-RoLD is Granger-cause GDP growth at all lags
Denmark	GDP growth doesn't Granger-cause Polity; Polity is Granger-cause GDP growth at all lags (2-10)	GDP growth doesn't Granger-cause LimGov-RoLD; LimGov-RoLD is Granger-cause GDP growth at all lags (2-10)
France	GDP growth doesn't Granger-cause Polity; Polity is Granger-cause GDP growth at all lags (2-10)	GDP growth doesn't Granger-cause LimGov-RoLD; LimGov-RoLD is Granger-cause GDP growth at all lags (2-10)
Czech	GDP growth doesn't Granger-cause Polity; Polity is Granger-cause GDP growth at all lags (2-10)	GDP growth doesn't Granger-cause LimGov-RoLD (except at lag 10, where computation problems arise); LimGov-RoLD is Granger-cause GDP growth at all lags (2-10)
Brazil	GDP growth doesn't Granger-cause Polity, except at lag 5; Polity is Granger-cause GDP growth at all lags (2-10)	GDP growth doesn't Granger-cause LimGov-RoLD; LimGov-RoLD is Granger-cause GDP growth at all lags but 4.
Chile	GDP growth doesn't Granger-cause Polity; Polity is Granger-cause GDP growth at all lags (2-10)	GDP growth doesn't Granger-cause LimGov-RoLD; LimGov-RoLD is Granger-cause GDP growth at all lags (2-10)
India	Controversial results: GDP growth doesn't Granger-cause Polity; Polity is	GDP growth doesn't Granger-cause LimGov-RoLD (except at lag 10, where

Country	Principal outcomes of the test Polity - Growth	Principal outcome of the test LimGov-RoLD - Growth
	Granger-cause GDP growth, 5 and 6 years lags only	computation problems arise);; LimGov-RoLD is Granger-cause GDP growth, lags 2-4 years only.
Indonesia	GDP growth doesn't Granger-cause Polity; Polity doesn't Granger-cause GDP growth at all lags (2-10)	GDP growth doesn't Granger-cause LimGov-RoLD; LimGov-RoLD doesn't Granger-cause GDP growth at all lags (2-10)
Taiwan	GDP growth doesn't Granger-cause Polity; Polity doesn't Granger-cause GDP growth at all lags (2-10) too	GDP growth doesn't Granger-cause LimGov-RoLD (except at lag 10, where computation problems arise); LimGov-RoLD doesn't Granger-cause GDP growth at all lags (2-10) too
Korea	GDP growth doesn't Granger-cause Polity; Polity doesn't Granger-cause GDP growth at all lags (2-10) too	GDP growth doesn't Granger-cause LimGov-RoLD, (except at lag 10, where computation problems arise); LimGov-RoLD doesn't Granger-cause GDP growth at all lags (2-10) too

Study results are consistent overall for the countries selected for Granger analysis.

For some countries (in this case, the US), the indicators (RoLD, Polity) show almost no change throughout the entire observation period. Analysis by country in this situation naturally proves inconclusive.

The special feature of Taiwan, Korea, and Indonesia consists in their well-known experience of democratic institutions' being introduced and entrenched precisely as per the Lipset model, once a certain sufficiently high level of per capita GDP has been reached.

It should be noted that opportunities for applying Granger analysis to Polity are greater, insofar as the range of evaluations – and, accordingly, of changes in evaluation – are typical of each of the countries considered individually.

Generally, the problem is that analysis is hampered in those countries where only a brief period of uninterrupted evaluation of the per capita GDP level is available for consideration.

Wars have an unfavorable impact on the prospects of sustaining a stable democratic regime. This relationship is typical of both indicators. However, while RoLD registers a positive

relationship with the European cultural heritage and a negative one with the African, Polity turns out to be much more politically correct as an indicator.

Polity also registers a significant positive, counter-intuitive correlation between democracy and government income derived from revenue payments. Then again, RoLD shows no significant negative correlation, which could have been expected between the two.

Dependent variable: GDP per capita growth rate	(1) FE	(2) GLS	(3) FE	(4) FE	(5) FE	(6) FE
Polity$_2$(IV)	0.034**	0.31**	0.028**	0.028**	0.025**	0.036**
	(0.012)	(0.011)	(0.012)	(0.012)	(0.012)	(0.013)
Civil Law				-0.142		
				(0.320)		
Common Law					1.455**	1.377**
					(0.580)	(0.572)
Wars		-1.993***	-2.038 ***	-2.084***	-2.010***	-2.065***
		(0.242)	(0.249)	(0.254)	(0.250)	(0.248)
African				-1.630		
				(1.303)		
OilGasRent		0.394	1.149 *	1.155*		
		(0.366)	(0.591)	(0.593)		
SocialConvent						-0.247
						(0.161)
Constant	1.803***	1.918***	1.885***	2.281***	1.686***	1.770***
	(0.060)	(0.137)	(0.077)	(0.316)	(0.130)	(0.140)
Observations	10321	10278	10278	9995	10278	10131
R-squared	0.001	0.0078	0.0066	0.0094	0.0042	0.005
Number of N	145		144	138	144	144

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Democracy (Rule of Law Democracy indicator) and Economic Growth

Dependent variable: GDP per capita growth rate	(1) FE	(2) GLS	(3) FE	(4) FE	(5) FE	(6) FE
RoLD	1.192***	0.899***	1.053***	1.018***	1.056***	1.175***
	(0.222)	(0.191)	(0.222)	(0.225)	(0.222)	(0.228)
Civil Law				0.151		
				(0.270)		
Common Law					1.191**	1.168**
					(0.475)	(0.467)
Wars		-1.857***	-1.878***	-1.999***	-1.847***	-1.924***
		(0.227)	(0.233)	(0.238)	(0.233)	(0.231)
African				-2.302**		
				(1.132)		
OilGasRent		0.264	0.740	0.753		
		(0.330)	(0.526)	(0.528)		
SocialConvent						-0.176
						(0.140)
Constant	1.594***	1.844***	1.72***	2.084***	1.503***	
	(0.0756)	(0.122)	(0.087)	(0.290)	(0.134)	
Observations	12146	12101	12101	11747	12101	11950
R-squared	0.0013	0.0069	0.0064	0.007	0.0049	0.056
Number of N	150		149	143	149	149

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

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.

The measures provided by our indicators are easier to verify and to criticize (and, therefore, to correct). They can be considerably improved within a reasonable period of time and at reasonable cost.

We show that our measures predict economic growth not worse than commonly used indices. The indictors proposed, include information about institutions that has been accumulated over a period of approximately two centuries and our expert's evaluations are less vulnerable to political bias and to compatibility of estimations various experts for various countries problem.

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.

It would be wise to check the following hypothesis as a part of studies to be undertaken in the future. The origin of rule of law systems and natural indices of deregulation (Doing Business), as well as certain quantitative indicators of the EFW may work better within clusters produced by our two indicators. It also makes sense to look into the significance of the political broadcasting market's being dominated by public (i.e., state) TV channels.

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

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Annex 1. New indices: Rule of Law Democracy and Limited Government for 2011

Country name	Code	Rule of Law Democracy	Limited Government
UnitedStates	USA	179	187
UnitedKingdom	GBR	176	188
Belgium	BEL	172	183
Denmark	DNK	157	158
Netherlands	NLD	157	187
Norway	NOR	157	187
Switzerland	CHE	146	146
Luxembourg	LUX	142	175
Sweden	SWE	141	141
Canada	CAN	136	163
France	FRA	135	156
Japan	JPN	110	110
Australia	AUS	102	161
NewZealand	NZL	96	150
Ireland	IRL	94	176
Finland	FIN	93	149
HongKong SAR, China	HKG	77	91
Austria	AUT	72	134
Germany	DEU	63	150
CostaRica	CRI	62	131
Chile	CHL	55	147
Italy	ITA	48	128
Mauritius	MUS	44	44
CzechRepublic	CZE	42	94
SlovakRepublic	SVK	42	46
Greece	GRC	39	150
Portugal	PRT	38	130
SouthAfrica	ZAF	38	158
Cyprus	CYP	37	51
Estonia	EST	37	39
Bulgaria	BGR	36	80
Spain	ESP	35	101
Hungary	HUN	22	80
Poland	POL	22	40
Latvia	LVA	21	38
Lithuania	LTU	21	30
Macedonia, FYR	MKD	21	21
Slovenia	SVN	21	68
Israel	ISR	15	64
Zimbabwe	ZWE	15	59

Croatia	HRV	12	26
Mexico	MEX	11	95
Romania	ROU	8	95
Albania	ALB	0	20
Algeria	DZA	0	0
Angola	AGO	0	0
Argentina	ARG	0	117
Armenia	ARM	0	18
Azerbaijan	AZE	0	0
Bahrain	BHR	0	0
Bangladesh	BGD	0	19
Belarus	BLR	0	0
Benin	BEN	0	21
Bolivia	BOL	0	41
BosniaandHerzegovina	BIH	0	17
Botswana	BWA	0	51
Brazil	BRA	0	162
BurkinaFaso	BFA	0	14
Burundi	BDI	0	6
Cambodia	KHM	0	0
Cameroon	CMR	0	0
CapeVerde	CPV	0	21
CentralAfricanRepublic	CAF	0	0
Chad	TCD	0	0
China	CHN	0	0
Colombia	COL	0	114
Congo, Dem. Rep.	COD	0	0
Congo, Rep. Of	COG	0	14
Coted'Ivoire	CIV	0	0
Cuba	CUB	0	0
Djibouti	DJI	0	0
DominicanRepublic	DOM	0	57
Ecuador	ECU	0	60
Egypt, ArabRep.	EGY	0	0
ElSalvador	SLV	0	30
Ethiopia	ETH	0	0
Gabon	GAB	0	0
Gambia, The	GMB	0	0
Georgia	GEO	0	23
Ghana	GHA	0	15
Guatemala	GTM	0	35
Guinea	GIN	0	0
Guinea-Bissau	GNB	0	11
Haiti	HTI	0	18
Honduras	HND	0	39
Iceland	ISL	0	139
India	IND	0	77
Indonesia	IDN	0	13
Iran, IslamicRep.	IRN	0	0

Iraq	IRQ	0	0
Jamaica	JAM	0	128
Jordan	JOR	0	0
Kazakhstan	KAZ	0	4
Kenya	KEN	0	7
Korea, Dem. Rep.	PRK	0	0
Korea, Rep.	KOR	0	25
Kuwait	KWT	0	0
KyrgyzRepublic	KGZ	0	11
Lao PDR	LAO	0	0
Lebanon	LBN	0	30
Lesotho	LSO	0	10
Liberia	LBR	0	0
Madagascar	MDG	0	10
Malawi	MWI	0	17
Malaysia	MYS	0	52
Mali	MLI	0	19
Mauritania	MRT	0	2
Moldova	MDA	0	21
Mongolia	MNG	0	22
Morocco	MAR	0	14
Mozambique	MOZ	0	18
Myanmar	MMR	0	0
Namibia	NAM	0	21
Nepal	NPL	0	14
Nicaragua	NIC	0	27
Niger	NER	0	14
Nigeria	NGA	0	10
Oman	OMN	0	0
Pakistan	PAK	0	14
Panama	PAN	0	43
Paraguay	PRY	0	21
Peru	PER	0	106
Philippines	PHL	0	45
PuertoRico	PRI	0	0
Qatar	QAT	0	0
RussianFederation	RUS	0	14
Rwanda	RWA	0	0
SaudiArabia	SAU	0	0
Senegal	SEN	0	31
Serbia	SRB	0	20
SierraLeone	SLE	0	11
Singapore	SGP	0	36
Somalia	SOM	0	0
SriLanka	LKA	0	17
Sudan	SDN	0	0
Suriname	SUR	0	27
Swaziland	SWZ	0	0
SyrianArabRepublic	SYR	0	0

Taiwan	OAN	0	27
Tajikistan	TJK	0	0
Tanzania	TZA	0	17
Thailand	THA	0	30
Togo	TGO	0	0
Tunisia	TUN	0	32
Turkey	TUR	0	48
Turkmenistan	TKM	0	0
Uganda	UGA	0	5
Ukraine	UKR	0	21
UnitedArabEmirates	ARE	0	0
Uruguay	URY	0	127
Uzbekistan	UZB	0	0
Venezuela, RB	VEN	0	54
Vietnam	VNM	0	0
Yemen, Rep.	YEM	0	0
Zaire	ZAR	0	0
Zambia	ZMB	0	21

Annex 2. Cross-country Comparison of EFW Ratings of Economic Freedom

Country[16]	**Rating, (Rank) 2008**[17]	**Rating, (Rank) 2011**[18]	**Private property and owner's personal rights safeguards**
Hong-Kong	9.08 (1)	8.97; 1	The private property, property owner personal immunity, freedom of enterprise are safeguarded by the word of honor given by the leadership of China's Communist Party only
Singapore	8.7 (2)	8.73; 2	Freedom guarantees are based on tradition, but the institutions protecting them (an independent court system with a court of appeals in London, political competition) are fuzzy, confiscation of property is applied at present only against leaders of the opposition (cases of slander with compensation; good fortune never fails the country's leadership in these cases)
New Zealand US, Canada, Australia, UK	8.27 (3) 7.96 (6) 7.95 (7) 7.90 (8) 7.81 (10)	8.49; 3 7.73; 17 7.85; 12 7.88; 10 7.85; 12	Guarantees for property owner and property are based on long-lasting constitutional tradition, independent court system and acute political competition

[16]Presented in order of decreasing ratings for 2008.
[17]EFW 2010 Dataset used
[18]EFW 2013 Dataset used

UAE, Bahrain, Denmark, Luxembourg, Finland, France Peru Kuwait	7.81 – 7.39; Ranks## 10th to 33rd place, respect-tively	8.07 (5) 7.93 (8) 7.78 (14) 7.49 (35) 7.98 (7) 7.38 (40) 7.64 (22) 7.22 (55)	In some of the countries, freedom guarantees are based on constitutional tradition, independent court system, and acute political competition; in others, they depend on the good will of the ruler (UAE, Bahrain, Kuwait) and fringe or marginalized electorate (Peru).
France, Sweden, Belgium; *** Jordan, Oman, Uganda, Kazakhstan, Kyrgyzia	Rank## from 35-62	Rank ## 7.38 (40) 7.58 (29) 7.36 (42) *** Jo(13) O(46) U(64) Kz (84) Kg (102)	Uganda: recently, a fierce civil war; Kirgizia: recently, Uzbek pogroms, including mass murder and destruction of property, make it doubtful that even the life of an economic agent can be protected, let alone property. Kazakhstan: the court system is regularly used against entrepreneurs displeasing to the authorities; this even includes large foreign companies
Italy, Poland	Both 6.90 (65)	6.85 (83); 7.20 (59)	Relatively reliable property guarantees
Namibia, Ghana, Haiti, Egypt Israel	71, 72, 78, 80 respectivel y 6.67 (81)	Na 102 Gh 90 Ht98 Eg 108 respectivel y 7.26 (49)	Lack of reliable (or even of any whatsoever – Haiti) guarantees for property owners and property Israel – Relatively reliable property guarantees
SAR, China, Russia, India, Croatia, Rwanda, Indonesia, Tunis	Places 82-84; 87-90	Syria n/r China 123 Russia 101 Rw 36 Indonesia 80 Tunis 81 Croatia 75; India 111	Lack of reliable guarantees for property owners and property (Russia, Rwanda, Indonesia, Tunis, China); lack of certain guarantees (India, Croatia).