# Freedom, Ratings and Economic Growth: In Search of Reliable Dependencies

**By**

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# ABSTRACT

*Ratings evaluating the quality of institutions are widely known; they are generally used in academic and research literature. Among such ratings are some whose compilation procedure took decades to perfect. Dozens of assessments have been accumulated, pertaining to a large and growing list of countries. All these ratings use expert evaluations with country ranking. We suppose that such evaluations 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). We propose a group of variables of our own, using evaluations of "political" institutions only to ascertain the presence or absence of a certain phenomenon (yes/no). Such a set of variables makes a cross-section analysis feasible. The countries' experience in Rule of Law Democracy and Limited Government (both are quite clearly defined in a formal manner) provides a long-term institutional development aggregate evaluation for cross-section analysis.*

*We also propose a thoroughly simple rating based on combining the proposed variables with indices and indicators which have already become widely accepted, but taking this combination as part of a data panel. At the same time, using a panel regression makes it possible to mitigate the problem of poor compatibility of expert evaluations.*

*JEL codes P50, N40, O43*

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# Introduction

By now, a general consensus has been reached among economists concerning the importance of institutions for the development of the economy and of society as a whole. But the field where general agreement prevails concerning specific institutions is considerably narrower. Even so, it does include property rights. It would be logical to expect stable economic growth where property rights are protected. That is, where the rules of the game are strictly observed and the power of the government is limited and does not support monopolies, while economic agents devote themselves to productive activity and make investments. All this subsequently leads to stable economic growth. Different aspects of this connection among the data have been thoroughly studied in theory as part of the framework of the new institutional economy. Empirical evidence, by contrast, is not as clear-cut, nor as unambiguous.

Econometric work in inter-country analysis of the role of institutions has blossomed since the moment when rating assessments of the quality of institutional environments were published by such research centers as Heritage Foundation and Fraser Institute. Work done on an inter-country sample has shown that indices of economic freedom are positively correlated with economic growth. This was to be expected. Even so, recently, weighty criticism has been leveled at both the indices themselves and at the results obtained by using them. Ratings are subjective and occasionally displaced by ideological considerations, while empirical evidence is occasionally not robust.[1]

Institution quality assessment ratings are in wide use in economic studies. The obvious shortcomings, especially in inter-country comparisons, are outweighed by the absence of a possible alternative to the ratings. At the same time, it is possible to describe institutions by using logical variables. Such a description limits the part played by the expert by attesting the presence or absence of a certain rule and/or its applications, and it is confirmable by verifiable references to events. We will show that such evaluations taken jointly with quantitative indicators yield no worse of an explanation of economic growth.

In the present paper, we propose a study of certain index systems for the evaluation of the quality of institutions and the corresponding country ratings. We see a key problem of rating assessments and of work done based on cross-section studies in the essential incompatibility with each other of expert assessments made with reference to different countries.

We will present a set of three variables, which will make it possible to analyze the quality of key political institutions and their stability.

The presentation will consist of the following. We will first offer an analysis of the most significant work devoted to ratings indices, their achievements and their problems. Following this will be a description of the methodology for constructing new proposed indices for the evaluation of the quality of institutions, including in tandem with the index of Economic

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[1] That is, estimates obtained on the basis of a statistical analysis turn out to be unstable and vary considerably when there is a change in the sample (of countries), in the time interval between observations, and so on.

Freedom of the World (EFW) in a panel regression. Following this, we will compare the results of assessing the regression of the quality of institutions and economic growth, as obtained by using the proposed means of perfecting the analysis procedure, in comparison to the results of the same analysis as obtained without using these proposed means.

## "Brilliance and Poverty" of the Ratings (based on the example of the EFW and Polity IV)

### Problems with the empirical analysis

According to widespread opinion (see, for instance, Cohen 2010), the popularity of the ratings provided by the Heritage Foundation/Wall Street Journal's Index of Economic Freedom (Miller and Holmes 2010) and the Fraser Institute's Economic Freedom of the World (EFW; see Gwartney and Lawson 2010) can largely be explained by these ratings' involvement in the media environment. This is why their research findings attract the attention of the public, a state of affairs which subsequently also attracts the attention of economists, who are enticed by the transparency of the index. According to the creators of the EFW, by 2003, the index had been used in more than 200 papers. Most of the publications in which the EFW indicator was used show a connection between the index and economic growth for inter-country comparisons.

The study published by Doucouliagos (2005) performs a meta-analysis of the research works indicated, comparing findings obtained in a variety of research papers. The author pays special attention to the fact that what fills the pages of economics periodicals today exposes the reader to only one side of the coin. Against the backdrop of the popularity of the subject matter and their own firm conviction that institutions are important, contributors to such periodicals are less inclined to include in their articles calculations which show the correlation between institutions and growth to be negative or as one which cannot be observed at all. Similarly, reviewers are not overly likely to give positive feedback to papers that do include such material. The upshot is that articles feature a "publication shift," which means that findings showing there to be a meaningful correlation between institutions and growth can predominate simply because the academic community wants to see them so very badly. Analyzing the findings introduced in articles which deal with growth and institutions, the author evaluates the shift using a number of ad hoc methods. For instance, when the published results feature no such shift, we should see a negative correlation between the seriousness of the errors and the size of the sample, but that is in fact something which is not to be observed in reality. The bottom line, as the paper concludes, is that the extent of the "publication" shift in the available literature is so great, that it affords no opportunity for assessing the "pure" influence that institutions have on growth.

Glaeser et al. (2004) refer to that many of the research works devoted to the relationship between institutions and growth in actuality often measure something different. Thus, the indices in POLITY "reflect political outcomes rather than political limitations" and make poor indicators of the protection afforded to property rights. For instance, Peoples republic of China in Mao's day got 3 points score, while Chile of Pinochet's day got the "one." The same

holds true for some of the EFW indicators, as well. While some indicators are purely institutional ("protection of property rights"), others are rather providers of results. Institutions cannot change overnight at politicians' wish; change involves an inertial process. This is why, when evaluating institutions, it is important to understand that time is required, as well as the investment of effort, before the measures taken develop into institutional norms so that economic agents begin to respond to them. The authors maintain 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 institutions indicators popular in the literature fail to meet this requirement.

De Haan, Lundstrom, and Sturm (2006) discuss a number of the specific problems leading to the results which are so distant from being robust. First of all, the EFW is a priori devoted to quality assessment, not to the assessment of quantity. The assessment of quality is by definition bound up with subjectivity and inexactitude. An index is constructed by means of aggregating information obtained with the use of 17 indicators, many of which reflect two entirely separate things: on the one hand, there are institutions to be evaluated as such—and, on the other, there are political-economic reforms. At the same time, a number of papers put forth the claim that using some of these components is wrong, insofar as they cannot unambiguously testify to the quality of the institutions (the tax policy, for instance). The method of aggregating indices is also far from being unambiguous. According to Heckelman and Stroup (2006), different methods of aggregating the EFW index—general average, average by group, principal components method—yield different results concerning the correlative link between institutions and development under the same specified conditions. But this is an unacceptable state of affairs.

From the point of view of econometric analysis, De Haan, Lundstrom, and Sturm note that many papers addressing the connection between the EFW and growth in inter-country research simultaneously consider the initial level of the EFW and its changing. In econometric terms, this is equivalent to adding the end level of the EFW to the regression, a fact which unavoidably leads to the problem of endogeneity. If the value of the index for the end of the period is considered, the effect in question may be explained by the impact which growth has on institutions, but not the other way around (see Glaeser et al., op. cit.). If only the initial EFW level is studied, then it turns out that it makes no contribution to explaining growth.

The authors also point out that most of the research fails to cite any necessary verification or check of the sensitivity of the results (not to mention the fact that a series of papers ignore the indicators, which are acknowledged in the literature, of the physical and human capital accumulated, even though such indicators are among the most significant as indicators of economic wellbeing and stable growth; and yet the research papers fail to take the indicators into account as controls in regressions). The problem arises that the results change significantly depending on the choice of different econometric specifications, which a priori have no advantages as compared to each other. The upshot is that the papers introduce us only to what are the best regressions from the point of view of their results. To solve this problem, researchers have suggested a series of procedures which make it possible to evaluate this

effect or to verify its robustness by comparing the results of not just one, but a whole group of regressions (Extreme Bounds Analysis, Bayesian Model Averaging). It is telling that even in these models, the measureable effect of economic freedoms is much weaker. In our work we will use similar methods to demonstrate the robustness of the obtained results.

Practically all research ignores the non-linearity of the influence of institutions on growth. Evidently, a modest improvement in the institutional environment will be much more significantly productive for certain levels of development than for the developed Western economies. In order to take this effect into account, we will split country samples into different clusters according to levels of institutional development at fixed control points.

It is telling that, according to a series of research findings, EFW countries' dynamics (change in country rating) maintains a sustainable dependency with growth, and is not sensitive to changes in specification, unlike the level of the same index. It turns out, then, that as soon as a researcher gets rid one of the components of subjectivity of the experts' evaluations (comparisons to each other changes in assessments, rather than experts' varying ways of understanding of freedoms in their countries) he could reasonably hope to advance. Thus, possibly, there is no robust dependencies to be observed between institutions and development for the sole reason that the indices used are not sufficiently reliable.

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 dependence. Thus, it is hard not to agree with D. North and his coauthors that democracy and economic growth both have some additional, third determining factor in common.[2] Moreover, the notion of "social norms" is so all-encompassing that it can accommodate multiple interpretations. This doubtless includes our interpretation, as well (Yanovskiy, Shulgin 2008). Namely, that both democracy and economic growth require a precondition, which they share in common: safeguards against physical destruction and deprivation of liberty.

If it is possible for the electors or the candidate to disappear easily, then democratic procedure becomes a farce and worsens the condition of the individual person in the area of conflict (Yanovskiy, Zhavoronkov, Zatkovetsky 2007). Election results provide the bandit with a clear indication as to the loyalty or disloyalty of the tribute-paying population. The population is no longer able simply to buy off all the dangerous bandits so as to sleep tranquilly.

If a property owner can easily disappear, then the institution of private property disappears for all intents and purposes. And that means that hopes of long-term stable economic growth disappear, too.

## Problems in Index Values

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 difficulties (especially the first one).

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[2] North, Wallace, Weingast, 2011, p. 55 (p. 13).

## Table 1. Comparing Different Regimes Based on POLITY IV[3]

| "Marker" Regimes | For Purposes of Comparison |
|---|---|
| Anti-democratization record breakers according to POLITY IV – 2009 (evaluation of -10) | |
| The Kingdom of Denmark prior to 1834, Prussia during the same period, and many other European monarchies (-10),[4] as well as the Russian Empire prior to 1905; also Norway 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<br><br>Stalinist USSR 1933-1952 -9<br><br>Maoist CPR 1948-1975 (-8-9)<br><br>Hitler's Germany |
| | "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 |

Possible complications: the index often measures not freedom, but quality of state management in the country. This can be understood if the correlation is evaluated between the index and other indices of management (Cohen (2009)). A different problem is the representativeness of the analysis constructed by the EFW: because of the limitations of the

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[3] http://www.systemicpeace.org/polity/polity4.htm

[4] 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).

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 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 2008).

Among the most authoritative 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.

**Table 2. Inter-country Comparison of EFW Ratings of Economic Freedom**

| Country[5] | Rating, Place | Problems in Countries, Other Comments |
|---|---|---|
| Hong-Kong | 9.05, 1 | Guarantees of property, property owner, and freedom of enterprise are based on the word of honor given by the leadership of China's Communist Party |
| Singapore | 8.7, 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 | 8.27, 3 | Guarantees for property owner and property are based on constitutional tradition, independent court system and acute political competition |
| US, Canada, Australia | 7.96, 6 7.95, 7 7.90, 8 | |

[5] Presented in order of decreasing ratings.

| Great Britain, Denmark, Luxembourg, Finland, France<br><br>United Arab Emirates, Bahrain, Kuwait, Peru | Evaluation range 7.81 – 7.39; from 10th to 33rd place, respectively | 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, Kirgizia | Places ranging from 35-62 | Uganda: recently, a fierce civil war; Kirgizia: recently, Uzbek pogroms, including 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 | Tied for 66th place | Relatively reliable property guarantees |
| Namibia, Ghana, Haiti, Egypt | Placing 71, 72, 78, 80 respectively | Lack of reliable (or even of any whatsoever – Haiti) guarantees for property owners and property |
| Israel | 81st place | Relatively reliable guarantees for property owners |
| SAR, China, Russia, India, Croatia, Rwanda, Indonesia, Tunis | Places 82-84; 87-90 | Lack of reliable guarantees for property owners and property (Russia, Rwanda, Indonesia, Tunis, China); lack of certain guarantees (India, Croatia). |

The numerous cases noted of evaluations which seem to us doubtful are not, in our view, necessarily bound up with a low level of the experts' work. 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 verification independently 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[6] of

[6]http://www.doingbusiness.org/

the World Bank, along with the Economic Freedom in the World project[7] 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. This last is also the institution which a wide spectrum of economists consider to be fundamental and of critical importance for economic development.

In a series of earlier papers we also developed the approach to describing institutions formally by means of a finite set of logical variables. The present paper makes the attempt to analyze two such indicators of the condition of institutions based on the following data.

## Data

In the present section we will briefly describe the variables which we used for comparing the impact which indicators have on economic growth. First, this is the aggregate EFW index described above as the most widespread, meticulously tailored to specifics, and having a long compilation history. Second, these are the objective indicators described below, which were collected as part of a series of a number of projects conducted by the Institute of Economic Politics,[8] as well as in an interdisciplinary project currently in progress, which is aimed at creating a database of institutional indicators. Working as experts who respond to queries limited to the existence or lack of certain manifestations, actions, or phenomena characteristic of institutions, are predominantly historian academics.

World Bank data make up the principal source of data pertaining to the growth and the level of per capita GDP. To supplement the indicators of institutions and the economy, we will use many different control indicators also capable of impacting economic growth. This will enable us to decrease the unexplained variability in data and minimize as much as possible the «omitted variable bias».

So as to establish permanently the set of control variables most frequently used in growth literature, we use the database collected in Sala-i-Martin (1997). The base includes various geographic, historical, demographic, and other factors (climate, openness of trade, religion, military conflicts). Applying "Bayesian evaluation" to the database in 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 inter-country analysis, most indicators are taken for the beginning of the period: 1960. In panel 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)                                     in the case of a panel. In key specifications we control by reference to indicators of openness of the economy and the labor force.

# Indicators of "Rule of Law Democracy" and "Limited Government"

## Definition

The present paper proposes an algorithm for constructing two new indicators of the quality of institutions, which minimize the subjectivity of expert evaluations. If an expert provides an evaluation only of the presence or absence of a certain judiciary norm, of a certain phenomenon (associated with law enforcement practices), the level of the use to which his or her knowledge is being put goes down. But the evaluation, buttressed by a reference to an event, becomes verifiable. The error conditioned by the subjectivity of the evaluation levels out. At the same time, there is a qualitative improvement in the mutual comparability of the evaluations by country. The expert's qualities and how well informed he or she is come to the fore primarily in the speed with which an answer fortified by references is provided. This means that differences in quality of experts on different countries no longer play a significant role.

An example of such an indicator for institutions is Przeworski's criterion (Przeworski et al. 2000). Przeworski identifies only two conditions (democracy either is in evidence or else it is not); the index is then relatively easy to observe and objective. Similarly, Djankov et al. (2003) proposed institutions indicators which describe the work of the courts. In their paper they cite objective measures of the legal (judiciary) system, dividing systems into regular and continental (codified) law (Civil Law) (Glaeser, Shleifer 2002). The picture later becomes more complex when a more detailed classification appears, including the French, the German, and the Scandinavian systems of civil law, and bypassing the post-socialist states. At the same time, despite all due understanding of the problematic, the authors use the same POLITY to justify their conclusions concerning the connection between institutions and economic growth.

In the present paper, indices of the quality of institutions proposed in Yanovskiy, Shulgin (2008) are used as an alternative to expert indices. The first indicator, "Rule of Law democracy" (hereafter "RoLD"), describes the duration of the time period of the rule of such a regime in the country. The country belongs to the list of RoLD democracies only if it complies with the following three conditions:

1. The ruling group which controls the government leaves power and joins the opposition if it loses in the elections ("Przeworski's criterion"[9]);
2. The government can lose in court even in a matter (process) that is widely publicized by the press and significant from the point of view of prestige and authority, and the government complies with such a court decision;

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[9] See Alvarez Cheibub Limongi and Przeworski, 1996; Przeworski, Alvarez, Cheibub, Limongi, 2000

3. The mass media of the opposition, without fear of revenge or punishment, severely criticize the government, calling for its replacement, including accusing the government or other top authorities of: incompetence which poses a danger for society, OR of immorality, OR of committing legally punishable crimes.

Another indicator, "limited Government" (hereafter LG) is equivalent to the duration of the time period when at least one of the three conditions of "judicial democracy" is fulfilled.

Ideas along these lines about accumulating some "institutional" resources which should aid the country in developing without returning to chaos are not new. Thus Persson, Tabellini (2009) introduce the notion of "democratic capital" which is accumulated in different countries in such a way that, on the one hand, it facilitates its own continued accumulation, and, on the other hand, it facilitates development. In calculating the index of democratic capital, the authors used the more rough data of POLITY IV; yet they also used the more complex procedure of this capital's accumulation, in the belief that it loses in value in periods of autocratic rule.

The institutions indices proposed in the paper will make it possible to extend studies to a much longer period of time than that beginning from 1970, which is covered by the EFW. This is important, insofar as in order to establish causal connections between democratic institutions and economic growth, it is preferable to turn to a long-term perspective (as in the case of POLITY). Since the indicator construction mechanism is subject to verification and is transparent, it is possible to construct an index for whatever time periods are necessary. Our task is to show that the constructed indices, being more exact, will have a stronger correlation with subsequent growth than other indices of institutions. This is due to the fact that the proposed indices are free of noise which derives from subjectivity and the shift in expert evaluations.

The accumulated values for Judicial Democracy (RoLD) and Limited Government (LG) are taken with a logarithm in regressions. The connection between the stability of the constitutional regime and growth seems quite likely, yet this is hardly a linear correlation with unfailing accumulation of quality of the institutions, which are in the process of becoming increasingly older. In the course of subsequent studies it will probably be worthwhile to examine more complex correlations between these regimes' period of being in power and economic growth.

### Distribution

Key figure distribution for 1990 is shown in Diagram 1. According to the indicator, most countries have extremely weak institutions, the developed countries of the West being far in the lead. In 1990, only a few countries of the world had reached the level of development requisite for fulfilling the "Rule of Law Democracy" condition. Insofar as the development of institutions is a self-sustaining process (good institutions lead to even better ones), we take the index logarithm as our principal indicators. At the same time, key figures become distributed close to normal, contributing to the attainment of substantial evaluations.

Correlation of the RoLD and LG indices with the EFW figures is shown in the second row of Diagram 1. If countries at level zero in the indices being considered are not

taken into account, then it becomes clear that the EFW index largely represents RoLD, being much more weakly correlated with the imposition of limitations upon authority. If a linear dependence is envisioned between the EFW and the indicators under consideration (a dependence easily observable), then vis-à-vis this dependence the EFW evaluates the Asian tigers (Singapore, Taiwan, Thailand) much more highly than the overall trend, while the Latin Americans (Brazil, Argentina, Peru) get a lower assessment.

Accordingly, we can expect that the LG index will explain variability in growth indicators in cases where the EFW index does not work.

**Diagram 1. Time distribution for periods when countries were in the condition of "supremacy of law" and "limitation of power." Correlation between index logarithm and the EFW index in 1990.**
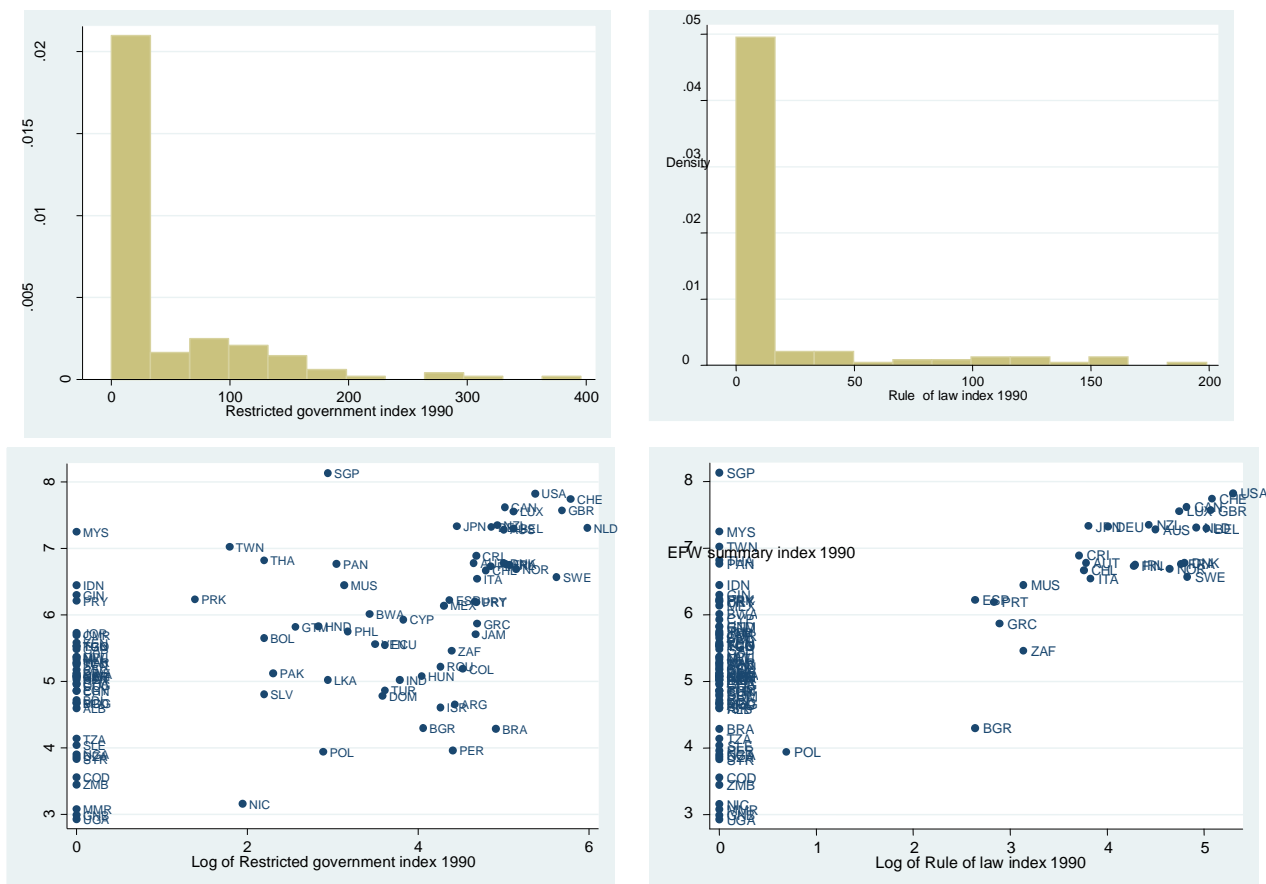


# Indicators and Economic Growth

## Introduction

In order to look into the possibility of using our indicators in inter-country and panel comparisons of the role of institutions in development, we compare results given by these indicators as compared 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.

Let us consider the simplest pair correlations for a start. Diagram 2 shows growth correlations for the 1970-2009 and 1990-2009 time periods with the indices which we have proposed. It becomes clear that countries group into two clusters. The drawing on the left shows growth from 1970 to 2009, with the cluster of developing countries clearly visible, in which the connection is easily traced between institutions and growth (with Malaysia and India in the lead). For the second cluster, stretching from Mexico, Hungary, and South Africa to Norway and Switzerland, the connection is less obvious. The drawing on the right shows a larger number of countries, insofar as many countries became experienced in limited government during the years 1970-1990. No clearly identifiable clusters are in evidence; even so, it can be seen that for countries less developed institutionally, the dependence link between growth and institutions is more in evidence.

**Diagram 2. Graph Showing Dependence of Economic Growth on Index of "Limitations of Power" for Countries with a Rating Other than Zero**
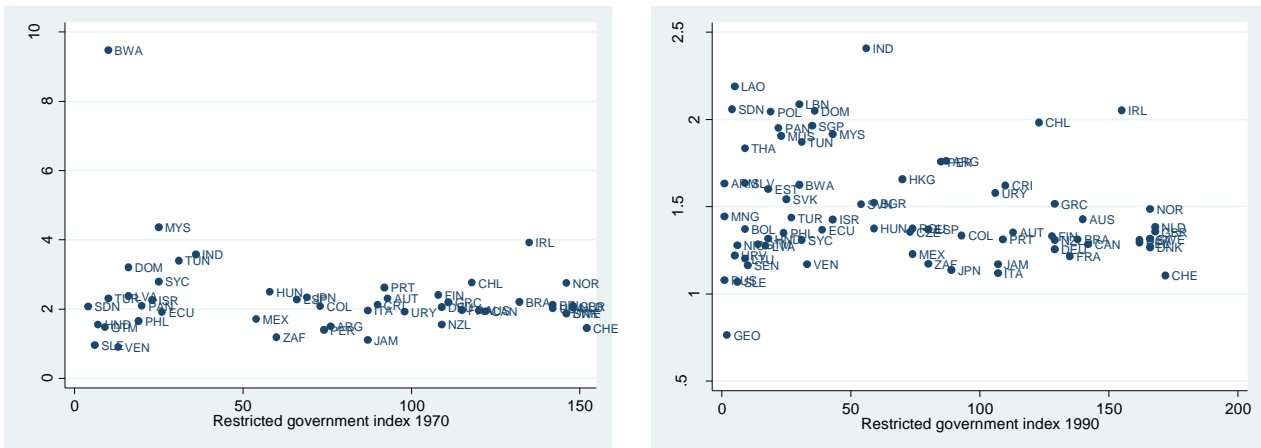


Similar graphs for the EFW index are shown in Diagram 3. There is no general trend, nor grouping of countries for which a single set of conclusions can be reached for both periods under consideration. But if the EFW index for the end of the period is considered, the connection is evident; this is precisely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

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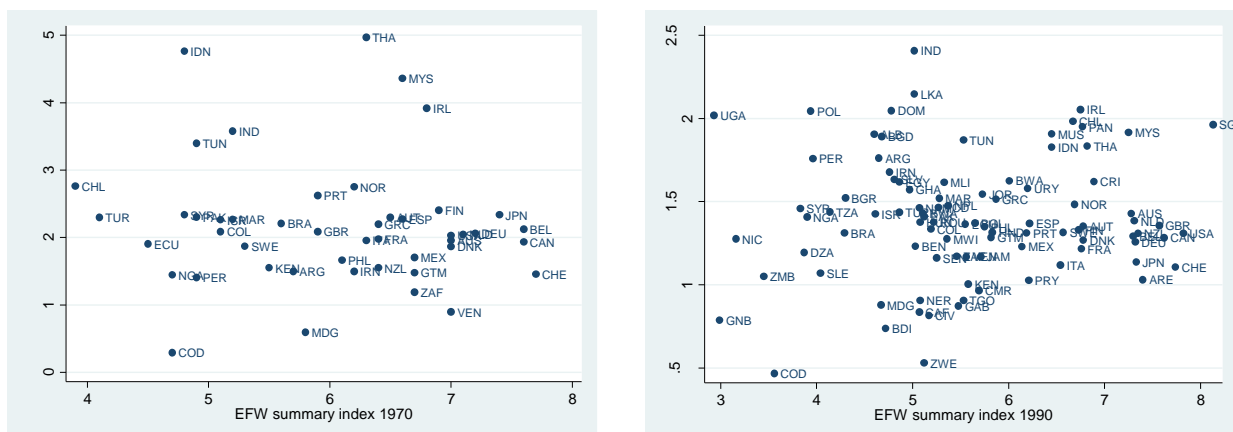


## Inter-Country Comparison

### Basic Specifications

In this part of the study we will consider the simplest growth regression on the EFW index and on "limitations of government," regressing them to the beginning level of the logarithm for the per capita GDP, level of education, and population log. The results are shown in Table 3. As expected, the EFW index does not predict growth (specifications 7-9), while the limitations of government index shows it to be significantly and positively connected to growth, especially in specifications (1) and (4). However, if level of education is added to the regression, then the effect of the institutions grows weaker, with the significance of the coefficient falling. For the 1990-2009 period (Table 4), a similar effect is to be observed: the impact of institutions measured by the described index of "limitation of authority" turns out to be significant for development as long as we don't control with reference to education. Here, as in Glaeser et al. (op. cit.), the precedence of human capital to institutions can be observed.

It is important to note that for both periods, the EFW index turned out to be insignificant for all of the specifications. When the EFW index is used, $R^2$ is also smaller by comparison with the indices proposed.

### Table 3. Regression of GDP Growth from 1970 to 2009 on the Limited Government Index and the EFW Index

| VARIABLES | (1) (2) (3) All Sample | | | (4) (5) (6) Subsample of the countries experienced in Limited Government | | | (7) (8) (9) Subsample EFW | | |
|---|---|---|---|---|---|---|---|---|---|
| Log of Limited government index '70 | 0.246*** (0.075) | 0.113 (0.075) | 0.097 (0.082) | 0.270* (0.154) | 0.189 (0.165) | 0.0196 (0.201) | | | |
| EFW summary index '70 | | | | | | | 0.041 (0.186) | 0.039 (0.158) | -0.005 (0.170) |

| VARIABLES | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| GDP per capita '70 | -0.19* (0.11) | -0.33*** (0.10) | -0.34*** (0.11) | -0.25** (0.12) | -0.39*** (0.13) | -0.33** (0.16) | -0.13 (0.13) | -0.55*** (0.16) | -0.57*** (0.17) |
| Education | | 1.818*** (0.442) | 1.784*** (0.416) | | 1.710** (0.846) | 2.113** (0.881) | | 3.166*** (0.935) | 3.347*** (1.028) |
| Log Population '70 | | | 0.162** (0.065) | | | 0.049 (0.079) | | | 0.0350 (0.109) |
| Oil industry | | | 0.626 (0.439) | | | -1.315 (0.843) | | | 0.190 (0.576) |
| Fraction GDP in Mining | | | -2.686 (1.971) | | | 0.184 (3.202) | | | -2.820 (3.706) |
| Observations | 91 | 86 | 86 | 48 | 46 | 46 | 47 | 46 | 46 |
| R-squared | 0.129 | 0.266 | 0.362 | 0.086 | 0.181 | 0.242 | 0.029 | 0.265 | 0.281 |

## Robustness Test

At the following stage we test the results obtained for robustness, adding control variables of different kinds. The principal specification of growth will be determined in the following manner. To begin with, let us examine the correlation of institutions indicators with the essential factors of development ranked in order of degree of influence upon economic growth in Sala-i-Martin, as per Gernot Doppelhofer and Ronald I. Miller (op.cit). As becomes clear from **Table 5** in countries with developed institutions, quality of life is considerably higher: all three figures are strongly correlated with the GDP, level of education, and lifespan in 1960. It is important to note that the success of the Asian tigers was not predicted by the institutional data, showing values lower than average instead; here it may be appropriate to refer to catching up development, as noted previously. According to all figures indicated, institutions were in worse shape in African and Muslim countries in our sample.

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

| VARIABLES | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| | | All sample | | | Sub-sample – RoLD experienced countries only | | | EFW Sample | |
| Log of Limited gov-t index '90 | 0.072*** (0.026) | 0.036 (0.030) | 0.023 (0.033) | 0.0859** (0.0419) | -0.025 (0.068) | -0.055 (0.074) | | | |
| EFW summary index '90 | | | | | | | 0.009 (0.046) | 0.011 (0.044) | 0.010 (0.045) |
| GDP per capita '90 | -0.065* (0.035) | -0.082** (0.041) | -0.073* (0.044) | -0.132*** (0.0397) | -0.141** (0.0534) | -0.136** (0.055) | 0.013 (0.033) | -0.075 (0.046) | -0.0763* (0.0458) |
| Education | | 0.388** (0.187) | 0.386** (0.186) | | 0.727** (0.298) | 0.885*** (0.316) | | 0.564** (0.225) | 0.557** (0.225) |
| Population Log | | | 0.065** | | | -0.0001 | | | 0.0562* |

| Parameter | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| '90 | | | (0.027) | | | (0.031) | | | (0.0291) |
| Oil industry | | | -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 |

## Table 5. Correlation of Institutional Indicators and Other Principal Predictors of Economic Growth

| Parameter | Log of Limited Government index | | Log of Rule of Law Dem. index | | EFW summary index | |
|---|---|---|---|---|---|---|
| | 1970 | 1990 | 1970 | 1990 | 1970 | 1990 |
| *East Asian* | -0.42 | -0.04 | -0.32 | -0.09 | 0.17 | 0.27 |
| *Primary Schooling 1960* | 0.56 | 0.75 | 0.48 | 0.54 | 0.56 | 0.57 |
| *Investment Price* | -0.12 | -0.43 | -0.02 | -0.26 | -0.03 | -0.27 |
| *GDP 1960 (log)* | 0.82 | 0.83 | 0.80 | 0.80 | 0.61 | 0.63 |
| *Fraction of Tropical Area* | -0.57 | -0.52 | -0.54 | -0.59 | -0.27 | -0.40 |
| | 0.12 | 0.11 | 0.16 | 0.03 | 0.08 | 0.28 |
| *Pop. Density Coastal 1960s* | | | | | | |
| *Malaria Prevalence in 1960s* | -0.50 | -0.68 | -0.40 | -0.48 | -0.38 | -0.46 |
| *Life Expectancy in 1960* | 0.80 | 0.86 | 0.73 | 0.73 | 0.66 | 0.66 |
| *Fraction Confucius* | -0.22 | -0.06 | -0.16 | -0.09 | 0.10 | 0.11 |
| *African Dummy* | -0.32 | -0.65 | -0.24 | -0.38 | -0.32 | -0.39 |
| *Latin American Dummy* | -0.17 | 0.28 | -0.34 | -0.16 | -0.21 | -0.08 |
| *Fraction GDP in Mining* | 0.23 | -0.16 | 0.21 | -0.17 | 0.39 | -0.15 |
| *Spanish Colony* | -0.13 | 0.25 | -0.32 | -0.11 | -0.20 | -0.02 |
| *Years Open* | 0.59 | 0.61 | 0.54 | 0.65 | 0.63 | 0.72 |
| *Fraction Muslim* | -0.45 | -0.41 | -0.36 | -0.30 | -0.46 | -0.21 |
| *Fraction Buddhist* | -0.30 | 0.00 | -0.23 | -0.05 | 0.25 | 0.09 |
| *Ethnolinguistic Fractionalization* | -0.45 | -0.54 | -0.35 | -0.37 | -0.32 | -0.31 |

As has been noted above, indicators of institutions are very strongly correlated with the initial GDP level, a fact making it essentially difficult to obtain "pure" evaluations of the impact of institutions upon development: as a consequence 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, so as to ensure the robustness of the effect. In order to do this, beginning with a simple regression with a control on the logarithm of the initial GDP level and education, stage-by-stage the

controls described above are added: cost of investment, share of country territory in tropical areas, dummy variable for East Asia, population density in the shore zone (in effect, dummy variable for Singapore).

Evaluation results for the two periods from 1970 and from 1990 until 2009 are shown in Table 6. 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 almost everywhere insignificant. Evidently, for the period from 1990 until 2009, the indicator for the limitation of power turns out to be highly significant and, unlike the EFW rating, contributes additional information besides that of the factors already known, thus explaining differences among countries in economic growth rates.

It is important to note that when growth during more long-term time segments is considered, the coefficient at the RoLD indicator becomes significant, especially if the sample is limited to countries with maximum per annum growth not higher than 15%[10] (specification (10)). The spread of what remains looks like this:

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[10] In other words, eliminating those countries where the adequacy of economics statistics is bound up with well-grounded doubts.

## Diagram 4. Connection between GDP Growth from 1990 until 2009 and the Limited Government Index



coef = .08317625, (robust) se = .03621362, t = 2.3
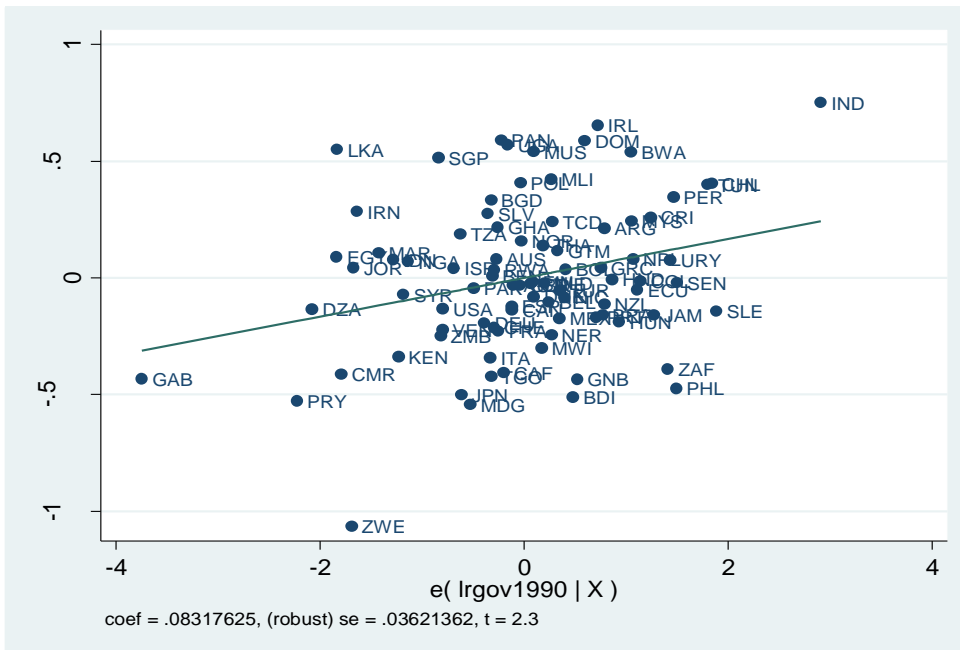
## Diagram. 1. Connection between GDP Growth from 1970 to 2009 and Rule of Law Democracy Index



coef = .13974312, se = .0669448, t = 2.09

**Table. 6. Regression of GDP growth explained by institutional indicators in various specifications**
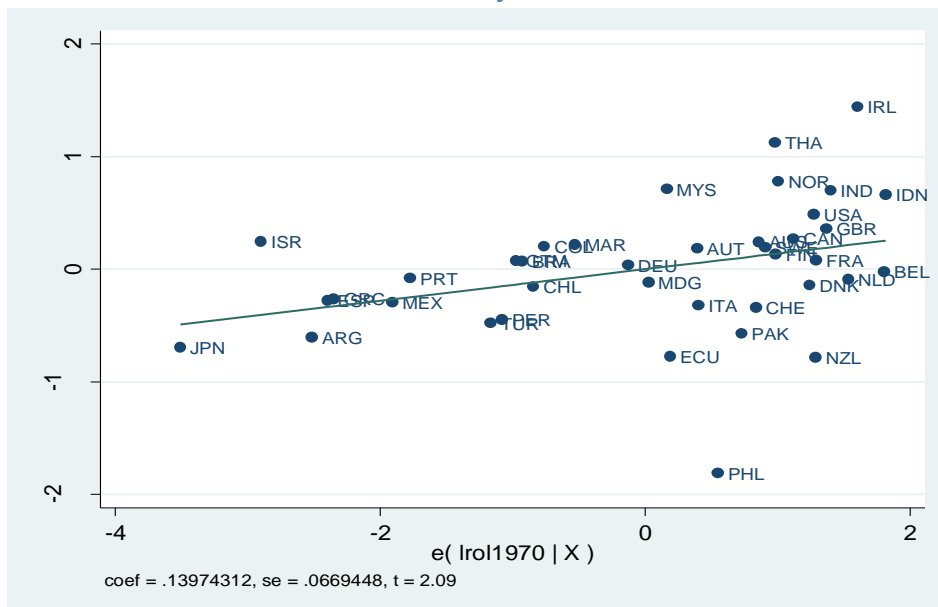
| VARIABLES | Per Capita GDP Growth 1990-2009 | | | | | Per Capita GDP Growth 1970-2009 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Controls | Log GDPpc 1990 | +Population, Education, Inv.Price | + Tropical area | +East asian dummy | max yearly growth < 15% | Log GDPpc 1970 | +Population, Education, Inv.Price | + Tropical area | +East asian dummy | max yearly growth < 15% |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Log of LG index | 0.0488 | 0.0622* | 0.0844** | 0.0995** | 0.018 | 0.0319 | -0.00383 | -0.0204 | 0.0570 | 0.0639 |
| Robust Std.Err | (0.0456) | (0.0361) | (0.0396) | (0.0393) | (0.050) | (0.0679) | (0.0742) | (0.0638) | (0.0645) | (0.0571) |
| R-squared | 0.013 | 0.154 | 0.168 | 0.217 | 0.216 | 0.030 | 0.304 | 0.384 | 0.575 | 0.594 |
| Log of RoLD index | -0.0271 | -0.0286 | -0.0352 | -0.0278 | -0.027 | 0.0718 | 0.107 | 0.0941 | 0.106* | 0.140** |
| Robust Std.Err | (0.0486) | (0.0343) | (0.0338) | (0.0318) | (0.035) | (0.0730) | (0.0750) | (0.0699) | (0.0591) | (0.0543) |
| R-squared | 0.004 | 0.123 | 0.116 | 0.137 | 0.223 | 0.040 | 0.330 | 0.403 | 0.594 | 0.635 |
| EFW summary index | 0.0148 | 0.0137 | 0.0330 | 0.00945 | -0.0008 | 0.0409 | 0.139 | 0.265 | 0.0626 | 0.127 |
| Robust Std.Err | (0.0714) | (0.0410) | (0.0425) | (0.0455) | (0.0438) | (0.183) | (0.166) | (0.161) | (0.119) | (0.126) |
| R-squared | 0.001 | 0.116 | 0.109 | 0.130 | 0.214 | 0.029 | 0.316 | 0.423 | 0.570 | 0.593 |
| Nobs | 96 | 96 | 84 | 83 | 68 | 47 | 45 | 45 | 45 | 39 |

## Panel Regression

### Basic Specifications

Examined here will be 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 connected to growth. The same is expected of our indices. For the present, the analysis is also being conducted separately: indices for Rule of Law democracy, limited government, and EFW, for purposes of comparison.

Results for the 1970-2005 period are shown in Table 7 for a simple regression, regression with recorded effects, and only for countries with maximal per annum growth not exceeding 15%. It is evident that, unlike earlier regressions, EFW has become significantly connected 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 the extremely rapidly growing countries are not taken into consideration, then the indices suggested are significantly connected with growth (columns (7), (8)). It should be noted that in a panel regression, the prediction capacity of the EFW index is greater than that of the proposed indicators.

**Table 7. Panel Regression (five-year periods) of Growth of the Economy for Indices of Institutions from 1970 to 2009.**

| VARIABLES | (1) | (2 | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Country fixed effects | | | max yearly growth < 15% | |
| Log of Limited government experience | 0.0017 | | | 0.0044*** | | | 0.0056** | | |
| | (0.0011) | | | (0.0016) | | | (0.0014) | | |
| Log of Rule Democracy experience | | -0.0020 | | | -0.0038 | | | 0.0034*** | |
| | | (0.0012) | | | (0.0025) | | | (0.0021) | |
| EFW summary index | | | 0.0080*** | | | 0.0080*** | | | 0.0091*** |
| | | | (0.0010) | | | (0.0011) | | | (0.0011) |
| Log GDP per capita | -0.0001 | 0.0030** | -0.0028** | 0.0083** | 0.0130*** | -0.0023 | 0.0021 | 0.0083** | -0.0098*** |
| | (0.0014) | (0.0015) | (0.0011) | (0.0034) | (0.0035) | (0.0037) | (0.0032) | (0.0034) | (0.0034) |
| Observations' Number | 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 the Diagram below.

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



coef = .00439944, se = .00162179, t = 2.71
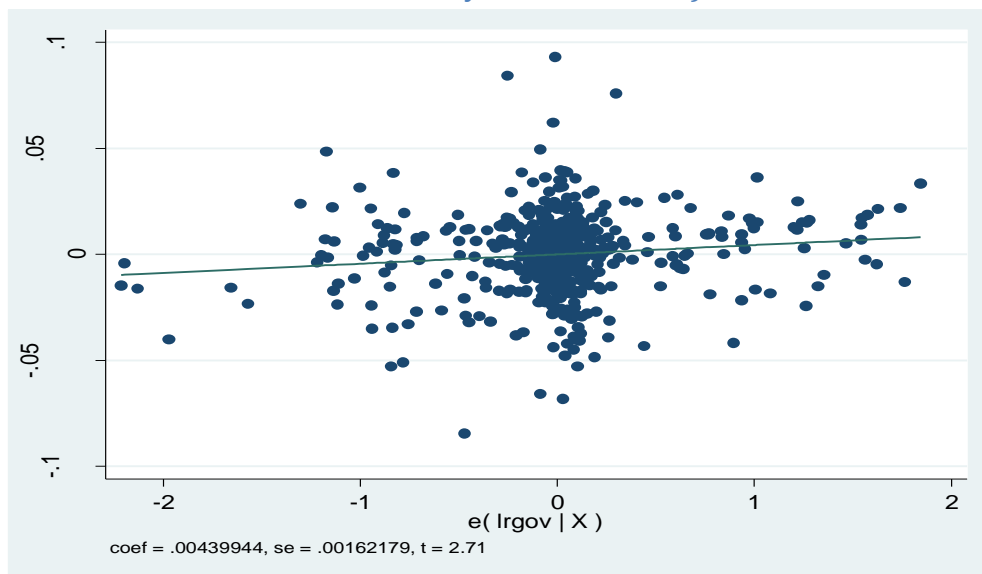
## Robustness Check

At the next stage, we will consider growth from 1970 to 1995, repeating the results in Enrique Moral-Benito (2010). Table 6 shows the results of some of the regressions. In all specifications, except for the specification with recorded effects, the indices proposed are significantly connected with growth.

**Table 8. Results of Panel Regressions of GDP Growth on Institutions Indicators**

| Controls | Log Initial GDP (PWT) | + Population | + Opennes measure + Labor Force | + Time FE | Country FE |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| Log of LG | 0.0262*** | 0.0191*** | 0.0142** | 0.0177** | 0.003 |
| Robust Std.Err | (0.0079) | (0.0068) | (0.0060) | (0.0070) | (0.021) |
| R squared (within) | 0.102 | 0.0630 | 0.153 | 0.194 | 0.317 |
| Log of RoLD index | 0.0182** | 0.0140** | 0.0113** | 0.0039 | 0.0433** |
| Robust Std.Err | (0.0075) | (0.0065) | (0.0049) | (0.0051) | (0.0185) |
| R squared (within) | 0.0786 | 0.0219 | 0.150 | 0.180 | 0.330 |
| EFW summary index | 0.0423*** | 0.0401*** | 0.0273*** | 0.0263*** | 0.0452*** |
| Robust Std.Err | (0.0080) | (0.0076) | (0.0097) | (0.0091) | (0.0096) |
| R squared (within) | 0.0849 | 0.0640 | 0.169 | 0.218 | 0.362[11] |
| | | | | | |
| Number of countries | 69 | 69 | 69 | 69 | 69 |
| Observations | 369 | 369 | 369 | 369 | 369 |

[11]Higher $R^2$ values for Table 8 Regression comparing with Table 7 Regressions are explainable by lesser observation number (lesser variation to be explained respectively) and by additional data, contained by independent variables (indicators of openness of the economy and the labor force).

**1.**

## Possibilities for the Construction of Ratings

The statistical analysis cited above (evaluation of coefficients in a panel regression) makes it possible to construct the simplest of ratings whose quality, it would appear, is considerably less dependent on expert evaluations. In particular, it is much less dependent on the implications of the mutual incompatibility of expert evaluations. In order to construct our rating, we used the correlation on the basis of the same data for 1970-2009 which were used in the regressions cited in Table 6. The evaluation of the dependence of per capita GDP growth rates on the EFW index and the accumulated LG value logarithm yielded the following coefficients for these two indices: $GDPpp_{growthrate} = 0.0055\ LG + 0.01\ EFW +$ control variables… when $R^2 = 0.160$.

Roughly speaking, the economic upshot of the obtained results is this. These are certain conditional growth rates dictated only as based on the quality and the dynamics of the "political" institutions (LG) and the dynamics of the integral evaluations offered by experts of the "economic" institutions (EFW) in the absence of any other factors capable of influencing growth (primarily short-term ones). At the same time, the influence of institutions makes it into the list of control variables.[12]

The presence of a multitude of other factors which can provoke an acceleration in growth (from natural resource royalties, artificial measures taken by the government to stimulate demand, or drain of knowledge and technologies from developed countries into backward ones to the point of banal errors and acts of falsification) makes rating be of little use in evaluating short-term growth perspectives.

At the same time, it must be stressed that many factors which ensure growth acceleration work or get "turned on" apparently only when a certain quality level is attained by institutions with various lags (labor ethics and ethics of conducting business, trust among economic agents personally unacquainted with each other, and many more).

As a result, countries are ranked in the order shown in Appendix 1.

## Conclusions and Perspectives for Future Research

We were successful in obtaining significant robust correlations between the proposed indicators for institutions and economic growth. They also predict variations better, especially in a cross-section analysis. This is first of all true because they include information about institutions which has been accumulated over a historically significant period of time (approximately two centuries).

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[12] "Country Fixed Effects." Evidently, many regional and country-determined factors and special features are inseparable from the history of the countries and regions in question, and thus from the special features of the institutions in these countries and regions, as well.

On account of this, over relatively brief intervals in a statistical analysis of a data panel, when the institutions of the majority of countries do not undergo considerable change, the correlation of our indicators' explaining capacity with EFW indicators changes in favor of the latter. 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 consists in their poor compatibility.

Experts in countries with poor safeguards of the individual person are less inclined to perform a critical analysis of the state of affairs than their colleagues in free countries. A published opinion critical of the policies adhered to by the authorities, however harsh the expression of this opinion may be, can in no way harm specialists in free countries, while publishing such a statement is unsafe for experts working in an environment offering no provisions for individual rights. At the same time, we did not consider the possibility of bribing of the experts by the authorities for the purpose of improving the international reputation of the country (or of the regime).

It appears that in the future, given reasonable expenditures, ratings can be constructed using indicators which reflect the historically accumulated "capital" of institutions, as well as certain measurable indicators of Doing Business and EFW. E.g., state load, quantitative evaluations of the costs of establishing and running a business, and so on.

*English by Elen Rochlin*

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## Annex 1. Countries' Institutions quality rating (panel regression based)

| Country | Institutions' influence on economic Growth | GDP Growth (2000 dollars per capita) | Institutions quality Index | Institutions quality Index scaled 1 to 10 grades |
|---|---|---|---|---|
| New Zealand | 4.52% | 681 | 0.112 | 10.00 |
| Switzerland | 5.37% | 1,926 | 0.111 | 9.92 |
| United Kingdom | 4.96% | 1,377 | 0.109 | 9.81 |
| United States | 5.25% | 1,981 | 0.109 | 9.77 |
| Ireland | 5.01% | 1,517 | 0.109 | 9.76 |
| Canada | 4.75% | 1,209 | 0.108 | 9.70 |
| Chile | 3.00% | 170 | 0.107 | 9.59 |
| Singapore | 4.69% | 1,333 | 0.106 | 9.54 |
| Australia | 4.47% | 1,069 | 0.106 | 9.51 |
| Denmark | 4.72% | 1,486 | 0.106 | 9.47 |
| Netherlands | 4.44% | 1,118 | 0.105 | 9.43 |
| Norway | 4.90% | 1,990 | 0.105 | 9.38 |
| Finland | 4.42% | 1,168 | 0.105 | 9.37 |
| Germany | 4.21% | 1,000 | 0.104 | 9.29 |
| Sweden | 4.37% | 1,367 | 0.102 | 9.16 |
| Austria | 4.12% | 1,035 | 0.102 | 9.15 |
| Belgium | 3.95% | 947 | 0.101 | 9.04 |
| Japan | 4.46% | 1,739 | 0.101 | 9.03 |
| Jamaica | 1.88% | 70 | 0.100 | 8.99 |
| Costa Rica | 2.08% | 93 | 0.100 | 8.98 |
| Spain | 3.38% | 531 | 0.100 | 8.94 |

| Country | Institutions' influence on economic Growth | GDP Growth (2000 dollars per capita) | Institutions quality Index | Institutions quality Index scaled 1 to 10 grades |
|---|---|---|---|---|
| France | 3.65% | 840 | 0.098 | 8.82 |
| Estonia | 2.24% | 141 | 0.098 | 8.81 |
| Portugal | 2.89% | 334 | 0.098 | 8.80 |
| Hungary | 2.10% | 123 | 0.098 | 8.75 |
| Peru | 1.07% | 25 | 0.097 | 8.71 |
| Greece | 2.97% | 410 | 0.097 | 8.70 |
| Italy | 3.30% | 645 | 0.097 | 8.65 |
| Panama | 1.68% | 75 | 0.096 | 8.64 |
| South Africa | 1.37% | 47 | 0.096 | 8.63 |
| Uruguay | 2.12% | 148 | 0.096 | 8.60 |
| Mauritius | 1.36% | 58 | 0.094 | 8.39 |
| Taiwan | . | . | 0.094 | 8.38 |
| Mexico | 1.74% | 107 | 0.093 | 8.37 |
| El Salvador | 0.66% | 16 | 0.093 | 8.32 |
| Latvia | 1.42% | 72 | 0.092 | 8.29 |
| Lithuania | 1.31% | 64 | 0.092 | 8.22 |
| Israel | 2.82% | 564 | 0.091 | 8.20 |
| Botswana | 1.02% | 40 | 0.091 | 8.17 |
| Slovenia | 2.16% | 257 | 0.091 | 8.11 |
| Philippines | -0.45% | - 5 | 0.090 | 8.08 |
| Malaysia | 1.05% | 48 | 0.090 | 8.04 |
| Guatemala | -0.05% | -1 | 0.089 | 7.99 |
| Honduras | -0.40% | - 5 | 0.089 | 7.97 |
| Romania | 0.17% | 4 | 0.089 | 7.94 |
| Bulgaria | 0.12% | 3 | 0.089 | 7.93 |

| Country | Institutions' influence on economic Growth | GDP Growth (2000 dollars per capita) | Institutions quality Index | Institutions quality Index scaled 1 to 10 grades |
|---|---|---|---|---|
| India | -1.36% | - 8 | 0.088 | 7.88 |
| Armenia | -0.74% | - 8 | 0.087 | 7.82 |
| Thailand | 0.08% | 2 | 0.087 | 7.81 |
| Mongolia | -1.47% | - 9 | 0.087 | 7.78 |
| Brazil | 0.59% | 23 | 0.087 | 7.77 |
| Poland | 0.86% | 45 | 0.087 | 7.75 |
| Nicaragua | -1.15% | - 10 | 0.086 | 7.72 |
| Zambia | -2.28% | - 8 | 0.084 | 7.56 |
| Tunisia | -0.21% | - 5 | 0.084 | 7.54 |
| Namibia | -0.28% | - 7 | 0.083 | 7.46 |
| Turkey | 0.39% | 18 | 0.083 | 7.44 |
| Argentina | 0.97% | 78 | 0.083 | 7.42 |
| Colombia | -0.25% | -7 | 0.082 | 7.37 |
| Albania | -0.95% | - 15 | 0.082 | 7.31 |
| Georgia | -1.43% | - 14 | 0.081 | 7.30 |
| Bolivia | -1.33% | - 15 | 0.081 | 7.28 |
| Ecuador | -1.05% | - 17 | 0.080 | 7.19 |
| Moldova | -2.32% | - 12 | 0.080 | 7.17 |
| Paraguay | -1.30% | - 18 | 0.079 | 7.12 |
| Kyrgyz Republic | -2.87% | - 9 | 0.079 | 7.12 |
| Kazakhstan | -0.90% | - 18 | 0.079 | 7.11 |
| Croatia | 0.28% | 17 | 0.079 | 7.09 |
| Senegal | -2.66% | - 14 | 0.076 | 6.83 |
| Bangladesh | -2.97% | - 12 | 0.076 | 6.81 |
| Ghana | -3.32% | - 10 | 0.076 | 6.80 |

| Country | Institutions' influence on economic Growth | GDP Growth (2000 dollars per capita) | Institutions quality Index | Institutions quality Index scaled 1 to 10 grades |
|---|---|---|---|---|
| Sri Lanka | -2.04% | - 21 | 0.075 | 6.75 |
| and Herzegovina | -1.39% | - 26 | 0.075 | 6.73 |
| Lesotho | -3.02% | - 13 | 0.075 | 6.70 |
| Tanzania | -3.16% | - 12 | 0.075 | 6.70 |
| Indonesia | -2.18% | - 21 | 0.074 | 6.68 |
| Benin | -3.34% | - 12 | 0.074 | 6.62 |
| Mali | -3.60% | - 10 | 0.074 | 6.60 |
| Oman | 0.15% | 13 | 0.073 | 6.58 |
| Morocco | -1.78% | - 27 | 0.073 | 6.57 |
| Jordan | -1.48% | - 31 | 0.073 | 6.52 |
| Mozambique | -3.67% | - 11 | 0.072 | 6.43 |
| Ukraine | -2.45% | - 24 | 0.072 | 6.42 |
| Serbia | -2.38% | - 25 | 0.071 | 6.40 |
| Madagascar | -3.98% | - 10 | 0.071 | 6.37 |
| Kuwait | 0.86% | 191 | 0.071 | 6.36 |
| Malawi | -4.76% | - 7 | 0.069 | 6.22 |
| Kenya | -3.62% | - 15 | 0.069 | 6.17 |
| Sierra Leone | -4.32% | - 10 | 0.068 | 6.11 |
| Burkina Faso | -4.24% | - 11 | 0.068 | 6.11 |
| Bahrain | 0.15% | 22 | 0.068 | 6.11 |
| Uganda | -4.11% | - 12 | 0.068 | 6.07 |
| Haiti | -4.11% | - 16 | 0.065 | 5.84 |
| Niger | -5.08% | - 8 | 0.064 | 5.77 |
| Algeria | -2.45% | - 52 | 0.063 | 5.66 |
| Mauritania | -4.21% | - 19 | 0.063 | 5.61 |

| Country | Institutions' influence on economic Growth | GDP Growth (2000 dollars per capita) | Institutions quality Index | Institutions quality Index scaled 1 to 10 grades |
|---|---|---|---|---|
| Vietnam | -4.01% | - 22 | 0.062 | 5.59 |
| China | -3.00% | - 44 | 0.062 | 5.53 |
| Azerbaijan | -3.26% | - 39 | 0.061 | 5.50 |
| Togo | -5.00% | - 12 | 0.061 | 5.45 |
| Guinea-Bissau | -5.61% | - 8 | 0.061 | 5.44 |
| Pakistan | -4.15% | - 25 | 0.060 | 5.35 |
| Cote d'Ivoire | -4.39% | - 24 | 0.058 | 5.24 |
| Nigeria | -4.63% | - 20 | 0.058 | 5.23 |
| Cameroon | -4.21% | - 29 | 0.058 | 5.19 |
| Rwanda | -5.27% | - 15 | 0.057 | 5.10 |
| Gabon | -2.40% | - 97 | 0.057 | 5.08 |
| Nepal | -5.60% | - 13 | 0.055 | 4.95 |
| Ethiopia | -6.21% | - 9 | 0.054 | 4.86 |
| Chad | -5.50% | - 17 | 0.054 | 4.82 |
| Burundi | -7.04% | - 8 | 0.049 | 4.44 |
| Myanmar | . | . | 0.040 | 3.58 |
| Zimbabwe | -7.22% | - 26 | 0.035 | 3.12 |
| Angola | -6.21% | - 56 | 0.035 | 3.12 |