## Institutions, Democracy and Growth in a Very Long Run

## Statement of the problem and definitions

As yet, history has provided no reason to suggest that any favorable "starting conditions", or "opening capital", or "impulse" are capable of securing centuries - long economic growth (with the average rate of per – capita GDP growth of 1.5 - 2% and more) in the absence of "reasonable laws"<sup>1</sup>. Thus, this issue, to a large extent, can be reduced to the question as to which laws should be regarded as reasonable and what package of such laws would be a sufficient - or at least necessary - prerequisite to growth.

In the course of our research we had to introduce a number of definitions.

**Long – run economic growth** – a per–capita GDP grown at the afore–said rate (more than 1% before the mid-19<sup>th</sup> century, and 1.5 - 3% thereafter, or 1.5 - 2% on average for two hundred years). By contrast with "modern economic growth", which was defined in detail by S. Kuznets (*S. Kuznets, 1966*), the very fact of the economic growth index exceeding the population growth index for a long period of time will suffice in our case. It is likely that long periods of economic growth, lasting for centuries, did occur in the previous epochs as well, but they mainly resulted, as in the Neolithic epoch, in a rapid growth of the population in response to new opportunities of life sustenance. The gap between these indices (in the past 100 years the relationship between the rate of population growth and GDP growth has been invariably negative) is an important characteristic of economic growth in the past few centuries. Equally important is its obvious unevenness which has made comparative cross-country analysis, including the analysis of institutions, the focus of attention of researchers.

**Constitution** – a set of basic values and norms, deeply rooted and accepted by an overwhelming majority of agents,<sup>2</sup> relating to the interaction between these agents, as well as to their responsibilities and rights and their relationships with Government, both formal and informal, which can either be changed at the greatest costs<sup>3</sup>, or cannot be changed at all<sup>4</sup>.

The rule-of-law (RoL) societies and countries – a society which is governed in accordance with the already published legal norms, based on the priority of basic individual rights and freedoms over collective and state interests; which provides the necessary

<sup>&</sup>lt;sup>1</sup> 1.5% would have been sufficient to convert a country, not affluent even by the standards of the late 18<sup>th</sup> century (like China with per-capita GDP of 600 USD in 1990), into a country of a medium level of development (like the Czech Republic or Argentina). At the rate of 2% it would have taken 200 years for an extremely backward African country with per-capita GDP of 400 USD in the early 19<sup>th</sup> century to become a highly developed one, with per-capita GDP exceeding the level of France, Finland and Belgium in 2000.

<sup>&</sup>lt;sup>2</sup> It can also be said that these are the norms used (realized) at minimum (close to zero) costs.

<sup>&</sup>lt;sup>3</sup> This change usually takes at least scores of years to materialize.

<sup>&</sup>lt;sup>4</sup> Consider the Biblical values forming the basis of US institutions – which - even if not invented, are recorded as legislation and cannot be changed. In accordance with the above definition, the US Constitution as an aggregate of norms and not as a formal juridical act cannot be amended in the medium term period, because such amendments require the rather inert "soft infrastructure" to be changed. Despite the fact that two generations of Americans have lived in conditions of aggressive leftist propaganda promulgated by the CNN, despite the "political correctness" and all other calamities, the majority of them continue to believe in G…d, private property, and free entrepreneurship, doubt the incontestability of Darwin's theory and are so skeptical of the CNN's monopoly of ultimate truth that they occasionally switchover to "Fox". Even the majority of American leftists consider that tax payment is connected with the voting right, which means that "taxation" and "representation" are still indissolubly interconnected, although this relation was formally abolished by the 24<sup>th</sup> Amendment in the year 1964, etc.

guarantees for the validity of such rights and for their implementation in practice, including with the use of enforcement.

Among such guarantees is the independence of the courts of justice, which is provided for by laws and traditions and makes itself evident in the fact that the State can lose a socially and politically important and widely discussed case to a private person<sup>5</sup> (that is, a case the mentioning of which could be easily found in the press archives). An example of this is the US Supreme Court's decision on the illegality of the procedure for detaining terrorists at the Guantanamo military base,<sup>6</sup> which has created serious problems for the US administration.

*The rule-of-force societies and countries*, whose regimes legitimize themselves exclusively by the application of force, as well as by their ability and readiness to use violence in critical situations. In these countries and societies institutionalized laws and norms are replaced by "direct action" institutionalized mechanisms the institutions of law enforcement endowed with extraordinary powers.

**Basic individual**<sup>7</sup> rights and freedoms (basic rights and freedoms), which are: private property, including the freedom of entrepreneurship, and the freedom of pricing in the sphere of commerce; the inviolability of the person in the broad sense, including the right to life; the inviolability of a person publicly criticizing the authorities or professing any religious values not approved by the authorities – all those principles strictly match the set of "natural rights" described by J. Locke<sup>8</sup>. The limitation of the said rights by society is practiced exclusively for the purpose of ensuring the delimitation of rights of private persons in order to prevent the infliction of damage by some persons to other ones; it could take place only on the basis of a published normative act adopted in accordance with a preliminarily established procedure.

**Basic institutions:** basic rights and freedoms, as well as the norms and lawenforcement structures guaranteeing the implementation of basic rights and freedoms (the independent judiciary, the guarantees for the independence of judges, such as the irremovability thereof, the prohibitively high costs of removing a judge from office, etc., the transparency of the activity of law enforcement agencies; the judicial – courts' - sanction for arrest, etc.).

*Free elections*, which it is advisable to understand as the elections taking place in conditions of the formal and actual freedom of unions, the freedom of expression (the indicator of which is the presence of the opposition press, radio and  $TV^9$ , and under the guarantees for the inviolability of the person<sup>10</sup>.

 $<sup>^{5}</sup>$  A state agency or enterprise could lose a case in a court of justice even in totalitarian states, including the USSR, when the case in point was a labor or property dispute (i.e., when the issue was unimportant) – for example, the instances of reinstatement at work by a court decision were not rare at that time, with the plaintiff being a private person, and the defendant being a state enterprise or organization.

<sup>&</sup>lt;sup>6</sup> The decision on the Hamdan vs. Rumsfeld case, 04-702; the decision was announced on 29 June 2006..

<sup>&</sup>lt;sup>7</sup> Naturally, we reject the propagandistic clichés concerning the so-called "national" or "collective", "class" rights, invented and used by authoritarian and totalitarian regimes for propaganda purposes. Collective rights can be considered seriously only as a derivative of individual rights (the right "peacefully to assemble and petition the Government", the right to perform religious rites on the part of a community, etc.).

<sup>&</sup>lt;sup>8</sup> See "Concerning civil government, second essay", http://www.swan.ac.uk/poli/texts/locke/ (the file was copied from the website of the University of Wales, Swansea, to which this link is provided). For example, paragraph 87 of Chapter 7, "Of Political or Civil Society" (as accentuated by the author):

<sup>&</sup>quot;87. Man being born, as has been proved, with a title to perfect freedom and an uncontrolled enjoyment of all the rights and privileges of the law of Nature, equally with any other man, or number of men in the world, hath by nature a power not only to preserve his property- that is, his life, liberty, and estate..."

<sup>&</sup>lt;sup>9</sup> The press is deemed to be **opposition** when it accuses the head of executive authority of illegal or immoral actions or of inefficiency dangerous for society and the country, or of inappropriate execution of his or her responsibilities because of which he or she should be impeached or defeated in the coming elections – see Mau, Yanovskiy et al, 2004.

<sup>&</sup>lt;sup>10</sup> Otherwise, the most electoral efficient technology would be that practiced by R. Taylor in Liberia: "He killed my Ma, he killed my Pa, I'll vote for him (see the comment by Mau, Yanovskiy et al., 2004).

**Revealed demand for the institutions** – the actions of the population or of its part aimed at acquiring or defending a certain set of institutions (voting for one or other parties formally classed by their attitude to the Basic Institutions, participation in mass actions in support of introducing or abolishing certain norms).

### The discussions around the dependence and the causality

The choice and elaboration of the institutions due set for long-term economic growth – pointed out by A.Smith but still is among the most fundamental problem of Economic Science.

M.Olson pointed out the freedom as key precondition for economic growth through better long-term transaction guaranties against even stationary bandit discretion. The number of researchers (W.Wu, O.Davis) concluded the direction of some causal relationship is unclear, so further researches and arguments is still actual for the discussion finalization.

The task of achieving catching-up development is still being faced by the majority of mankind. Probably, it is owing to this fact that a detailed description of more or less reliable routes and trajectories of such development can be considered a very important task in a long-term perspective. In order to solve this task it is necessary to give an answer to the question as to what it would be necessary to copy, or build, or plant, or obtain in any other way (capital, knowledge, reasonable laws, etc.) for the economy to start growing at a sustainable and stable rate exceeding that achieved in developed countries. Or, maybe, the institutions of individual liberties and rule-of-law democracy are just a luxury available only to rich peoples?

It seems that the answer to these questions can be found both in the analysis of the contemporary history of post-socialist countries and in other attempts at comparative institutional analysis covering a large time-span of the economic history of the last century. Successful catching-up development cannot be guaranteed by an influx of capital (or investments) alone. Neither it can be guaranteed by the importation (or "stealing") of knowhow and technologies by itself. Without the importation of efficient institutions all these steps turn out to be of underproductive.

What institutions are efficient and under what conditions? As a result of the previous works based on the data concerning the institutions of post-communist countries and, separately, the data concerning the institutions existing in Russian regions (*Mau, Yanovskiy*, 2002; *Mau, Yanovskiy, Zhavoronkov*, 2003), we have come to the following conclusions. One can indeed afford to make some or other experiments with legislation on entrepreneurship (registration, licensing, bankruptcy) and taxation, with the regulation of the stock market, and with many other factors. The influence of these institutions has been found to be rather limited during the first decades of transition. But in so doing no compromises are acceptable with regard to the establishment, as a main priority, and the constant strengthening of the basic institutions represented by the combination of private property and the inviolability of the person in a broad sense of the word.

These conclusions were acquired, first of all, on the basis of a comparative analysis, including statistical analysis), of the institutions of post-communist countries in the 1990s (*Mau, Yanovskiy, Zhavoronkov et al.*, 2003).

In order to answer the question as to whether it is possible to decrease the costs of establishing the institutions guaranteeing the basic individual liberties in a broader context (for example, in Iraq where the population exhibits absolutely no expressed demand for the rule of law and democracy, or in Afghanistan - which is, moreover, is very far from urbanized civilization), one important reservation should be made. This reservation has to do with the universality of the basic ( or Biblical) norms and institutions, such as religiously legitimated moral values and norms and the corresponding norms of behavior in society and at the micro-

level, and also the stability of the family,<sup>11</sup> which guarantees the maintenance of traditions and the use of non-formalized norms. In the case of universal morality being absent, it is absolutely pointless to speculate on the comparability of countries and on the possibility to "transplant" the institutions of developed countries onto the "soil" of backward ones.

In order to answer this question, it is also necessary to investigate, at large historic time-spans, the examples of successful institutional development.

The issue of the institutions' influence on economic growth, apart from that exerted by the institution of private property, regarding to which there exists a high degree of consensus, is usually studied on the basis of a sample of countries larger than a sample of postcommunist countries alone. The circle of those discussing this problem has been ever widening in recent decades.

Thus, R. Barro emphasized the issue of the rule of law (the rule of law index) based on the experts' opinion and the ratings in his famous work "The Economic Growth Determinants" (*Barro, 1999*).

Later K. Okui (*Okui, 2005*) pointed to the absence of statistical interdependence between political and economic rights. The same view is shared by W. Wo, whose conclusions are based on his methodology for analyzing and testing mutual influence and causality (Wo, 2005). It should be noted that the absence of statistical interdependence may be explained by the existence of complex cause – effect relationships between the institutions and economic growth.

It should be important to emphasize that the importance and the direction of the causality could be different at various levels of development of countries and societies. According to a number of researchers, the demand for the institutions of rule-of-law democracy can emerge among a considerable part of the population only after a given country has achieved a certain, sufficiently high level of per-capita GDP (*V. Mau and I. Starodubrovskaia*, 2001).

As noted, Olson, who was convinced the dominating causality direction is from the democracy to economic growth, - has actually pointed to one of the causes (*Olson*, 2000). Long-term and complex transactions are sensitive to risks, to institutional peculiarities, etc., and therefore they require a high level of guarantees for the property rights, which can be ensured only by rule - of - law democracy; thus, people who have scored certain achievements cannot develop them when being confronted by institutional limitations.

At the individual level, a more apparent cause of the demand for such institutions is the necessity to protect the achieved level and the accumulated resources; the more numerous are people with high incomes and substantial property, the higher is the demand for such institutions<sup>12</sup>. The leaders and the major force of the English and American Revolutions were landowners (). Similar notions have motivated the Finnish elite to redistribute part of estates in favor of the exiles from the Karelian Isthmus<sup>13</sup> in order to prevent their de-socialization and political marginalization. Likewise, many politicians staked on the growth of the stratum of property owners, seeing in it the only guarantee of the irreversibility of market and democratic reforms.

<sup>&</sup>lt;sup>11</sup> The justification for this assumption is contained in "Deregulirovanie sem'i / Krizis sem'i v razvitykh stranakh stimuliruetsia vmeshatel'stvom gosudarstva" [The deregulation of the family / the crisis of the family is stimulated in developed countries by the State's interference] // GAZETA KOMMERSANT, No 115 (No 3445), 28.06.2006, SR); and in "Krizis instituta sem'i i demograficheskie problemy industrial'nykh stran: sushchestvuet li vykhod? [The crisis of the institution of the family and the demographic problems of industrialized countries: is there a way out?]. Moscow: IEPP (IET). 2007.

<sup>&</sup>lt;sup>12</sup> Thus, the conditions of the Coase theorem concerning the presence of well-established property rights and zero transaction costs indirectly refer to the existence of a strong rule-of-law State (or to the necessity of its presence for achieving the optimum outside the dependence on the initial distribution, which already exists under *rule - o f- law democracy*).

<sup>&</sup>lt;sup>13</sup> Eric Solsten and Sandra W. Meditz, editors. *Finland: A Country Study*. Washington: GPO for the Library of Congress, 1988 <u>http://countrystudies.us/finland/77.htm</u>

Next, we have attempted to single out the scientific schools and research centers whose results in investigating the issue of the institutions' impact on the economy we believe to be most significant. They are as follows:

The classical liberals centered on the Cato and Fraser Institutes. Some of them participate in the development of the economic freedom index. The indices are used, in particular, to substantiate the theses of the causality of economic growth by economic and other freedoms. In the report "Institutions and the Impact of Investment on Growth", presented at the 2005 Annual Meeting of the Public Choice Society in New Orleans, Gwartney and his colleagues (*Holcombe, Gwartney, Lawson*, 2005) substantiate the existence of an influence exerted by qualitative institutions (measured by the Economic Freedom of the World Index – EFW) on economic growth by means of investments (predominantly private).

They have applied the 1980 - 2000 data on economic growth and the index of economic freedom (EFW).

The center founded by Olson (the IRIS; since the death of its founder, P. Murrel and L. Polishchuk have been its leading researchers). Their research methodology is close to that practiced by the Institute for the Economy in Transition (IET) – in particular, they use judicial statistics and look for calculative indicators as opposed to indicators based on experts' estimations.

Shleifer and his colleagues, who have investigated the institutions' impact on economic growth, focus on the institutions directly related to the guarantees of private property - the financial market, judicial procedures (common and codified or "civil law"), etc. At the same time, they also devote their attention to such basic institutions as the freedom of speech (*Shleifer, Djankov et al., 2002*). These specialists widely apply the standard indices of economic freedom based on experts' estimations, as well as samples composed of a very large number of countries, thus frequently distorting the resulting estimations (thus, the differences between legal regulation in Switzerland and the USA are known to be much less than those between Switzerland and, for example, Syria, although both Switzerland and Syria are the countries of continental law).

D. Asemoglu and his colleagues conducts research in an historical context, which increases the comparability of analysis. The colonists' survivability index which, by the frequency of it being quoted, has become almost classical, is too broad and includes too many different components. At the same time, the assertion of its critics (*Shleifer et al., 2004*) that the key factor of the advantages enjoyed by the USA, Australia, Canada and other "white" colonies was human capital and not the institutions is equally vulnerable. In the epochs under consideration the advantages of the Europeans with regard to education, production skills, and the mastering of technologies over the Indians, Arabs, or the Chinese were far from being overwhelming. Even the settled tribes of Native Americans, as early as the 16<sup>th</sup> and 17<sup>th</sup> centuries, frequently had certain advantages (in agriculture-very considerable) over the first European colonists. Thus, the dividing line between the institutional component and the factor of human capital turns out to be rather vague.

Naturally, the afore-listed authors and research centers are far from being the only ones who have obtained interesting results in this sphere.

Mijiyawa (2006) stresses the importance of stable long-run growth (using the data on the 1960-2003 period) and proposes the following sequence for establishing appropriate pro-growth institutions: 1) to provide and guarantee private property rights; 2) to provide due legislation on business regulation; and 3) to build democracy so as to strengthen individual rights guarantees... However, the problem is, as we will try to show later on, that any guarantees of property rights are of little importance in absence of guarantees of the life and inviolability of the person. The key importance of the quality of regulatory procedures could easily be put in question by comparing the heavily regulated economies of the EU with those of some backward countries (for example, Kirgizia), who have tried to resolve their problems by introducing procedures relatively simple and not very burdensome for business. Therefore, while agreeing with the author with regard to the necessity to develop and strengthen all the afore-said institutions, we must emphasize the necessity to considerably adjust the sequence of the reforms to be introduced.

The common problem faced by the majority of the afore–listed authors (the least affected by it are Shleifer and his colleagues, and the IRIS-Center) is the use of indices which, although authoritative, are based on experts' estimations and ranking technologies.

The IET's approach to institutional studies is characterized by an attempt to toughen the requirements to compatibility (which results, however, in the narrowing of the sample of countries), and by abandoning expert estimations and replacing them with judicial statistics and sets of logical variables. We believe that any norm of a law or any law-enforcement practice can be described by means of a finite number of such variables, although the process of describing could be rather labor-intensive. And finally, our previous research (*Mau, Yanovskiy, Zhavoronkov et al.*, 2002, 2003) has urged us to recognize some of the institutions as basic and to focus more attention on them in the course of further analysis. The case in point is the right to life (or the risks of taking death at the hands of "rowing" or "stationary" bandits), the inviolability of the person, including the person with uncommon convictions who is critical of the authorities, the prevalent religion, etc.

At the same time, all the countries can be subdivided, by level of guarantees of these rights, into the countries of the rule of law and the countries of discrete regulation, or the rule of force.

It is also possible to single out a group of countries in transition.

An overview of a number of other works devoted to the formal description of institutions and to the estimation of their impact on economic growth and on the investment climate could be found in *Mau, Yanovskiy, Zhavoronkov et al.*, 2003.

That work has concentrated on proving the importance of the institutions ensuring the guarantees of the life and inviolability of the person by the fact that, in absence of these institutions, the guarantees of the universally recognized private property right either disappear or become senseless. A person kept in detention and / or threatened with death, as a rule, would agree to surrender any property rights. Therefore our works contain an important assumption as to the lexicographical character of demand (or preference) for life and freedom. We will attempt to substantiate this assumption by the following brief review.

#### Human Life Value (HLV)

Economic theory offers a number of different approaches to the estimation of human life. The HLV is the present value of all future income that a person can expect to earn.

On an "ideal" financial market, the HLV would reflect the maximum value of the borrowed funds available to a concrete individual person at a given moment. The accurate estimations of the human life value are formed at the life insurance market, because in the case of life insurance the HLV represents a balanced estimation of the value of an insurance coverage in which both the insurer and the insured are mutually interested.

The insured party is interested in paying at the minimum rate in an event of a "favorable" outcome of developments and in being paid at the maximum rate in an event of an "unfavorable" outcome, while the insuring party is interested in being paid at the maximum rate in an event of a "favorable" outcome and in paying at the minimum rate in an event of an "unfavorable" one.

In some countries, a conventional estimation of the human life value is established. Thus, the US Ministry of Transport uses the conventional estimation of the human life value<sup>14</sup> when assessing the efficiency of investments in measures designed to ensure safety on transport.

In the context of the present work, it is the market (insurance market) estimations that are most important. They show that so far as the market agents are concerned, the estimation of the value of their life is comparable with the value of all the assets owned by them.

<sup>&</sup>lt;sup>14</sup> At present, the conventional human life value in the USA amounts to 3 million USD.

Demand for health care services and medical insurance

There exists a vast body of literature on this issue, including studies based on empirical data (e.g., Liu, Chollet, 2006). The methodologies and estimations differ considerably, but everybody agrees that demand for such services is not elastic. And this phenomenon is observed even at the young Chinese market (Mokan, Tekin, Zax, ). In Russia, the development of the health care services and medical insurance market is clearly insufficient. In the Soviet epoch, health care services, although of low quality, were provided to the population free of charge and were widely available due to an incomparably higher standard of living and level of urbanization than that in China. In the post-Soviet period, this phenomenon has been considerably hampering the development of the health care services market. Nevertheless, the furtive proliferation of unauthorized commercial services had begun decades before the collapse of socialism. As could be expected, this hidden commercialization has been accelerating in recent years, which is yet another indirect testimony to the inelastic nature of the demand for health care services in Russia.

Case 1: Taxation in the nineteenth-century Egypt

In the 19<sup>th</sup> century, during the reigns of the active military leader Mohammed Ali and his descendants, Egypt witnessed the first attempts at European-stile modernization (which were caused by the increasing military and economic pressure on the part of the advanced countries of Europe, initiated by the landing of Napoleon's forces). At the same time, Egypt became de facto independent of the Ottoman Empire.

During the reign of Ismail Pasha (who was granted the hereditary title of khedive by the Turkish sultan), the reforms were continued, although heavily tinted with the region's "specificity". The typical "totalitarian reformer" introduced a new judicial system by restricting the rights of foreigners (i.e., by actually narrowing the circle of those who enjoyed the real inviolability of the person), established a "legislative assembly" and even "authorized" it to vote taxes and the budget. It was natural that, bearing in mind the absence of any guarantees of personal safety, the deputies preferred not to risk and did not make even a single attempt to use their enormous powers in earnest (Lavisse, Rambaud, 1903, Part 2, Ch. 1). The Khediv conducted regular confiscations and thus increased his estates, irrigated by a system of canals, as it had been done for the pharaohs, from 24 to 400 thousand hectares. Taxes (mainly land taxes) were introduced and increased arbitrarily, and "the taxpayer was beaten and tortured if he did not pay" (ibid).

Cases 2 and 3: Russia in the  $20^{\text{th}}$  century and Iraq since the year 2003 Trade in hostages in the 1990s, in Russia, with the center in Chechnya, which was de facto independent in the years 1991-94 and 1996-99, is yet another confirmation of the fact that human life is estimated in relation not only to all the assets owned by a hostage, but also to all the assets owned by those who are potentially ready to assist in his liberation. Trade in hostages in Iraq – the prices are ('supposedly") from 150 thousand to 5-7 million USD<sup>15</sup>.

The level of protection of human life and freedom

<sup>&</sup>lt;sup>15</sup> <u>http://en.wikipedia.org/wiki/Foreign\_hostages\_in\_Iraq</u>

It should be emphasized that there exists no strict dividing line between these two values. A person seized by terrorists or other "rowing" or "stationary" bandits finds himself or herself in conditions that clearly threaten his or her life or dramatically lower the quality of this life. The level of protection can be defined as a value inversely related to the level of threats to life and freedom. Let us single out the following levels of threats and list them in descending order.

- 1. A period of mass repressions, starvation, epidemics or war in a totalitarian State;
- 2. A totalitarian State in the "stationary" condition;
- 3. Same as above, but with the emergence of a small stratum of persons who cannot be subjected to arrest or execution without recourse to extremely intricate procedures.
- 4. Same as above, but the State is authoritarian, and there exists a wide circle of privileged population groups (the situation is characterized by the freedom of exit from the country and by certain restrictions imposed on the activity of opposition politicians and print media);
- 5. The Government's power is restricted by Constitution (see the definition above) and the independent judiciary (authority can lose a judiciary case). The situation is characterized by the presence of universal rights the inviolability of the person, the presumption of innocence with the availability of independent courts of justice and competitive court proceedings;
- 6. Same as above, but the Government's power is additionally restricted by a competitive political system (democracy) with powerful and independent mass media (a competitive media market).

It is evident that there exist numerous intermediate levels. It is also evident that only a tiny number of extra-profitable projects with very short periods of recoupment can be attractive at level (1). As the system transits to the subsequent levels, the number of realizable projects increases and their cost and periods of recoupment become acceptable.

Therefore, the necessary condition of economic growth is a progressive reduction in the level of threats to the life and freedom of the person. We have witnessed this process in China in recent decades (with an interval caused by the 1989 events). It is also clear that (as was emphasized by Olson) that so far as the most time–consuming projects and the most intricate transactions are concerned, the level of guarantees must be comparable with Level 6. For example, in China this problem has been solved to some extent by granting foreigners from developed legal democracies an unofficial privilege of personal immunity.

## Statistical analysis

A. Przevorski (*Przevorski et al, 2000*) shows<sup>16</sup> that in absence of advantages with regard to the rates of economic growth, democracies exhibit a higher stability of these rates than dictatorships.

The Rise and Decline of Totalitarian State Economy – the USSR Case:

M.Olson (2000, pp. 100, 129) analyzed the causes and sources of the relative efficiency of the Stalinist model of economics. He came to the conclusion that regular mass repressions oppressed the interest groups and ensured the transparency of the control system for the dictator. However, Olson does not offer an answer to the question as to why the Stalinists themselves rejected such an efficient model almost immediately after the tyrant's death. The Stalinist elite had a very strong demand for personal safety and inviolability, which can explain the rapid

<sup>&</sup>lt;sup>16</sup> He analyzes the forty-year period of 1950-90 and the sample of 100 countries.

abandonment of Stalin's model. The price paid for the guarantees of safety and inviolability was the gradual growth and strengthening of the interest groups (*Olson*, 2000, Chapter 8) in government and control agencies and, as a result, the progressing sclerosis of the system.

It is equally apparent that the overwhelming majority of rich countries are democratic. Thus, it inevitably becomes necessary to test the hypothesis that in a very long run (in excess of 100 years), a democratic regime (or to be more precise, a rule -of- law democracy) (see *Mau*, *Yanovskiy*, *Zhavoronkov* et al., 2003) has a positive statistical interdependence with the growth rates of per-capita GDP.

Also a 180-year period offers considerably more possibilities for analyzing the causeeffect relationships between the democratic institutions and economic growth.

Of course, our analysis is by no means a "proof" of democracy's advantages, and has no claims to be so. The prepared statistical illustration, which is rather approximate (due to the numerous "reconstructions" of the missing data, which result in the weakening of interdependence<sup>17</sup>) demonstrates the presence of clear and strong interdependence between a number of variables.

The obtained relationships do not allow to reject the hypothesis that a rule- of- law democracy has advantages over any alternative regimes in a very long run, because the available data are not sufficient for such a conclusion.

#### Data

The statistical data (the values of per-capita GDP) are taken from M. Maddison's works (*Maddison, 2001, 2003*). The values are summarized in Annex 3.

The Oil Monarchies are not included in the sample (the nineteenth – century data missing in M. Maddison's works were not "reconstructed" for them) because of the undesirability to complicate the model by the introduction of yet another variable.

The duration of the regime of rule-of law democracy in a country was determined by using the data of the Freedom House, Przevorski (*Przevorski et al, 2000*), Tanin-Lvov (Tanin-Lvov, 2001) and of a number of sources used for collecting the data for Annex 2.

At the same time, it becomes apparent that there exists an *incomplete comparability* of the rule-of-law regime of, for example, the England of the 1890s and that of the majority of Latin American democracies in the first half of the 20<sup>th</sup> century (not in favor of the latter). A number of apparent problems-failures were taken into account, however roughly, by singling out the following states of democracy:

(a) a rule-of-law democratic state (RoL Democracy);

b) a rule-of-law state with elements of democracy (RoL&DemElements);

c) the basics of a democratic regime with elements of the rule of law (Dem basis&RoLelements),

d) an illiberal democracy (IllibDemocracy)

The available data on a large number of states and on practically all large regions (which makes it possible to approximately estimate the intervals of the initial per-capita GDP for another several scores of countries), presented by M. Maddison, have made it possible to perform this estimation with respect of 145 countries.

There are no GDP data on many countries for the 19<sup>th</sup> century. When there were no GDP data on a backward and undemocratic country, we used the per-capita GDP index for the year 1820 at the minimum level then existing within this category of countries.

For the countries with a lengthy period of democratic rule measured in decades, we used the maximum estimation for a corresponding region; for the countries less mature in this respect, we chose the minimum level. This resulted in reducing the average rate of growth of

<sup>&</sup>lt;sup>17</sup> That is, so as not to artificially strengthen the interdependence.

per-capita GDP for the democracies, and in increasing it for the authoritarian countries in order to not to overestimate the significance of democracy<sup>18</sup>. That is, the "reconstructed" data inevitably reduce the explanatory capacity of the model.

The total number of countries included in the sample (with taking into account the "reconstructed" values of GDP for the year 1820) is 149, including the 100 "reconstructed" ones.

The following most common problems and failures of democracy proper, as well as the failures to sustain a rule-of-law regime or to protect the basic rights of the person, were noted:

- the irremovability of the government;
- problems with fair and equal representation and with the procedure for voter registration ;

Taxpayers' democracy offers no less guarantees of political competition than democracy based on the universal right of suffrage. At the same time, it is not free from a number of wellknown and well-described moral problems arising when Mr B, Mr C and Mr D have decided that Mr A is obliged to help Mr E, and when there exist appropriate incentives for an uncooperative behavior of voters, elected politicians, and bureaucrats. The incentives include an uncontrollable desire to redistribute the benefits, to boost up the functions and powers of the State, which would result in a decline in the quality of public benefits provided thereby, and would undermine the guarantees of individual rights and freedoms. No moral problems concerning fair representation would emerge when only those are entitled to vote who have paid taxes in excess of a certain established threshold, irrespective of any other parameters (religion, race, gender, place of residence). Problems would emerge when some of the taxpayers have the right to vote, while the rest of them are either deprived of this right or restricted in it by an extremely uneven parceling out of electoral districts (a typical example is England before the 1832 Reform Act).

The impressing centuries-long experience of self-organization accumulated by the Jewish communities in Europe is taken into account in the following way: the preceding taxpayer democracy index is set for Israel at 100 years.

N⁰	Variables' designation	Variables' description
1.	GDPavgrowth	The average rates of per-capita GDP growth for the period of 1820-2000
2.	StartGDP	Per-capita income as of the beginning of the period – 1820
3.	DemocrTaxp	The duration of the period of taxpayer democracy
4.	RoL Democracy	The duration the RoL period in a country (including the period of democracy based on the universal right of suffrage, despite the apparent injustice of the latter): USA, England after 1832, the Third Republic in France prior to 1940, etc. (supreme executive authority could lose a judicial cause, could be removed as a result of elections, etc.)
5.	RoL&DemElements	A RoL state with elements of democracy (England prior to 1832, Holland in the 17 <sup>th</sup> and 18 <sup>th</sup> centuries, the July Monarchy in France) has turned out to be a rare type. "Elements" mean regular elections, Parliament with considerable powers (taxes, budget), and political competition; however, not every taxpayer can become

3.2.2. Variables

Table 3.3

<sup>&</sup>lt;sup>18</sup> Naturally, this has overrated the significance of initial GDP for further growth, because in an absolute majority of cases, countries with an experience of democracy have significantly higher rates of growth than non-democratic countries during 180-year period.

		voter, or the representation of voters is unfair and could						
		differ by one order of magnitude and more.						
6.	Dem_basis&RoLelements	The basics of a democratic regime with elements of RoL						
		state (e.g., Russia, Ukraine and Romania in the 1990s;						
		most of such regimes exist in backward countries and						
		last for more than one cadence); it is the most						
		widespread form of democracy in underdeveloped						
		countries						
7.	IllibDemocracy	The basics of a democratic regime with the universal						
		right of suffrage, as a rule, without visible elements of						
		RoL (e.g., Venezuela in the period from the beginning						
		of Hugo Chavez's presidency to the introduction, by						
		him, of the "one-party rule" of the United Socialist Party						
		of Venezuela; the short lived attempts at democratic rule						
		in African countries)						
8.	RestrictGovt	Any restrictions imposed on the State (or Government)						
		by a law, or by a court decision, or by political						
		competition (the sum of years in rows 4, 5, 6, 7)						
9.	"Relig_Peace" (Not-	"Non-ethical monotheism" or simply the "Religion of						
	ethic_monotheism)	Peace" – Islam as a predominant religion in a country						
11.	Judeo-protest	The predominance of Judeo-Christian values in the						
		period of development of democracy						
12.	Polity IV, P4	The variable constructed through the use of the PolityIV						
		data set.						
		Polity IV = $DEMOC - AUTOC + 10$						
		DEMOC and AUTOC are variables constructed in						
		Polity IV						

In order to reduce the significance of subjective estimations, the period of relatively democratic development was divided into 4 categories (variables 4-7). The overall duration of such period (of the restricted power of the State) was also used in statistical analysis, and the obtained results were likewise significant.

The new results of analysis – relationships 5 (also see the first column in the file with correlations where they are presented separately, in particular the correlation between the average rates of GDP growth and rule-of-law democracy).

## The Causality Analysis

In regression analysis, statistically significant relationships between variables cannot indicate the direction of the influence exerted by the variables on one another, that is to resolve the issue of the so-called causality direction.

For the data which are "time series" by their very nature, there exists the Granger approach<sup>19</sup> which helps to understand whether the variables influence one another. The Granger test indicates to what extent the current values of Y can be explained by the previous values of Y, and shows whether the values of X with one or other lags can improve the current explanation of Y.

<sup>&</sup>lt;sup>19</sup> Granger, C. W. J.: 1969, Investigating causal relations by econometric models and cross-spectral methods, Econometrica 37, 424-438.

It is believed that variable X is the Granger-cause for Y if X helps to improve the explanation of Y.

To test Granger-causality we run the following regressions:

$$Y = c_0 + c_1 Y_{t-1} + \dots + c_n Y_{t-n} + k_1 X_{t-1} + \dots + k_n X_{t-n} + e_t,$$
(1)  

$$X = d_0 + d_1 Y_{t-1} + \dots + d_n Y_{t-n} + l_1 X_{t-1} + \dots + l_n X_{t-n} + \varepsilon_t.$$
(2)

For the first equation, F-statistics are the Wald statistics for the hypothesis of the simultaneous equality to 0:  $k_1 = k_2 = ... = k_n = 0$ . The zero-hypothesis is as follows: X IS NOT the Granger-cause of Y, i.e., the values of variable X taken with a certain lag do not influence the current value of variable Y.

We believe that X is the Granger-cause of Y if, on the one hand, it is possible to reject the hypothesis of X not being the Granger-cause of Y (*i.e.*, coefficients k in regression (1) significantly differ from 0), and, on the other hand, it is impossible to reject the hypothesis that Y is not the Granger-cause of Y (*i.e.*, coefficients d in regression (2) cannot be differentiated from 0 at the required level of significance).

We have used the Granger causality test in order to check the causality direction as regards the RoL variables and the rates of economic growth in the 1820-2003 period.

On the basis of the data on the size of population of European counties and by using the RoL variable for each of the countries, we constructed the ROL\_TOTAL1 variable<sup>20</sup> for 12 European countries by assessing the RoL of every county by the size of the population thereof.

Obs	F-Statistic	Probability	
129	0.91192		0.40443
	18.0374	1	.30E-07
	Obs 129	Obs F-Statistic 129 0.91192 18.0374	Obs F-Statistic Probability 129 0.91192 18.0374 1

Table 1

In the Granger test performed on the model with two-year lags (annex 3, table 3.1), we observe the causality direction from RoL to economic growth (i.e., we can reject the zero-hypothesis at the 1% level of significance) and, on the contrary, we do not observe the causality direction from the rates of economic growth to RoL (i.e., we cannot reject the hypothesis of all the coefficients being equal to zero, under the rates of economic growth taken with certain lags, as regards their influence on RoL).

The same result is observed in the model with 5 lags. That is, RoL is the Granger-cause for the rates of economic growth (Table 3.2).

<sup>&</sup>lt;sup>20</sup> Austria, Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Norway, Sweden, Switzerland, UK

Table 3.3 demonstrates the results of estimating the models with 10 and 15 lags. In these cases it is safe to say that there exists interdependence between RoL and the rates of economic growth.

Similar result were obtained by us in the causality tests with the use of the data on the rates of economic growth and the variable constructed on the Polity II data base.

It is seen from Table 3.4 that in models with short lags the direction of Granger-causality is from RoL to the rates economic growth, and when the lags are increased, there remains only the interdependence of the variables.

However, if the 1830s and 1840s are not taken into account, we will find that the short-term dependence is preserved in the causality direction from RoL to the rates of economic growth, but in the models with longer lags, the influence of the rates of economic growth on RoL weakens (see Table 3.5).

In the models with variables based on the Polity IY data (see Table 3.6), causality also remains in the short run, and when the 1830s and 1840s are not taken into account, the interdependence between RoL and economic growth looses significance in models with a large number of lags.

When analyzing the causality direction between the Restricted Government variables (RG) and the rates of economic growth, it is possible to find another causality direction (differing from that observed for European countries).

For 15 countries of Latin America<sup>21</sup>, and separately for the countries with the longest statistical rows with regard to the rates of economic growth (e.g., Salvador, Nicaragua and a number of others) in the models with a small amounts of lags, no significant interdependencies are detected (see Table 3.7).

At the same time, when additional lags are included in the model, we can observe the emergence of a Granger-causality direction from the rates of economic growth to the RG variable.

We have analyzed the causality direction between the Restricted Government variable and the rates of economic growth for individual countries of Eastern Europe (we considered the countries with the GDP data sets available for 50 years, in particular, Hungary, Bulgaria, and Czechoslovakia (Czechia and Slovakia)).

For Hungary, the hypothesis that institutional variables do not Granger-cause economic growth cannot be rejected.

A similar causality direction is obtained when using the variable based on the Polity4 data.

As regards all the models both with the use of the Restricted Government variable and with the use of the variable based on the Polity4 data, the hypotheses of the existence of Grangercausality directed from the institutional variables (Restricted Government or Polity4) to the rates of economic growth cannot be rejected.

<sup>&</sup>lt;sup>21</sup> GDP\_Bolivia, GDP\_Costa Rica, GDP\_Cuba, GDP\_Dominican Republic, GDP\_Ecuador, GDP\_El Salvador, GDP\_Guatemala, GDP\_Haïti, GDP\_Honduras, GDP\_Jamaica, GDP\_Nicaragua, GDP\_Panama, GDP\_Paraguay, GDP\_Puerto Rico, GDP\_Trinidad and Tobago

Exactly the same conclusions as for Hungary can be made with regard to Czechia and Slovakia, both in terms of the Restricted Government variables (see Table 3.10) and the Polity4 variable (see Table 3.11).

When applying similar models to Bulgaria, it has turned out that the hypotheses that the variables influence each other, with a certain lag, at a sufficiently high level of significance, can be rejected. That is, the values of the RG variable in previous periods do not influence the rates of economic growth at the present moment.

However, Granger-causality manifests itself in models with more than 5 lags tested on a sample where per-capita GDP is more than 2000 (see Table 3.14).

#### Comments

The duration of a RoL regime is explained by the initial level of GDP, the presence of Judeo-Protestant values, and the experience of taxpayer democracy (Dependency 7), and also by the predominance of Islam (negatively) in combination with taxpayer democracy (positively) (Dependency 8).

Thus, we could considerably augment Przevorski and his colleagues' observation that dictatorships, while demonstrating more frequent periods of considerably higher economic growth than democracies, also cause equally spectacular economic collapses, which means that typical of them is the instability of economic growth. If democracy does not demonstrate any economically measured advantages in the forty-year period under observation, it still ensures higher rates of long-term (150-200 years and more) economic growth due to the long-term stability it brings about.

The long duration of the period under observation alleviates the problem of comparability as regards the technical conditions of economic growth. Thus, recent decades, characterized by an acceleration of technological progress, are the time when higher rates of economic growth have been achieved. True enough, this factor has also decreased the relative significance of democracy as a factor of growth. Technical progress conduces to acceleration of economic growth in any country which uses its achievements. A lesser susceptibility of institutionally backward countries to innovations is largely compensated for by the incomparably lesser costs of access to the results of research and development, even if these results are legally acquired. Thus, even the projects with a short period of recoupment and small sensitivity to any failures in protecting property rights can be implemented with a significantly greater efficiency, which undoubtedly results in the acceleration of economic growth.

Thus, the acceleration of scientific and technological progress in the 20<sup>th</sup> century have influenced the rate of economic growth (the average annual rate of 1% was quite satisfactory in the 19<sup>th</sup> century, while long-term rates of growth during the periods of peace in the 20<sup>th</sup> century could exceed 3%). This factor could give a significant advantage to a democracy based on the universal right of suffrage over taxpayer democracy in a comparative analysis of these two institutions. That is why we have not conducted such an analysis in the present study, although we consider the difference between the two institutes to be very significant.

The historical effect of the source of investments is another very significant factor, reducing the possibility to demonstrate the importance, for economic growth, of a democratic regime and one or other legal norms.

All the countries that have become developed ones by the middle to the end of the 19<sup>th</sup> century were characterized, in contrast to backward countries, by their experience of rule-of-law

State and democratic rule. It is exactly those countries, the majority of which were Protestant, that became the source of investments in the broadest sense – from finance to knowledge and human capital – for the rest of the world.

This capital wasn't, by no means, used equally efficiently in every country or region. It is apparent, nevertheless, that all the successes achieved by the countries of eastern Asia, which have never been democratic or have become democratic only recently, are based on the efficient use of capital flows from developed countries. Of course, no active balance of these countries' trade with Europe and North America would have been possible without the investments made by the latter, or without the necessary money, know-how, technical specialists and managers.

**T** 11

						Table
#	Dependent variables	Independent Variables	Coefficient (adjusted)	Numbe r of observa tions	T-statistics	R <sup>2</sup> - adjusted
1.	GDPavgrowth	Democr&RoL	0.549	145	7.863	0.297
2	GDPavgrowth	RestrictGovt	0.582	145	8.567	0.335
3.	GDPavgrowth	StartGDP	0.333	49	2.420	0.092
4.	Democr&RoL	DemocrTaxp	0.869	145	20.970	0.753
5.	Democr&RoL	StartGDP	0.808	49	9.412	0.646
6.	GDPavgrowth	RoLDemo-cracy;	0.513	145	7.213	0.324
		Relig_Peace	-0.162		-2.275	
7.	RoL Democracy	StartGDP	0.289	145	4.763	0.761
		Judeo-protest	0.308		5.199	
		DemocrTaxp	0.392		5.615	
8.	RoL Democracy	"Relig_Peace"	-0.107	145	-2.131	0.671
		DemocrTaxp	0.792		15.779	

## Conclusions

The successes of authoritarian modernizations, as was shown by Przevorski and his colleagues (*Przevorski et al, 2000*) are unreliable achievements (even in the period of 1950-90), because a period of rapid growth can be followed by periods of profound and lengthy slumps. The economic successes of authoritarian regimes are much more sensitive to political shocks (simply because of the lesser stability of such regimes by comparison with legal democracies). As this regimes are less steady and firm comparing with democracies – not to mention the appearance of power and stability which made almost all sovetologists' forecasts wrong.

The results of our research covering the period of 1820 – 2000 confirm the hypothesis that, in the long run, rule-of-law democracy provides conditions for much higher rates of economic growth, and most importantly, demonstrates an ability to export capital, knowledge and, in rare cases (when political will does exist), - even efficient institutions, thus stimulating the growth of global economy as a whole. Authoritarian and totalitarian regimes (Nazi Germany, USSR, PRC) export only war, starvation, and economic collapse, or, at best, conserve the lagging behind of their vassals by paying for their loyalty by in internal resources (USSR in the post-Stalinist period).

The hypothesis about Causality direction (RoL Democracy provides best guaranties of private property and through this guaranties the best framework for the private investment and, respectively for economic growth) couldn't be rejected.

Our analysis supports hypothesis about RoL Democracies ability to provide the best framework for VLR economic growth. RoL Democracies induced the economic growth all over the world by export of capitals, knowledge and institutions as Autocracies exported just inefficient institutions (USSR to Central and Easter European countries, in China etc) and war. Even their free supply (by oil and gas, weapon and educational services) of allied states proved to be inefficient.

Private property could be well guaranteed only if personal life, immunity (liberty) is provided. Independent court system and opposition media (this term defined quite formally) provides better chances for post-communist countries economic growth if stable voters' demand on this institutions makes it deeply – rooted and broadly shared values, the constitutional basis of national legislation – both formal and informal.

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## Annex 2. The Transitional Countries Case

## Main Hypotheses Tested

- 1. Guarantees of the basic rights the property rights and an extended personal immunity as well as the extent to which these rights have taken roots in the society are critical for creating a favorable investment climate in a country.
- 2. The "economic" institutions appear significant to the extent they contribute to solidification of the basic right the one for private property and its duly guarantees. Consequently, the clearer and more directly this or that legal provision is associated with the guarantees of private property, the greater its significance can be in the course of an assessment of the impact on indicators of economic growth, welfare and business climate.
- 3. The population's demand for institutions which, in part, is mirrored by elections outcomes, contributes to import of the institutions. This earlier tested hypothesis is tested in the present paper on an extended sample of countries.
- 4. Whereas the dynamics, stability and level of incomes affect the electorate's preferences, to solidify a proreform coalition, one can employ a targeted financial support of groups of the population that appear loyal to the reformers.
- 5. The occupation by an exporter nation, lustrations, other limitations of electoral rights, joining a union of law-obedient countries and delegation to the union of a part of the transitional state's powers (especially judicial ones), as well as the creation of a strict constitutional framework may narrow the room for choice both for the electorate and politicians, thus lowering for them costs associated with decision making.

#### Data

Transitional countries Electoral statistics, economic statistics, legislation data bases

#### Model and the institutional variables statistical analysis results

Y= F(K (s), L). If "s" (here – private savings) mentioned as endogenous factor, depending on political and legal risks evaluations, so economic growth could be analyzed as function of this very risks and Y derivatives on this variables would be negative:  $\dot{y} = f(..., r_{pol}, r_{legal}, ...)$ .

The mentioned risks level is broadly discussed as composed of legal order quality (Fraser Institute and Heritage economic Freedom Indices, WB Doing Business etc) and a number of political factors, etc.

№	Explained variables	Independent variable with coefficient	Number of observations	R <sup>2</sup> (adjusted R- square)	t- statistics
1		0.202*CDB The	17	0.071	2 120
1.	the 10 <sup>th</sup> year of	U.505 GDP <sub>osmall</sub> Ine	4/	0.071	2.150
	reforms to the pre-	is under 1 500 USD of 1990			
	crisis level	(logical)			
2	GDP <sub>10/pro</sub>	$0.677*Balance_{0}$ The	21	0 430	4 010
	CD1 10/pre	budget balance in the first		0	
		vear of reforms			
3.	GDP <sub>10/pre</sub>	0.513*Desinfl –Taming	21	0.217	2.388
	Topio	inflation over a single			
		stabilization episode			
		(logical)			
4.	GDP <sub>10/pre</sub>	0.58*CivServ – Existence	27	0.306	3.338
		of an operating			
		administrative -state system			
		which is based on the law			
-	CDD	(logical)	25	0.102	2.507
5.	GDP <sub>10/pre</sub>	0.4/6*EHRCad – the	25	0.193	2.597
		number of cases accepted			
		Furgean Court on Human			
		Rights			
6	GDP	0.446*EHRCsat – the	25	0 164	2 390
0.	ODI 10/pre	number of satisfied lawsuits	25	0.104	2.570
7.	GDP <sub>10/pre</sub>	0.458*FreeMed – Activity	25	0.176	2.472
/.	ODT 10/pre	of oppositional media	20	0.170	2.172
		without the pressure by law			
		enforcement agencies.			
		"Oppositional media" – the			
		media blaming Government			
		& President for immorality,			
		crimes or total incapacity			
		(logical)			
8.	GDP <sub>10/pre</sub>	0.439*GovCourtfl - The	25	0.158	2.343
		presence in each cadence of			
		cases, broadly discussed in the national modia, lost by			
		the national media, lost by the government (logical)			
Table	2 Some Institutional Va	righles That Have Proved To R	e Insignificant		
No	Explained variables	Independent variable with	Number of	$\mathbb{R}^2$	t- statistics
• .=		coefficient	observations	s (adjusted R-	
				square)	
1	GDP <sub>10</sub> -GDP in	The number of procedures	35	0.027	-0.309
1.	the $10^{\text{th}}$ vear of	needed to get a husiness	55	0,027	-0,509
	reforms vs. the pre-	registered			
	crisis level				
2.	GDP <sub>10/nre</sub>	The number of days spent on	35	0,019	0,594
	10/110	the registration		-	
3.	GDP <sub>10/pre</sub>	The registration costs, as % in	35	0,004	0,930
		National income per capita			
4.	GDP <sub>10/pre</sub>	Minimum requirements to the	35	0,018	0,641
		authorized capital			
5.	GDP <sub>10/pre</sub>	The number of procedures	35	0,030	0,003
		needed to ensure the			
		enforcement of a contract by			
		means of the court of law			

Table 1. Results of Regression Analysis

6.	GDP <sub>10/pre</sub>	The number of days needed to	35	0,007	1,117
		ensure this particular way to			
		honor the terms of the contract.			
7.	GDP <sub>10/pre</sub>	Costs of enforcement to	35	0,023	-0,495
	-	honoring contractual obligations			
		by means of the court of law, as			
		% to GNP per capita			
8.	GDP <sub>10/pre</sub>	Time costs associated with the	31	0,025	-0,510
	ľ	process of bankruptcy			
9.	GDP <sub>10/pre</sub>	Monetary costs of the process	31	0,034	-0,107
	· I ·	of bankruptcy, as % to the			
		bankrupt's assets			
10.	GDP <sub>10/pre</sub>	Maximum value of return of a	46	0,023	-0,041
	Ĩ	deposit in the deposit insurance			
		system			
11.	GDP <sub>10/pre</sub>	The existence of an institution	46	0,022	-0,154
	•	of the limited (partial) return of			
		small deposits			
12.	GDP <sub>10/pre</sub>	0,161* Dismissal of the head	47	0,060	1,974
		of state exclusively by means of			
		the impeachment procedure (the			
		law enforcement practice)			
13.	GDP <sub>10/pre</sub>	Parliamentary republic (logical	47	0,000	1,002
	1.	variable)			
14.	GDP <sub>10/pre</sub>	Federation (logical variable)	47	0,001	1,028

# Factors, that determine the Level of Costs of Adopted (imported) Institutions for Voters and Policy Makers

# The strength and commitment of reformist coalitions as a key condition of lowering the costs to an acceptable level

In this paper, the authors tested on an extended sample their earlier drawn conclusions [Mau, Zhavoronkov, Yanovsky et al. "Resultaty vyborov, kak pokazatel sprosa na instituty na primere golosovaniy v techenie pervogo poslerevolyutsionnogo desyualiletiya v stranakh s perekhodnoy ekonomikoy i molodoy demoktratiyey. (Elections outcomes, as an indicator of the demand for institutions, as exemplified by voting over the first post-revolutionary decade in transitional economies and young democratic nations). 2001] of a great significance of the creation and maintenance, in the reform period, of a strong coalition for promoting consistent reforms (as a rule, not less than 40% of voters).

The original, 2001 sample was extended by including Nicaragua, where reforms were launched roughly at the same time as those in the eastern European countries, East Germany (with the respective data on "New Lands", less Berlin, for it de-facto largely is an "Old Land"), and Armenia and Georgia (the data are presented in the respective table) Testing was also made on a sample of 27 countries complemented by three southern European post-authoritarian regimes (the period between mid- 1970's through mid –1980s)- Spain, Greece and Portugal, and Asian countries – the post-totalitarian Mongolia and the post –authoritarian South Korea.

Party classification (more precisely, the pertinent results) is given in Appendix 8.

In addition, we tried to employ as extensive sample as possible (the data are given in the Table appended to the Section of institutions) to test the hypothesis on significance of such instruments of neutralization of the anti-reformist coalitions' strength as lustration and prosecution of old cadre of *regime anciene*.

N₂	Explained variables	Independent variable with	Number of	$R^2$	t- statistics
		coefficient	observations	(adjusted R-	
				square)	
1.	GDP <sub>10/pre</sub>	0,357*WitchHunt Prosecution	39	0.104	2.535
	Ĩ	of the old cadre			
2.	GDP <sub>10/pre</sub>	0.347*Lustr	39	0.097	2.253
	1	Application of lustration			
		procedures			
3.	GDP <sub>10/pre</sub>	0.771* Electoral support, on	22	0.574	5.410

Table 3. Results of Regression Analysis

		average over the period of observation, to pro-reform parties			
4.	GDP <sub>10/pre</sub>	0.666* Electoral support, on average over the period of observation, to pro-reform parties – 0.229* Dummy on	22	0.597	4,279
		countries involved in military conflicts			<u>-1.471</u>
5.	GDP <sub>10/pre</sub>	0,75* Electoral support, on average over the period of observation, to pro-reform parties	27	0,545	5,670
6.	GDP <sub>10/pre</sub>	0.647* Electoral support, on average over the period of observation, to pro-reform parties 0.222* Dummy on countries involved in military conflicts	27	0,568	4,437
7.	GDP <sub>10/pre</sub>	Electoral support, on average over the period of observation, to antireform parties	22	0.103	-1.847
8.	GDP <sub>10/pre</sub>	Electoral support, on average over the period of observation, to antireform parties	27	0,004	<u>-1,050</u>
9.	GDP <sub>10/pre</sub>	Electoral support, on average over the period of observation, to antireform parties	16 (only post- communist democratic countries less East Germany)	0.178	-2.061

Source: the attached files in the table form for the sample of 22 countries and the sample of 27 countries. Note: the values of t-statistics of the factors that have proved to be statistically insignificant are underlined, while others are statistically significant.

The statistical analysis on the extended sample proves the significance of electoral support of reformers and, to a substantially lower degree, the negative value of the support to anti-reformers<sup>22</sup> in the absence of a statistically registered impact of support extended by "centrists", or proponents of "gradualist" reforms.

We believe that the demonstrated high significance of securing the electoral support of reforms in the conditions of a transition under a democratic regime evidences that reforms compressed in time appear more preferable vis-à-vis a gradualist scenario of their realization.

#### Implicit Assumptions in the New Institutional Economics

The conclusions presented above appear perfectly trivial. However, as shown in the review of literature in Chapter 1, such approaches in modern economic science are by no means either generally accepted or even popular. An explanation of this phenomenon can be found if one takes it into account that the huge majority leading economists, actually almost all economic scientific activity are concentrated in the Rule of Law countries and it does not occur to the huge majority of researchers to pay any attention to what seemingly are very "political" institutes. Even in those instances when countries where the state and societal violence level in relation to individual person is simply striking become the object of economist's analysis, the Western colleagues let it unnoticed, perhaps, being convinced that these sad circumstances ought to be object of analysis by a political scientist or by an

<sup>&</sup>lt;sup>22</sup> The drastic fall, practically disappearance of a statistically significant impact of the electoral strength of antireformist parties under an increase in the number of observations can be explained, first of all, by substantial specifics of the "institutional package" associated with "anti-reformers" of the added country observations. Clearly, the east-German PDS (Party of Dem.Socialism) and even the Sandino Front for National Liberation from Nicaragua do not appear fully comparable to the Russian and even Czech communists (i.e. PDS And SFNL to a substantially lesser degree are "anti-reformist"). The strength of avowed anti-reformists is loose in Georgia, Armenia and southern European countries, while in Korea they are not represented in a clear form in the parliament at all (as an independent faction). They are likewise absent in Taiwan, for the local political agenda there is formed by attitude towards the totalitarian China and North Korea.

ethical philosopher.<sup>23</sup> A standard set is cited as the cause of economic miscarriages — excessive intervention by the state (state property, prices control).

At the same time being not so very remote from Africa Israel gave a clear example of excessive state activity during four postwar (WWII) decades. Fragments of anti-market legislation are up to this day effective, tax burden is quite heavy. The situation is made worse by protracted conflict with all neighbors including those ones with whom formal peace is signed.<sup>24</sup> But the economic growth rate even in the absence of African natural resources<sup>25</sup> can not be compared with African one. The only serious institutional distinction of Israel from African countries during this period was presence of guaranties in defense of successful businessmen against violence from the part of his neighbors, community, police, state security services. Even if this success might offend everybody. The businessman was quietly hated, but not imprisoned, not robbed of his household or got his wife enslaved. It was that which affected business climate essentially.

Scientists of transitional countries who can easily compare situations, stimuli of economic entities and law enforcement practices of principally differing legal systems are situated in an obviously advantageous position as regards this line of institutional studies. This statement allows for the following generalization that represents an important summary of our studies during the period of last three years: *Results obtained in the period of 2001–2003 by comparative analysis of significance of various institutions in transitional economy allow us to put forward a presumption, that new institutional economic theory is as a whole built on important though not overt (implicit) assumption of existence and deep–rootedness of the set of institutions that we have specified in the introduction as individual's basic rights and liberties.* 

Direct or indirect indications to this assumption are present or can be discerned in M.Olson ["Power and Prosperity," 2000], D.Stiglitz [«Where reforms are going» 1999], R. La Porta, F.Lopez-de-Silanes, A. Shleifer, R.W. Vishny ["Law and Finance", 1996]<sup>26</sup>. However, It seems to be most convenient to refer to Arrow and his renowned theorem. More precisely, to his assumption of absence of the dictator. Yet more precisely, to what in reality, if countrywise verification were necessary, would be possible to verify as either presence or absence of a person whose decision determines public choice.

These assumptions are revealed through comparing institutional systems of Rule of Law versus Rule of Force. Contemporary experience shows that the dictator can exist more or less happily under competitive elections, during which a tenfold independent foreign observers may be admitted to every electoral district and with strict obeisance to the most perfect electoral legislation.

Rule of Force regime blocks incentives to cooperation, earning, entrepreneurship, prosperity. The prosperity observed considered as a challenge by the leaders whose power based on the violence and fear only (Olson's "stationary bandit" or "roving bandit"). Even "velvet" "stationary bandit" like A.Akayev in post-soviet Kyrgyzstan provided informal "3-th floor" rule: the 2-storied private house could be built free and without consequences in this country. The 3-storied private house considered as an indicator of "unreasonably high and improper income", so the owner was proposed to pay the sum comparable with marginal cost of the 3-th floor building. At the same time, the "velvet" reputation undermined Akayev's authority and power: competitor challenged and overthrew him, being convinced he couldn't order to fire as Islam Karimov did in the Uzbekistan (and their belief appeared rational).

Dictator can rule even in the presence of parliamentary opposition (even when it constitutes Parliamentary majority). He predetermines any decisions even without formal nationalization of property. He, as A.Hitler expressed it, only "socializes people." The definition of "dictator" can not in the strict sense be applied to E. Shevardnadze or R. Kocharian in spite of numerous and grounded claims against the electoral process and vote count procedure. In spite of the fact that falsifications were monstrous, tombstones amounted 10 % of the population of nation in voting lists, the turn–out at polling stations of some districts was 106 per cent, E. Shevardnadze could not ignore the opposition. Nor can R. Kocharian do it; correspondingly, they would not at 100% probability succeed in getting through any decision that they consider optimal.

So called "Spiritual leader" of Iran Ayatollah Hamenei can so far exercise disregard for his opposition notwithstanding the opposition majority in Parliament and even the "oppositional" President. "President" Taylor in Liberia could do the same until recently. In the period of election campaign his key slogan was inscribed on posters of minor soldiers of his Army: "He killed my Ma, He killed my Pa, I'll vote for him." The message of this slogan is simple and clear to every person who was born and grew in a society based on the power of force. Taylor pointed out to his opponents and to all those who contemplated opportunity to vote for the opponents that he was resolute and able to destroy them physically. Therefore, opposition made sense only as an alternative armed band. Hence, elections were losing any sense. This same artless mechanism also explains results of all elections in Chechnya

<sup>&</sup>lt;sup>23</sup> See P.Collier and Gunning J «Explaning African Economic Perfomance" 1999 (Russion version – Carnegie Moscow Center, 2002)

<sup>&</sup>lt;sup>24</sup> Which does not prevent them from transporting through dozens of tunnels, weapons for perpetration. of terrorist acts on the territory of Israel.

<sup>&</sup>lt;sup>25</sup> Truth is that present is the Jewish human capital.

<sup>&</sup>lt;sup>26</sup> R. La Porta, F.Lopez-de-Silanes, A. Shleifer, R.W. Vishny "Law and Finance" (NBER Working Paper No. 5661), 1996

starting from the year of 1991 regardless of whether the overwhelming majority would vote for the unity with Russia or for independence.

If taking life or imprisoning of anybody are not restricted by legal procedure and enforcement practices the elections procedure may be preserved. It will not influence a thing. No rational person who in case of a well–known life situation makes his choice in favor of life and not money, in favor of refusal of his shares and not being imprisoned, i. e. he who has lexicographical preferences with respect to life and freedom will have desire to throw a challenge against the dictator.

So, as soon as the guarantees of life and personal immunity ("freedom of person") are absent, elections cease being elections, the opposition and the press cease being real controlling instances of power, private property ceases being property and degenerates to the ancient institution of "temporary holding" (the analogy proposed by historian S.Javoronkov). In fact, personal individual property remains such only as long as the proprietor is free. Otherwise property running costs increase in many times, while the use and possession of it become almost completely impossible. Moreover, the opportunity to at least preserve the legal title of ownership becomes rather improbable if we accept the assumption of lexicographical nature of preferences by the modal person as to own life and freedom in relation to the rest of goods. Under such preferences he would readily exchange the title of depreciated ownership for freedom (or even simply for his life): he concedes to sell his stocks to a person affiliated with the authorities at a symbolic price or to convey estate to the name of such a person.

#### **Problems of Authoritarian Modernization**

There are some famous examples of post-socialist authoritarian modernization. Among them China is broadly discussed, which still quite close to totalitarian regime.

Institutional factors, "economic" institutions in the majority of them turned out to be insignificant and are demonstrated by 2003 IET paper (Mau, Yanovskiy, Zhavoronkov et al). It is appropriate here to mention the fact that many of the authoritarian countries show very high rates of economic growth, by far higher than rates shown even by leading reformers in Central and Eastern Europe. This paragraph is a commentary on general problems in countries of low starting level of GNP and of authoritarian scenario of modernization. It contains an attempt to explain both their present strides and point out to limits and costs of such rapid growth.

In 2002 already, in the work dedicated to political and legal factors of economic growth in Russia [Mau, Yanovskiy, 2002] an assumption was stated out that there is a minimal set of institutes, providing for, up to definite limits, economic growth at a low starting level. Let us dwell upon explanation of this phenomenon in some greater detail.

Very high rates of economic growth in countries with authoritarian modernization are partly explained by low starting level. An alternative explanation and also partial one can be trite uncertainty of statistics under conditions of absence of the democratic mechanisms providing for transparency of the state as a whole, i.e. of opposition, independent press, independent intellectual activity (well–known are problems of incompatibility for a number of indices against rather impressive figures of economic growth in Belarus that was revealed, which is highly characteristic, by the leaders of half–legal opposition).

There are other explanations. Comparative analysis of such authoritarian countries not only with developed law–abiding countries but, mainly, with totalitarian countries reveals a number of important differences and furnishes additional variants of explanation. The first variant described by M.Olson ["Power and Prosperity" 2000] is well–known.<sup>27</sup> But Olson does not explain why happens refusal by the elite of those very mechanisms that make the totalitarian system provided for resources mobilization capacity, for a high rate of accumulation while permitting preservation of an acceptable "top–down" transparency level on account of maintaining certitude of inevitable fierce punishment in case of a slightest suspicion of disloyalty in general and of information concealment in particular.

Among "transitional countries» listed in Table 1 are those that implemented transition from various levels of rigidity of the totalitarian model (Albania, China, Vietnam, postwar Germany started from quite a rigid form while Russia, Poland, Hungary started from essentially softer forms of decaying totalitarism, the Eastern Germany occupies an intermediate position between them). There are countries that constructed institutes of society based on the rule of law after collapse of authoritarian regime (Greece, Spain, Portugal in mid 1970s).

Comparison of sets of institutes that provide for growth in each of cases under consideration allows to take notice of two principally different kinds of transition.

The first one is from an extreme form of totalitarian dictatorship or roving-bandit schemes of rent maximizing in short- and mid-term to a longer-term stationary bandit scheme. It is obvious, though it is not described in detail by M.Olson already referred to, that the transition itself is accompanied by a sharp fall of everyday violence level and by granting of definite guaranties of violability to a more or less wide circle of the elite under the condition of loyalty preservation. Such a transition is caused and stimulated by fear of elite as such in the face of extreme and unpredictable violence. That is it can be explained simply enough, i.e. — by

<sup>&</sup>lt;sup>27</sup> Extreme level of violence, regularity of it reduce probability of opportunistic behavior of managers, all the economy functions like a unitary firm belonging to an owner, i.e. – to the dictator.

elite presenting demand for personal inviolability. In some of such instances the leader and the elite come to an agreement that now everybody can hand over his plenary powers, his power (and also the ownership associated with them) to one's successors.

Otherwise the transition of "the first type" appears not quite logical, a great part of elite was perfectly Stalinist, it shared with J.Stalin a greater (N. Khrushchev) or a lesser part of responsibility for violence. Thus, in the opinion of Olson, the scheme of Stalin was rather effective, economically as well (one and indivisible firm having powerful motivation of the owner–dictator and internal transparency, reduction of transactions losses by virtue of violence or threat of it). Then why was it abandoned? Why did they not get it back again after N. Khrushchev was relieved of his post, after all? Why failed an experiment staged by Y.Andropov, soon after whose death the elite recurred again in the process of drawing up new milestones on a miniature scale, like it used to be in 1953–56 and in the "new Khrushchev" period? It is the suggested scheme that answers this question.

In the transition of "the first type", i.e. from extreme form of totalitarianism to a softer form of it or to the authoritarian rule described by the classical Olson's scheme of "stationary bandit" (with inheritance), in a number of cases there takes place legalization of that part of businesses running which were only recently associated with the threat of severe and unusual punishments. The reasons for it are self–evident, these are precisely such instances that are escorted by comparatively prolonged periods of economic growth with high rates.

For all complexity of measuring reduction of risk of being punished by the state, this tendency is manifest. That very China that firmly holds the leading place in number of death penalties<sup>28</sup> and obviously is not the leader in openness and fairness of the judicial system was demonstrating from late 1970s an indubitable reduction of scale of mass murders implemented by the state. This is a certain and powerful signal of risk reduction. Similar reduction in the USSR was not accompanied by legalization of private economic initiative. In China, Vietnam, Laos such legalization did take place and that is why the risk reduction of being killed by the state turned out to be economically more fruitful than in the USSR. However, the factor of risk reduction was significant everywhere. The main addressees of the signal are those interested in small investment projects associated with comparatively small transaction costs (a farm, small workshop, small shop, etc.).

At the same time risks of large–scale projects remain very high unless the businessman is protected by a powerful corporation, foreign citizenship, and, preferably, permanent residence abroad. This what tell us recent instances of arrests of biggest businessmen in still authoritarian China and in already authoritarian Russia.

Problems of corruption are insoluble within the authoritarian regime. Institutes of such a state are not able to contain within reasonable limits "defense" and "security" expenditure irrespective of real threats presence (build–up of arms by China in the presence of external threat reduction after collapse of the USSR), "prestige state consumption" (space program of China<sup>29</sup>). It is only natural that nearly all the gains of opportunities of "electronic government," practically all advantages of the Good Governance are not available to such countries in spite of all efforts of foreign advisers.

At last, a very serious threat to long-term prospects of authoritarian countries are *retarded costs* [Yanovskiy, 2003<sup>30</sup>] that are connected with both the method of solving current political problems and with vague but apparently impending prospects of the **second transition**. If religious, nationalistic or other imminent potentially very painful problems manifest themselves within authoritarian or totalitarian state then each solution basing itself on mere use of force and, which is more important still, lacking any effective feed–back is doomed to always stay far from optimal. Experience of the USSR, Yugoslavia and Indonesia is rich in examples.<sup>31</sup>

The experience of post-authoritarian development (let us conventionally call it "**transition of the second type**") of quite a number of countries in South Europe, East Asia, Latin America shows that prolonged economic growth is possible even against the background of patently unfavorable factors. Among them is the necessity to sustain an essential part of those same retarded costs as political instability, manifestation of populism by new democratic authorities and the growth of the "social state", aging of population (which as such may am should be made a theme of a special study), increase of regulations (while joining the EU, for example) and numerous their problems. But one observed growth in these countries and the factors noted above had not prevented these countries from gradual overcoming their distance from more developed European countries. This indicates to fact that the potential of transition is very great. In all probability, manifestations of the instability, of the nationalistic problems, etc. under democracy in the long run may be by far less dangerous than overt inflation in comparison with one that is suppressed.

<sup>&</sup>lt;sup>28</sup> In particular, see <u>http://www.hrw.org/asia/china.php</u> и <u>http://www.amnesty.org/ailib/intcam/china/</u>
<sup>29</sup> Spaceship, then space station with regular with regular flights to it.— see <a href="http://www.space.com/missionlaunches/china">http://www.amnesty.org/ailib/intcam/china/</a>

<sup>&</sup>lt;sup>30</sup> Scientific Report submitted for a degree in economic sciences (manuscript).

<sup>&</sup>lt;sup>31</sup> On the nature and consequences of existence of "retarded costs" see below in detail in the Section dedicated to factors determining level of costs of decision making by electors and politicians.

So, it is the nature of the post-authoritarian growth phenomenon that is common to mentioned countries in three continents in spite of all problems of comparability. This can not be explained on the basis of the growth of "economic liberties" since the populist tendencies in these countries are often rather dangerous and, for example, they are capable of creating an impression that guaranties of private ownership under general Franco were more reliable than under the government of socialists. But real guaranties of right of ownership connected with arising of guaranties of personal immunity turn to be very often by far more essential. Lowering the level of corruption is another explanation though it is less significant from my point of view.

In addition to explanations of high rates of economic growth in authoritarian countries, there are many locally specific explanations of successes of individual countries. Thus, a local phenomenon for three South European countries was their access to new markets within EC. Restrictions imposed on the national sovereignty is also of local action. It is essential that taking into account this kind of restrictions imposed by close military co-operation of Taiwan and South Korea with the USA should augment explanatory capacity of this factor.

However, we have not taken into account these restrictions in the model for both formal and content considerations. Main formal criterion of "restriction of sovereignty" in this work is possibility to appeal with judgment of National court in a super-national court, officially formalized assuming of obligations by the state to additionally safeguard right to security and right to life of person were absent in these Asian countries. Abolition of only capital punishment is an essential progress for a country with extraordinarily inefficient system of law and order organs and courts of law (although absence of capital punishment in a law-abiding state is not always and not so much as obviously a negative factor).

A great problem along with incomparability of data for comparative analysis of experience of countries that were to implement reforms of political and legal systems in different periods of time and under essentially varying geopolitical and economic conditions, is the problem of absence of data about impact of many such reforms on the economic and political development of countries over a long period of time. And this is also characteristic of the post-totalitarian countries of Central and Eastern Europe. At present moment there no prerequisites for solving this problem, the only opportunity is to temporize several decades and then again to embark on the analysis on a different, incomparably better factual base.

# Annex 3. Granger Causality tests

0		v			Table 31
Pairwise Granger Causality Tests Sample: 1820 2003 Lags: 2					14010 5.1
Null Hypothesis:	Obs	s F-S	tatistic	Probability	
D_GDP_TOTAL12 does not Granger Cause ROL_TOTAL12 ROL_TOTAL12 does not Granger Cause D_GDP_TOTAL	129 12	9 C 1	).91192 8.0374	0.40443 <b>1.30E-07</b>	
Pairwise Granger Causality Tests Date: 04/13/07 Sample: 1820 2003 Lags: 5			_		Table 3.2
Null Hypothesis:	Obs	6	F- Statistic	Probability	
D_GDP_TOTAL12 does not Granger Cause ROL_TOTAL12 ROL_TOTAL12 does not Granger Cause D_GDP_TOTAL	12	126	1.03523 6.51832	3 0.4004 2 <b>2.30E-05</b>	
Pairwise Granger Causality Tests Sample: 1820 2003 Lags: 10					Table 3.3
Null Hypothesis: D_GDP_TOTAL12 does not Granger Cause	Obs	6	F- Statistic	Probability	
ROL_TOTAL12 ROL_TOTAL12 does not Granger Cause D_GDP_TOTAL	12	121	2.8551 3.55940	6 0.00362 6 0.00046	
Pairwise Granger Causality Tests Sample: 1820 2003 Lags: 15					
Null Hypothesis:	Obs	5	F- Statistic	Probability	
ROL_TOTAL12 does not Granger Cause D_GDP_TOTAL ROL_TOTAL12 does not Granger Cause D_GDP_TOTAL	12	116	2.6417 <sup>-</sup> 1.9657 <sup>-</sup>	1 0.00254 1 0.02738	
Pairwise Granger Causality Tests Sample: 1820 2003					Table 3.4
Null Hypothesis:	Obs	F- Statis	tic Pro	bability	
D_GDP_TOTAL12 does not Granger Cause P4_TOTAL12 P4_TOTAL12 does not Granger Cause D_GDP_TOTAL12 Pairwise Granger Causality Tests Sample: 1820 2003	129 2	1.261 13.40	96 0 004 0. <b>0</b> 0	).28671 000054	
	Oha	F-	tio Dra	hobility	
D_GDP_TOTAL12 does not Granger Cause	126	2.530	19 Pro	0.0327	

P4_TOTAL12					
P4_TOTAL12 does not Granger Cause D_GDP_TOTAL12 Pairwise Granger Causality Tests Sample: 1820 2003	2	5.025	585 <b>0.0</b>	00033	
Lags: 10		_			
Null Hypothesis: D GDP TOTAL12 does not Granger Cause	Obs	F- Statis	stic Proba	ability	
P4_TOTAL12	121	3.294	146	0.001	
P4_TOTAL12 does not Granger Cause D_GDP_TOTAL12 Pairwise Granger Causality Tests Sample: 1820 2003 Lags: 15	2	3.487	776 <b>0.0</b>	00057	
		F-			
Null Hypothesis: D_GDP_TOTAL12 does not Granger Cause	Obs	Statis	stic Proba	ability	
P4_TOTAL12	116	2.784	17 <b>0.0</b>	0153	
P4_TOTAL12 does not Granger Cause D_GDP_TOTAL12	2	2.423	315 <b>0.0</b>	0555	
					Table 3.5
Pairwise Granger Causality Tests					
Sample: 1820 1930 1950 2003					
Lags: 2			F		
Null Hypothesis:	Ob	s	F- Statistic	Probability	
D_GDP_TOTAL12 does not Granger Cause	00.	0	Oldibilo	riobability	
ROL_TOTAL12		110	0.37863	0.68573	
ROL_TOTAL12 does not Granger Cause D_GDP_TOTAL	.12		17.1087	3.70E-07	
Pairwise Granger Causality Tests					
Sample: 1820 1930 1950 2003					
Lags. 5			F-		
Null Hypothesis:	Obs	S	Statistic	Probability	
D_GDP_TOTAL12 does not Granger Cause		107	1 10/22	0 22261	
ROL TOTAL 12 does not Granger Cause D GDP TOTAL	12	107	5 76797	0.02201	
Pairwise Granger Causality Tests			0.1.01.01		
Date: 04/13/07					
Sample: 1820 1930 1950 2003					
Lags: 10			-		
Null Hypothesis:	Oh	c	F- Statistic	Probability	
D_GDP_TOTAL12 does not Granger Cause	00.	5	Otatistic	TODADIiity	
ROL_TOTAL12		102	0.81959	0.61075	
ROL_TOTAL12 does not Granger Cause D_GDP_TOTAL	.12		2.70371	0.00651	
Pairwise Granger Causality Tests					
Sample: 1820 1930 1950 2003					
			F-		
Null Hypothesis:	Ob	s	Statistic	Probability	
D_GDP_TOTAL12 does not Granger Cause		07	0 72021	0 72722	
ROL TOTAL12 does not Granger Cause D_GDP_TOTAL	12	ฮเ	1.69205	0.07425	
				5.01 720	

Pairwise Granger Causality Tests Sample: 1820 1930 1950 2003 Table 3.6

Lags: 2		F			
Null Hypothesis:	Obs	F- Statistic	Pr	obability	
D_GDP_TOTAL12 does not Granger Cause P4_TOTAL12 P4_TOTAL12 does not Granger Cause D_GDP_TOTAL12 Pairwise Granger Causality Tests Sample: 1820 1930 1950 2003 Lags: 5	110 2	0.79145 12.2125	1	0.45587 . <b>70E-05</b>	
Null Hypothesis:	Obs	F- Statistic	Pre	obability	
D_GDP_TOTAL12 does not Granger Cause P4_TOTAL12 P4_TOTAL12 does not Granger Cause D_GDP_TOTAL12 Pairwise Granger Causality Tests Sample: 1820 1930 1950 2003 Lags: 10	107 2	0.38608 3.16753	1	0.85726 <b>0.01087</b>	
Null Hypothesis:	Obs	F- Statistic	Pro	obability	
D_GDP_TOTAL12 does not Granger Cause P4_TOTAL12 P4_TOTAL12 does not Granger Cause D_GDP_TOTAL12 Pairwise Granger Causality Tests Sample: 1820 1930 1950 2003	102 2	0.59521 1.59291		0.81339 0.12352	
Null Hypothesis:	Obs	F- Statistic	Pre	obability	
D_GDP_TOTAL12 does not Granger Cause P4_TOTAL12 P4_TOTAL12 does not Granger Cause D_GDP_TOTAL12	97 2	0.70433 1.17524		0.77119 0.31277	
Pairwise Granger Causality Tests Sample: 1820 2003 Lags: 15					Table 3.7
Null Hypothesis: RG_LATOTAL15 does not Granger Cause D_GDP_LATC D_GDP_LATOTAL15 does not Granger Cause RG_LATC Pairwise Granger Causality Tests Sample: 1820 2003 Lags: 2	DTAL15 DTAL15	Obs	37	F- Statistic 0.51441 1.53974	Probability 0.86118 0.30965
Null Hypothesis: RG_NICARAGUA does not Granger Cause D_GDP_NICARAGUA D_GDP_NICARAGUA does not Granger Cause RG_NICA Pairwise Granger Causality Tests Sample: 1820 2003 Lags: 2	ARAGL	Obs JA	80	F- Statistic 1.85981 0.18577	Probability 0.16281 0.83085
Null Hypothesis: RG_EL_SALVADOR does not Granger Cause		Obs	80	F- Statistic 0.93765	Probability 0.39609

D_GDP_EL_SALVADOR		
D_GDP_EL_SALVADOR does not Granger Cause RG_EL_SALVADOR	0.50818	0.60364

			Table 3.8
Pairwise Granger Causality Tests			
Sample: 1820 2003			
Lags: 5			
Null Hypothesis:	Obs	F-Statistic	Probability
RG_NICARAGUA does not Granger Cause			
D_GDP_NICARAGUA	77	0.84345	0.52385
D_GDP_NICARAGUA does not Granger Cause RG_NICARAG	SUA	10.0853	3.30E-07
Pairwise Granger Causality Tests			
Sample: 1820 2003			
Lags: 5			
s Null Hypothesis:	Obs	F-Statistic	Probability
RG_EL_SALVADOR does not Granger Cause			-
D_GDP_EL_SALVADOR	77	0.44505	0.81537
D_GDP_EL_SALVADOR does not Granger Cause			
RG_EL_SALVADOR		4.48261	0.00141

We tested direction of granger causality for some Eastern Europe countries. In our models we used countries with longest data set available (with more then 50 observation) Hungary, Bulgaria, Czech and Slovakia .

For Hungary one couldn't reject hypothesis that institutional variables doesn't granger cause economic growth. That means that causality runs from institutional variable toward economic growth (table 9)

					Table 3.9
Pairwise Granger Causality Tests					
Lags: 2			-		
Null Hypothesis:	Obs	6	F- Statistic	Probability	
RG_HUNGARY does not Granger Cause D_GDP_HUNGARY D_GDP_HUNGARY does not Granger Cause RG_HUNGARY	Y	69	8.25232 0.46876	<b>0.00065</b> 0.62791	
Pairwise Granger Causality Tests Sample: 1820 2003					
Lags: 5			-		
Null Hypothesis: RG_HUNGARY does not Granger Cause	Obs	6	F- Statistic	Probability	
D_GDP_HUNGARY		63	6.73289	6.60E-05	
D_GDP_HUNGARY does not Granger Cause RG_HUNGARY	Y		1.24447	0.30202	
Pairwise Granger Causality Tests					
Sample: 1820 2003					
Lags: 7					
Null Hypothesis:	Obs	s F	-Statistic	Probability	
RG_HUNGARY does not Granger Cause					
D_GDP_HUNGARY	59	)	4.68314	0.00055	
D_GDP_HUNGARY does not Granger Cause RG_HUNGARY	Y		1.18588	0.33054	
					Table 3.10
Deinvice Cremmer Courselity Tests					

Lags: 2					
Null Hypothesis: P4 HUNGARY does not Granger Cause	Obs	F- Statistic	Probab	ility	
D_GDP_HUNGARY D_GDP_HUNGARY does not Granger Cause P4_HUNGAR	66 Y	10.8737 1.26549	<b>9.10E</b> 0.28	<b>-05</b> 394	
Pairwise Granger Causality Tests Sample: 1820 2003 Lags: 5					
Null Hypothesis:	Obs	F- Statistic	Probab	ility	
D_GDP_HUNGARY D_GDP_HUNGARY does not Granger Cause P4_HUNGAR Pairwise Granger Causality Tests Date: 04/30/07 Sample: 1820 2003 Lags: 7	57 Y	9.14378 1.01862	<b>4.30E</b> 0.417	<b>-06</b> 777	
Null Hypothesis:	Obs	F- Statistic	Probab	ility	
P4_HUNGARY does not Granger Cause D_GDP_HUNGARY D_GDP_HUNGARY does not Granger Cause P4_HUNGAR	51 Y	7.00932 0.77765	<b>2.80E</b> 0.610	<b>-05</b> 003	
Painwise Granger Causality Tests				Tab	ole 3.11
Sample: 1820 2003					
Null Hypothesis:			Obs	F- Statistic	Probability
RG_CZECHOSLOVAKIA does not Granger Cause D_GDP_CZECHOSLOVAKIA D_GDP_CZECHOSLOVAKIA does not Granger Cause RG_CZECHOSLOVAKIA Pairwise Granger Causality Tests Sample: 1820 2003			66 KIA	31.8295 0.15347	<b>3.40E-10</b> 0.85806
Lags: 5     Null Hypothesis:				F- Statistic	Probability
RG_CZECHOSLOVAKIA does not Granger Cause D_GDP_CZECHOSLOVAKIA D_GDP_CZECHOSLOVAKIA does not Granger Cause RG_ Pairwise Granger Causality Tests	CZECI	HOSLOVA	60 KIA	13.2753 0.40624	<b>3.50E-08</b> 0.84215
Sample: 1820 2003 Lags: 7					
Null Hypothesis:			Obs	F- Statistic	Probability
D_GDP_CZECHOSLOVAKIA D_GDP_CZECHOSLOVAKIA does not Granger Cause RG_		HOSLOVA	56 KIA	9.32542 0.33547	<b>7.40E-07</b> 0.93302
Painwise Granger Courselity Tests				Tał	ole 3.12
Sample: 1820 2003					
Null Hypothesis:			Obs	F- Statistic	Probability

P4_CZECHOSLOVAKIA does not Granger Cause D_GDP_CZECHOSLOVAKIA D_GDP_CZECHOSLOVAKIA does not Granger Cause P4_C Pairwise Granger Causality Tests Sample: 1820 2003	ZECH	OSLOVAKI	66 A	15.735 0.2952	56 <b>3.10E-06</b> 22 0.74543
Lags: 5				F-	
Null Hypothesis: P4_CZECHOSLOVAKIA does not Granger Cause D_GDP_CZECHOSLOVAKIA D_GDP_CZECHOSLOVAKIA does not Granger Cause P4_CZECHOSLOVAKIA Pairwise Granger Causelity Tests				Statist	ic Probability
				6.2354 0.4883	130.00015310.78333
Sample: 1820 2003					
Lags: 7				F-	
Null Hypothesis: P4 CZECHOSLOVAKIA does not Granger Cause				Statist	ic Probability
D_GDP_CZECHOSLOVAKIA D_GDP_CZECHOSLOVAKIA does not Granger Cause P4_CZECHOSLOVAKIA					0.0022           0.8773
					Table 3.13
Pairwise Granger Causality Tests Sample: 1820 2003					
Lags: 2		F-			
Null Hypothesis: RG_BULGARIA does not Granger Cause D_GDP_BULGARIA D_GDP_BULGARIA does not Granger Cause RG_BULGARIA Pairwise Granger Causality Tests	Obs	Statistic	Proba		
	68 4	0.24131 0.17161	0.78 0.8	3632 3427	
Lags: 5					
Null Hypothesis:	Obs	F- Statistic	Proba	bility	
D_GDP_BULGARIA	62	0.76738	0.57	7762	
D_GDP_BULGARIA does not Granger Cause RG_BULGARIA Pairwise Granger Causality Tests Sample: 1820 2003	4	1.24477	0.3	3022	
Lags: 7		_			
Null Hypothesis: RG_BULGARIA does not Granger Cause D_GDP_BULGARIA D_GDP_BULGARIA does not Granger Cause RG_BULGARIA	Obs	F- Statistic	Proba	bility	
	58 4	0.98742 1.18629	0.45306 0.33082		
					Table 3.14
Pairwise Granger Causality Tests Sample: 1820 2003 IF GDP_BULGARIA > 2000					
		F-	_		
Null Hypothesis: RG_BULGARIA does not Granger Cause	Obs	Statistic	Proba	bility	
D_GDP_BULGARIA D_GDP_BULGARIA does not Granger Cause RG_BULGARIA Pairwise Granger Causality Tests	49 A	0.8323 1.06901	0.44 0.3	4178 3521	

Sample: 1820 2003 IF GDP\_BULGARIA > 2000 Lags: 5

		F-	
Null Hypothesis:	Obs	Statistic	Probability
RG BULGARIA does not Granger Cause			-
D_GDP_BULGARIA	46	1.0767	0.39007
D_GDP_BULGARIA does not Granger Cause RG_BULGARI	A	1.46284	0.22683
Pairwise Granger Causality Tests			
Sample: 1820 2003 IF GDP_BULGARIA > 2000			
Lags: 7			
ů –		F-	
Null Hypothesis:	Obs	Statistic	Probability
RG_BULGARIA does not Granger Cause			-
D_GDP_BULGARIA	44	3.22001	0.01192
D_GDP_BULGARIA does not Granger Cause RG_BULGARI	A	1.62434	0.16816