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An attempt to compare the efficiency of insolvency proceedings in various countries in the world

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Abstract. This paper deals with the efficiency of insolvency proceedings in various countries. The analysed characteristics of insolvency proceedings are recovery rate, time and costs spent on solving the insolvency case. The paper's analysis stems from the results of the survey done by the World Bank and the International Finance Corporation under the Doing Business project. The survey provides qualified expert estimates of the efficiency of insolvency proceedings by individual countries in the whole world. Our analysis is based on 12 groups, each containing 5 countries (in total 60 countries). These groups are distinguished according to their level of economic development and territorial circumstances. The aim is to map mutual relationship between the wealth of a country (measured by GDP per capita) and the main results of insolvency processes represented by the recovery rate. The results of this paper prove that the relationship between the recovery rate and the wealth of a specific country exist. The correlations are also observed between basic characteristics of insolvency proceedings (recovery rate, time and costs).

Keywords: insolvency, statistics, insolvency costs, recovery rate, regression analysis.

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INTRODUCTION

The selection of priorities is among the key issues in transforming economies. It was faced in the 1990's by the countries of the former Soviet bloc[1], which embarked on the road towards the renewal of private ownership and market economy. As part of their reform attempts, these countries selected different priorities. Nevertheless, their common element was low emphasis on the institutional layer of changes. Most of time and efforts were devoted to searching for macroeconomic stability, privatization, liberalization of prices and, subsequently, handling inflation. There were indeed a large number of laws enacted, yet the enforceability of law and of contracts were, even at the beginning of our century, at a substantially lower level than in the countries deemed developed.[2] There have occurred serious shifts in the transition or even nowadays post-transition economies during recent years, more details on example of Czech Republic are provided by Čámská (2015). Economic, political and legal development is also accompanied by culture or overall quality of institutions. We can mention corruption (Čámská and Klečka, 2012) or that many corporate bankruptcies occur in the situation when companies are completely without any valuable assets (Čámská, 2013).

This could partially be explained by negative institutional legacy of the previous communist regimes. It transpired that low ability to enforce the rule of law has a devastating affect not only on the economy, but also on population's trust in the new order.[3] This state of affairs resulted in an extremely negative development of insolvency laws.

On the example of the economic crisis in Czech Republic in 1997–1999, it transpired that this institutional neglect could be just as fatal for macroeconomic stability as uncontrolled inflation or other risks emphasized by international organizations.

The main objective of this research is the comparison of insolvency proceedings' results in different countries. Corporate bankruptcies are an inseparable part of free market economy. They enable an exit of ailing, not any more efficient entities. On the other hand corporate bankruptcies are connected with losses for creditors as well as debtors. These losses can be extremely huge and therefore they have serious impact on individuals as well as the whole economic system. It is important to analyse aspects which influence the results of insolvency proceedings. This paper is focused globally on the sample of countries and it does not analyse one individual state. The international comparison is carried out by means of descriptive statistics. The main research hypothesis is that there is a significant relationship between recovery rate and overall country's economic development measured by GDP per capita. The used methods are regression and correlation analyses. The linear multiple regression also helps to discover a relationship between basic characteristics of efficiency of insolvency proceedings (recovery rate, time and costs spent).

1.1. The structure and methodology of the study

The paper is divided into several parts. The introduction part presents the used methodology, hypothesis and variable explanation. The second part introduces data sample, its sorting into sub-groups and already results of descriptive statistic for different sub-groups as well as the whole sample containing 60 countries. The third part is a main analytical part based on regression and correlation analyses. Dependencies among recovery rate and country's economic development are analysed, followed by the analysis of dependencies between characteristics of efficiency of insolvency proceedings. The last part is conclusion containing main results, discussion and possible directions of future research.

The methods used in the paper are descriptive statistics and regression analysis accompanied by correlation analysis. At the second part the sub-groups of the used data sample are created and their description and understanding of their main characteristics and differences is a base for further processing.

1.2. Hypotheses and data resources

In this work we attempt to prove, on the basis of regression analysis of data on insolvency proceedings in many countries, that the quality of these processes is closely related to the economic efficiency (and the standard of living) of a given country. It is usually assumed that a high-quality institutional environment is the result of high economic efficiency. In contrast to this, there is the second concept – from our perspective, closer to reality. According to this, institutions enabling the enforcement of law (and debt) are a condition for an effective economic system ensuring the satisfaction of its population's needs.[4,5]

As regards the insolvency system and its efficiency, we have chosen three parameters for assessment.[6] These are "recovery rate", i.e. the return on investment in percent in case insolvency proceedings take place. Secondly, we take into account "time", i.e. the duration of insolvency proceedings. We consider the proceedings to be closed when yields are paid out to the creditors.[7] Finally, "costs" of proceedings are observed – i.e. the price creditors pay for the collection of debt. Costs are stated in percentages of the sum gained thanks to monetization of the debtor's property.

As one can see at first glance, there should be a rule of proportion between recovery rate and costs, i.e. higher costs are accompanied by a lower recovery rate. For the costs of enforcement are borne by the creditor (although they are formally the debtor's burden) in all cases when the yields from insolvency proceedings do not reach the total sum of claims plus the costs incurred by the insolvency proceedings.

If creditors require 1,000 "monetary" units, and monetization of property brings 400 units, of which costs amount to 15 percent (60 units), the creditors gain 340 units (34 percent). If costs represent only ten percent from monetization (40 units) in an otherwise identical situation, the creditors gain 360 units (36 percent). Of course, monitoring costs as a percentage of the entire monetization can lead to some what surprising relationships. Let us imagine that 600 units are gained. If the costs were 60 units, they would represent only 10 percent of the monetization, and the creditors would gain 540 units (54 percent). If the costs were 40 units, they would reach 6.66 percent and the creditors would gain 560 units (56 percent). If, however, the costs were the same also in the event of higher monetization as in the preceding cases, we would arrive at different results as shown by Table 1.

Table 1

Variants of the relationship of costs and recovery rate, the required sum (total creditor claims registered in insolvency proceedings) is always 1,000 units

Monetization in units and in % of receivables	Costs (in units) in costs variants (%)				Paid out to creditors (units) at costs (520 %)				Recovery rate (% of the required 1,000 units) at costs (5–20 %)			
	5	10	15	20	5	10	15	20	5	10	15	20
100 (10%)	5	10	15	20	95	90	85	80	9.5	9.0	8.5	8.0
200 (20%)	10	20	30	40	190	180	170	160	19.0	18.0	17.0	16.0
400 (40%)	20	40	60	80	380	360	340	320	38.0	36.0	34.0	32.0
600 (60%)	30	60	90	120	570	540	510	480	57.0	54.0	51.0	48.0
800 (80%)	40	80	120	160	760	720	680	640	76.0	72.0	68.0	64.0
1,000 (100%)	50	100	150	200	950	900	850	800	95.0	90.0	85.0	80.0

Source: own calculations.

There is a quite simple relationship, where funds paid out to creditors are equal to the volume of monetization of the debtor's property minus costs of insolvency proceedings. Therefore, if the monetization is given, the recovery rate grows smaller as the costs increase. This shows an important fact about insolvency proceedings: high costs devalue any otherwise successful insolvency and considerably reduce the yield for the creditor.

The timeframe of the process can be also quite interesting. Let us imagine insolvency proceedings in which 1,000 units are claimed, monetization yields reach 400 units at costs of 40 units, i.e. 360 units are paid. Such proceedings are highly divergent if they take one year or three years. Even at a common market yield rate of three percent and compounded post-deadline interest, the sum collected in three years is significantly lower than during one-year insolvency proceedings. The laws of the time-value of money are uncompromising.[8]

We take our data from the Doing Business project, which is a common database for the World Bank and International Finance Corporation. One needs to bear in mind that real results from insolvency proceedings were not collected – it is a survey based on professional votes. Data for individual countries emerge (simply put) in as much as a group of experts in each country assesses the most likely outcome of a case of insolvency proceedings presented to them. The image is rather artificial, for it naturally does not reflect many of the facts which influence the insolvency proceedings in the real world. For instance, there is a debtor property. The assets have not been depleted or misappropriated before the proceedings – which goes contrary to reality in numerous states. However, the same case is surveyed in all countries, which means that the results provide a base for comparing the efficiency of insolvency systems. This is benchmarking, not ascertainment of reality.[9]

To measure the efficiency of an economy, we chose the indicator of gross domestic product per inhabitant (per capita) converted to the dollar.[10] We know that this is not a precise interpretation, GDP per capita does not encompass the mechanisms of redistribution of national wealth or the price level in a given country, which need not be in direct correlation to the exchange rate of the domestic currency towards the dollar. Nevertheless, we are not aware of the existence of a more appropriate and more objective gauge.

Moreover, in some specific economies, GDP per inhabitant does not show even the efficiency of the economic system. This state is evident, for instance, in economies with a significant influence of mineral wealth. That is why we ranked into our survey the group of Arab countries.

2. THE SAMPLE OF COUNTRIES – ANALYSIS AND DEFINITION

For further survey, we selected sixty countries, which is roughly 30 percent of all states for which data are available.[11] It is therefore a significant and quite voluminous sample. As regards the share in global gross product, the countries included represent between 80 and 85 percent of its total value (according to the used methodology).

The countries are divided into six groups, whilst opposites are contained in each of these groups. These opposites are, with a few exceptions, based on the relationship of wealthy versus poor.

2.1. Individual groups – characteristics

Group 1A includes the world's wealthiest countries, where the GDP per inhabitant is the highest, namely Norway, Denmark, Sweden, Australia and Singapore. In fact, other countries should also be present here; it is therefore necessary to explain the omission thereof. Luxembourg (GDP per inhabitant 110,697

dollars) especially is at issue. It is statistically quite problematic especially because of its over-inflated financial system. The balance sum of banks domiciled in Luxembourg exceeds its GDP twenty times, but if we added other financial institutions, one hundred times the country's GDP would be at issue.

Qatar would also belong to group 1A, but we include it among wealthy Arab countries (oil-producing). The world's wealthiest countries group also excludes Macao for which there are no available data on insolvency proceedings. Finally, Switzerland (84,815 dollars) was eliminated for essentially the same reasons as Luxembourg.[12]

A contrast is given by group 1B, which gathers the world's five poorest countries, namely Liberia, Niger, the Central African Republic, Burundi and Malawi. These are five African states which show the economic, not to mention the political situation of this continent.[13]

Group 2A captures the five wealthiest African states, including Seychelles at the helm, followed by Gabon and Mauritius, Botswana and South Africa. As for wealth, the cases of the Seychelles and Mauritius are clear – they are both tourist destinations; Gabon is an oil-producing state with significant mercury deposits and a lucrative timber industry, a state, in contrast to its neighbours, religiously and ethnically peaceful.

Group 2B represents the opposite – the poorest African states (apart from those ranked among the world's poorest countries).[14] It includes Madagascar, the Democratic Republic of the Congo, Gambia, Ethiopia, and Guinea. Most of these countries, too, have undergone or are undergoing serious national or religious conflicts, in some a civil war rages regularly.

Group 3A comprises the wealthiest countries in Europe, excluding Luxembourg and Switzerland. Europe's wealthiest countries are Iceland, Finland, Ireland, Austria, and the Netherlands. The difference in GDP per inhabitant is very small among these states (from 47.5 to 51.7 thousand dollars), and if someone were surprised by the non-participation of Germany, it is a very narrow non-participation, which also concerns Belgium, France, and the United Kingdom.

The next group is 3B, once again the opposition – i.e. the poorest European states. In defining European borders, we inclined towards the dominant broader concept of Europe, which also includes Caucasian states previously occupied by the Soviet Union. Nevertheless, three of five countries belonging to this group correspond to the narrower concept of Europe. Group 3B comprises of Moldova, Armenia, Georgia, Kosovo and the Ukraine.

Group 4A includes the wealthiest American countries. The United States is at the top, the next is Canada, followed by Puerto Rico, The Bahamas, and Uruguay. The opposite group 4B consists especially of Central American and partly of South American countries. It includes Nicaragua, Honduras, Bolivia, Guyana and El Salvador.[15]

The fifth groups cover Asia and Oceania (including Australia, which we consider as one state, not as a continent, but which belongs to group 1A). Group 5A comprises Japan, Hong Kong, the Korean Republic, Kazakhstan and Malaysia. It is a group somewhat divergent. For instance, if we asserted minimal differences in GDP per inhabitant in the wealthiest European states, we find the exact opposite here, given that Japan reaches four times the GDP per inhabitant than Malaysia.

The five poorest Asian countries are placed in group 5B, which includes Afghanistan, Nepal, Bangladesh, Cambodia and Tajikistan.

The sixth group has been compiled on different principles. Group 6A includes wealthy (mostly) Arab oil-producing states where one could expect an essentially poorer institutional state as against the GDP per inhabitant reached. They are Qatar, Kuwait, United Arab Emirates, Brunei Darussalam and Saudi Arabia. Group 6B includes the five most populated countries in the world (unless they were included in the preceding groups).

2.2. Analysis of the individual groups

In the next part of the paper we focus on the analysis of all six groups, calculating the same parameters of each group. In the first line of each of the tables, a definition of the "average" country in each group will then emerge, an entirely theoretical state, which represents its group in subsequent comparisons. Similarly, with the aid of average methods, we will define the group of "wealthy" and "poor" countries and the whole surveyed sample.

We will not comment on the tables as we go along, we only now draw attention to certain interesting aspects which are fundamental for further interpretation of the results. Let us observe that the average GDP per inhabitant in most groups is higher than the median (we now speak of groups 1 to 6).[16] This suggests that considerable differences exist between countries. This is the same effect that applies to, for instance, average and median salary. The situation in both European groups is the opposite, however, and the median is higher than the average. Among the wealthiest European countries, this is given by the fact that certain states were not included into the survey (as explained above); others are categorized among the wealthiest countries in the world. If this were not so, the European average would be higher than the median, too. In the group of the poorest European states, the distance of states with a truly poor standard of living behind the other countries is dramatic and pulls the average downwards.[17]

Another interesting datum is range, which refers to the difference between the maximum and minimum figure in the given category. As for GDP per inhabitant, even among the world's five wealthiest countries, the difference between the maximum and minimum value is almost equal the minimum value (i.e. it makes up 82.7 percent of the minimal value) – see Table 2. In the five poorest countries in the world we find as much as a 101-percent difference – i.e. the difference of the highest and lowest value is higher than the minimal value itself (Table 3).[18]

The basic data on the successfulness of insolvency proceedings (recovery rate and costs) are expressed as percentages from certain wholes, so their nominal value can fluctuate in a range from zero (surprisingly, this figure really appears, see note under Table 3) up to one hundred, which is a purely theoretical notion. On the other hand, time has no limitations, formally speaking – although there are of course certain barriers here (this parameter fluctuates from 0.4 to 6 years). We encounter these aspects in other parts of the study.

Table 2

Group 1A – The wealthiest countries in the world

	Time (years)	Costs (%)	Recovery rate (%)	GDP_inh (USD)
Average	1.14	5.0	85.5	68,744.2
Median	1.0	4.0	87.5	60,430.0
Variance	0.238	11.5	42.3	3.40733E8
Standard deviation	0.487852	3.39116	6.50385	18,459.0
Coeff. of variation	42.7941%	67.8233%	7.60684%	26.8517%
Minimum	0.8	1.0	76.1	55,182.0
Maximum	2.0	9.0	92.3	100,819.0
Range	1.2	8.0	16.2	45,637.0
Lower quartile	0.9	3.0	81.9	59,832.0
Upper quartile	1.0	8.0	89.7	67,458.0
Interquartile range	0.1	5.0	7.8	7,626.0

Source: own calculations.

Table 3

Group 1B – The poorest countries in the world

	Time (years)	Costs (%)	Recovery rate (%)	GDP_inh (USD)
Average	4.08	38.3	8.6	339.0
Median	4.8	30.0	8.6	333.0
Variance	1.392	524.2	31.105	9,247.5
Standard deviation	1.17983	22.8954	5.57719	96.1639
Coeff. of variation	28.9174%	59.7791%	64.851%	28.3669%
Minimum	2.6	18.0	0.0	226.0
Maximum	5.0	76.0	14.7	454.0
Range	2.4	58.0	14.7	228.0
Lower quartile	3.0	25.0	7.6	267.0
Upper quartile	5.0	42.5	12.1	415.0
Interquartile range	2.0	17.5	4.5	148.0

Source: own calculations.

Note: A zero recovery rate is given for the Central African Republic. Since the Doing Business case describes an affluent debtor who has a clear ability to generate positive cash-flow, the professional estimate of zero recovery rate is rather shocking.

Table 4

Group 2A – The wealthiest countries in Africa

	Time (years)	Costs (%)	Recovery rate (%)	GDP_inh (USD)
Average	2.48	15.2	43.98	10,178.6
Median	2.0	14.5	38.9	9,203.0
Variance	2.007	8.575	455.397	1.49644E7
Standard deviation	1.41669	2.92831	21.34	3868.38
Coeff. of variation	57.1244%	19.2652%	48.5221%	38.005%
Minimum	1.7	11.0	15.2	6,618.0
Maximum	5.0	18.0	67.4	16,186.0
Range	3.3	7.0	52.2	9,568.0
Lower quartile	1.7	14.5	35.7	7,315.0
Upper quartile	2.0	18.0	62.7	11,571.0
Interquartile range	0.3	3.5	27.0	4,256.0

Source: own calculations.

Table 5

Characteristics of group 2B – The poorest countries in Africa

	Time (years)	Costs (%)	Recovery rate (%)	GDP_inh (USD)
Average	2.58	18.4	22.66	492.8
Median	2.0	14.5	17.9	489.0
Variance	0.822	79.175	109.853	510.2
Standard deviation	0.906642	8.89803	10.4811	22.5876
Coeff. of variation	35.1412%	48.3589%	46.2537%	4.58352%
Minimum	1.8	8.0	11.7	463.0
Maximum	3.8	30.0	38.3	523.0
Range	2.0	22.0	26.6	60.0
Lower quartile	2.0	14.5	17.6	484.0
Upper quartile	3.3	25.0	27.8	505.0
Interquartile range	1.3	10.5	10.2	21.0

Source: own calculations.

Table 6

Group 3A – The wealthiest countries in Europe

	Time (years)	Costs (%)	Recovery rate (%)	GDP_inh (USD)
Average	0.9	5.9	86.8	49,690.2
Median	1.0	3.5	87.7	50,503.0
Variance	0.085	10.925	9.815	1.96883E6
Standard deviation	0.291548	3.3053	3.13289	1,403.15
Coeff. of variation	32.3942%	56.022%	3.60932%	2.8238%
Minimum	0.4	3.5	82.6	47,461.0
Maximum	1.1	10.0	90.2	50,793.0
Range	0.7	6.5	7.6	3,332.0
Lower quartile	0.9	3.5	84.6	49,147.0
Upper quartile	1.1	9.0	88.9	50,547.0
Interquartile range	0.2	5.5	4.3	1,400.0

Source: own calculations.

Table 7

Group 3B – The poorest countries in Europe

	Time (years)	Costs (%)	Recovery rate (%)	GDP_inh (USD)
1	2	3	4	5
Average	2.32	18.6	30.08	3,425.2
Median	2.0	15.0	36.5	3,605.0
Variance	0.237	176.3	157.017	468,831.0
Standard deviation	0.486826	13.2778	12.5306	684.712
Coeff. of variation	20.9839%	71.386%	41.6577%	19.9904%

1	2	3	4	5
Minimum	1.9	10.0	8.6	2,239.0
Maximum	2.9	42.0	38.7	3,900.0
Range	1.0	32.0	30.1	1,661.0
Lower quartile	2.0	11.0	29.4	3,505.0
Upper quartile	2.8	15.0	37.2	3,877.0
Interquartile range	0.8	4.0	7.8	372.0

Source: own calculations.

Table 8

Group 4A – The wealthiest countries in America

	Time (years)	Costs (%)	Recovery rate (%)	GDP_inh (USD)
Average	1.92	8.44	69.76	34,438.4
Median	1.8	8.0	73.4	28,529.0
Variance	0.737	4.268	281.653	2.90539E8
Standard deviation	0.858487	2.06591	16.7825	17,045.2
Coeff. of variation	44.7129%	24.4777%	24.0575%	49.4947%
Minimum	0.8	7.0	44.2	16,351.0
Maximum	3.0	12.0	87.3	53,042.0
Range	2.2	5.0	43.1	36,691.0
Lower quartile	1.5	7.0	63.5	22,312.0
Upper quartile	2.5	8.2	80.4	51,958.0
Interquartile range	1.0	1.2	16.9	29,646.0

Source: own calculations.

Table 9

Group 4B – the poorest countries in America

	Time (years)	Costs (%)	Recovery rate (%)	GDP_inh (USD)
Average	2.86	16.8	28.34	2,915.0
Median	3.0	14.5	33.0	2,868.0
Variance	0.718	43.95	89.633	75,8145.
Standard deviation	0.847349	6.62948	9.46747	870.715
Coeff. of variation	29.6276%	39.4612%	33.4067%	29.8702%
Minimum	1.8	12.0	18.1	1,851.0
Maximum	3.8	28.5	38.9	3,826.0
Range	2.0	16.5	20.8	1,975.0
Lower quartile	2.2	14.5	18.5	2,291.0
Upper quartile	3.5	14.5	33.2	3,739.0
Interquartile range	1.3	0.0	14.7	1,448.0

Source: own calculations.

Table 10

Group 5A – the wealthiest countries in Asia

	Time (years)	Costs (%)	Recovery rate (%)	GDP_inh (USD)
Average	1.08	7.4	77.56	25,376.6
Median	1.0	5.0	83.1	25,977.0
Variance	0.167	25.175	386.668	1.74313E8
Standard deviation	0.408656	5.01747	19.6639	13,202.8
Coeff. of variation	37.8385%	67.8036%	25.3531%	52.0273%
Minimum	0.6	3.5	43.3	10,538.0
Maximum	1.5	15.0	92.9	38,634.0
Range	0.9	11.5	49.6	28,096.0
Lower quartile	0.8	3.5	81.3	13,610.0
Upper quartile	1.5	10.0	87.2	38,124.0
Interquartile range	0.7	6.5	5.9	24,514.0

Source: own calculations.

Table 11

Group 5B – the poorest countries in Asia

	Time (years)	Costs (%)	Recovery rate (%)	GDP_inh (USD)
Average	3.14	15.8	28.2	872.2
Median	2.0	9.0	26.4	958.0
Variance	3.398	96.7	181.235	31,844.7
Standard deviation	1.84337	9.83362	13.4624	178.451
Coeff. of variation	58.7059%	62.2381%	47.7388%	20.4599%
Minimum	1.7	8.0	8.2	665.0
Maximum	6.0	28.0	43.7	1,037.0
Range	4.3	20.0	35.5	372.0
Lower quartile	2.0	9.0	25.8	694.0
Upper quartile	4.0	25.0	36.9	1,007.0
Interquartile range	2.0	16.0	11.1	313.0

Source: own calculations.

Table 12

Group 6A – The wealthiest oil-producing countries

	Time (years)	Costs (%)	Recovery rate (%)	GDP_inh (USD)
1	2	3	4	5
Average	3.1	15.5	38.52	50,697.0
Median	2.8	20.0	32.1	43,049.0
Variance	0.44	69.75	154.237	6.67565E8
Standard deviation	0.663325	8.35165	12.4192	25,837.3
Coeff. of variation	21.3976%	53.8816%	32.241%	50.9641%

1	2	3	4	5
Minimum	2.5	3.5	28.6	25,962.0
Maximum	4.2	22.0	56.0	93,714.0
Range	1.7	18.5	27.4	67,752.0
Lower quartile	2.8	10.0	28.7	38,563.0
Upper quartile	3.2	22.0	47.2	52,197.0
Interquartile range	0.4	12.0	18.5	13,634.0

Source: own calculations.

Table 13

Group 6B – The poorest countries in Asia

	Time (years)	Costs (%)	Recovery rate (%)	GDP_inh (USD)
Average	2.92	14.04	31.72	4,852.8
Median	2.7	12.0	31.7	3,475.0
Variance	1.412	55.328	37.147	1.75386E7
Standard deviation	1.18828	7.43828	6.09483	4,187.91
Coeff. of variation	40.6944%	52.9792%	19.2145%	86.2989%
Minimum	1.7	5.6	25.7	1,275.0
Maximum	4.3	22.0	39.4	11,208.0
Range	2.6	16.4	13.7	9,933.0
Lower quartile	1.9	9.0	25.8	1,499.0
Upper quartile	4.0	21.6	36.0	6,807.0
Interquartile range	2.1	12.6	10.2	5,308.0

Source: own calculations.

Table 14

Characteristics of the 25 wealthiest countries

	Time	Costs	Recovery rate	GDP_inh
Average	1.504	8.388	72.72	37,685.6
Median	1.1	8.0	81.9	38,634.0
Variance	0.914567	23.6261	450.087	5.59469E8
Standard deviation	0.95633	4.86067	21.2152	23,653.1
Coeff. of variation	63.5858%	57.9479%	29.1739%	62.7643%
Minimum	0.4	1.0	15.2	6,618.0
Maximum	5.0	18.0	92.9	100,819.0
Range	4.6	17.0	77.7	94,201.0
Lower quartile	0.9	3.5	63.5	16,186.0
Upper quartile	1.8	11.0	87.5	51,958.0
Interquartile range	0.9	7.5	24.0	35,772.0

Source: own calculations.

Table 15

Characteristics of the 25 poorest countries

	Time	Costs	Recovery rate	GDP_inh
Average	2.996	21.58	23.576	1,608.8
Median	2.8	15.0	25.8	958.0
Variance	1.47873	227.306	159.703	1.96266E6
Standard deviation	1.21603	15.0767	12.6374	1,400.95
Coeff. of variation	40.5885%	69.8641%	53.6026%	87.0782%
Minimum	1.7	8.0	0.0	226.0
Maximum	6.0	76.0	43.7	3,900.0
Range	4.3	68.0	43.7	3,674.0
Lower quartile	2.0	12.0	12.1	484.0
Upper quartile	3.8	28.0	36.5	2,868.0
Interquartile range	1.8	16.0	24.4	2,384.0

Source: own calculations.

Table 16

Characteristics of the entire surveyed group of 60 countries

	Time	Costs	Recovery rate	GDP_inh
Average	2.37667	14.9483	45.9767	21,001.8
Median	2.0	12.0	37.75	7,061.0
Variance	1.65368	147.521	798.638	6.4896E8
Standard deviation	1.28596	12.1458	28.2602	25,474.7
Coeff. of variation	54.1076%	81.2521%	61.4664%	121.298%
Minimum	0.4	1.0	0.0	226.0
Maximum	6.0	76.0	92.9	100,819.0
Range	5.6	75.0	92.9	100,593.0
Lower quartile	1.5	8.0	25.8	1,156.0
Upper quartile	3.0	19.0	78.25	40,841.5
Interquartile range	1.5	11.0	52.45	39,685.5

Source: own calculations.

In the preceding tables marked Table 2 to Table 14, we expressed numerous characteristics of individual groups of countries, and in doing so we formed the "average state" of each group. Further, two more selections have been formed – wealthy countries on the one hand and poor on the other. For comparison we then state the characteristics of the entire sample of 60 countries. The average values of key parameters are stated in the following Table 17, which no longer works with existing countries and real states, but with the "average" country for each group. The computed average is a simple arithmetic average where each country has the same weight.

Table 17

The average parameters of individual groups

	Time (years)	Costs (%)	Recovery rate (%)	GDP_inh (USD)
1A (wealthy world)	1.14	5.0	85.5	68,744.2
1B (poor world)	4.08	38.3	8.6	339.0
2A (wealthy Africa)	2.48	15.2	44.0	10,178.6
2B (poor Africa)	2.58	18.4	22.7	492.8
3A (wealthy Europe)	0.90	5.9	86.8	49,690.2
3B (poor Europe)	2.32	18.6	30.1	3,425.2
4A (wealthy America)	1.92	8.4	69.8	34,438.4
4B (poor America)	2.86	16.8	28.3	2,915.0
5A (wealthy Asia)	1.08	7.4	77.6	25,376.6
5B (poor Asia)	3.14	15.8	28.2	872.2
6A (wealthy oil-producing states	3.10	15.5	38.5	50,697.0
6B (most populated states)	2.92	14.0	31.7	4,852.8
25 wealthy countries – XA	1.50	8.4	72.7	37,685.6
25 poor countries – XB	3.00	21.6	23.6	1,608.8
Entire sample of 60 countries	2.38	14.9	46.0	21,001.8

Source: own calculations.

2.3. Some conclusions stemming from the comparison of the groups

Table 17, but also many data from the preceding tables, offer a large space for comparative analysis. Most importantly, it is clear that wealthy countries are distinguished by a short duration of insolvency proceedings. In the 25 wealthiest countries they take half the time than in the 25 poorest countries. Yet it applies that, due to the way the sample has been conceived, some of the wealthiest countries belong at the top only in their continents and not globally –there is a statistically significant difference between the length of insolvency proceedings in the world's wealthiest countries (1A:1.14 years) and in the 25 wealthy countries (XA:1.5 years). The difference between the poorest countries in the world (1B:4.08 years) and the 25 poor countries (XB: Exactly three years) is influenced by the fact that, in several continents, even relatively poor countries are more developed and wealthier than other regions.[19]

We also find a dramatic difference in the costs, for in wealthy countries they do not consume even a tenth of the monetization volume, whereas in poor countries it is more than a fifth. Finally, creditors in wealthy countries (group XA) receive (recovery rate) three quarters of their claim, in poor countries (XB) not even a quarter. In absolute costs, however, this does not mean that proceedings in wealthy countries are actually "cheaper".[20] But the level of creditor satisfaction reflects reality (an estimation of reality) in how assets in a given region can be sold. Or possibly – of course – the extent to which creditors can rely on correct and just operation of courts and the insolvency system.[21]

A summary is given by Table 17, confirming the hypothesis that institutional quality expressed in GDP per inhabitant should remain in relation to the selected insolvency proceedings parameters. The expected proportion is preserved in all relationship pairs, when higher GDP per inhabitant entails a shorter length of proceedings, lower costs and higher satisfaction of creditors than lower GDP.

3. ANALYTICAL PART

We now move on to regression analysis of the sample and its parts. The groups containing five or even ten members cannot be studied because they contain too few countries to be surveyed rationally by regression analysis. This is why we shall focus on the analysis of both groups containing twenty five members (first 1A, 2A, 3A, 4A and 5A marked as group XA for further data processing and second 1B, 2B, 3B, 4B and 5B marked as group XB for further data processing) and finally also the entire sample of 60 countries.

3.1. Poor countries

Regression analysis of Group XB, the result of which is described in the equation (1) and in Table 18a and Table 18b, shows that the GDP per inhabitant appears to be statistically insignificant, which at first glance can entail problems in proving our hypothesis. Yet the exact opposite is true – precisely this indicator should appear to be insignificant, for this group is relatively homogenous as for GDP. Table 15 shows that GDP in these countries ranges from 226 to 3,900 dollars. This means that the level of the poorest countries reaches 5.8 percent of the wealthiest ones. The average reaches about 1,608 dollars, and the median is just below 970 dollars. The difference between the minimum and maximum is significant when expressed in percentages, but the relationship of the median and average shows the significant influence of several countries with a (relatively) high GDP per inhabitant. In other words, the 75th percentile starts at a GDP per inhabitant of almost 2,900 dollars, yet half of the group XB countries (world's 25 poor countries) have the GDP per inhabitant lower than 958 dollars.

Further relationships stem from the equation:

$$Recovery\ rate = 48.7975 - 4.92921 * Time - 0.484411 * Costs \quad (1)$$

In the next paragraph the variables used in equation 1 will be explained. Recovery rate represents the proportion of debts which were repaid to creditors. Time is the period spent on the solving of insolvency proceedings and costs are money which had to be paid during insolvency proceedings to gain money from assets' selling. The quality of overall model is represented by R-squared and other characteristics mentioned in Table 18a.

Table 18a

Regression analysis of 25 poor countries (XB) – dependence on recovery rate

Dependent Variable: RECOVERY_RATE				
Included observations: 25				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CONSTANT	48.7975	3.51188	13.895	0.0000
Time	-4.92921	1.15484	-4.2683	0.0003
Cost	-0.484411	0.0931454	-5.20058	0.0000
R-squared	0.767724	F-statistic		36.36
Adjusted R-squared	0.746608	Prob(F-statistic)		0.0000
		Durbin-Watson stat		1.7271

Source: own calculations.

Equation (1) and Table 18b show a significant dependence (inverse proportion) between recovery rate and time and costs. This means that if costs increase by one percentage point, the recovery rate drops by 0.48 of a percentage point. If time increases by one year, the recovery rate decreases by almost five percentage points. These relationships apply if the other variable remains constant. If we turn the relationship around in a mirror-like manner, a reduction of values of time or costs brings a higher recovery rate, which corresponds to the hypothesis on the reciprocal values of insolvency proceedings assuming that the shorter the time and the lower the costs, the higher the recovery rate. We can deduce that this hypothesis fully applies in countries which are institutionally and economically less efficient and where assets are hard to sell due to the complicated situation on the market.

Yet the statistical insignificance of the indicator GDP per inhabitant – as we have also already mentioned – is not surprising nor does it threaten the confirmation of the hypothesis, for we monitor the standard of living in dollars per inhabitant and its range is thus necessarily higher than the range of data in costs and recovery rate expressed in percentages from a sum of receivables.

We add another analysis of two-sided dependences of used variables. Figure1 illustrates a matrix of point diagrams, and Table 18b illustrates calculated paired correlation coefficients r_{yx} of these dependences. On a 5% significance level, one can identify from both the graph and table a very strong inversely proportional relationship between recovery rate and time (r_{yx} = 0.6944) and between the recovery rate and costs (r_{yx} = -0.7585); furthermore, on a 10% significance level, a medium strong directly proportional relationships between costs and time (r_{yx} = 0.3808) and the recovery rate and GDP_inh (r_{yx} = 0.3821). Other relationships are statistically insignificant.

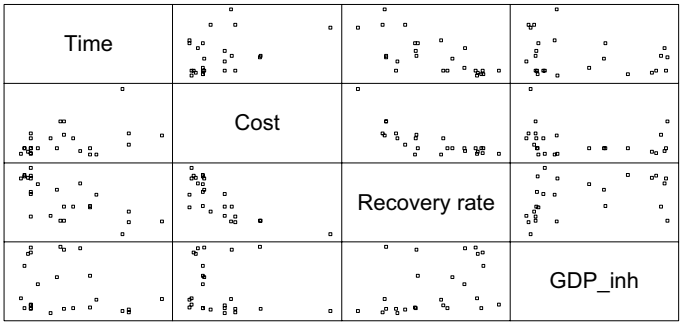

Figure 1. Scatterplot matrix of poor countries
Source: own calculations.

The results of the analyses are summarized in Figure 1, where we can observe the strongest relationship between recovery rate and costs. The relationship between recovery rate and time is less visible, yet at least significantly indicated. Contrariwise, all relationships in which GDP per inhabitant has been surveyed show a tendency rather than a visible relationship. However, the distribution of points in the space presenting the relationship between GDP_inh and recovery rate indicates (if we eliminated a few values) a direct proportion, which may not have been analytically proved (for a part of the sample would have to be eliminated), but is visible in the graphic expression. As it later transpires in the analysis of whole groups, GDP per inhabitant gains its importance precisely when the heterogeneity and spread of data for individual surveyed states manifests itself fully.

Table 18b

Regression analysis of the 25 poor countries (XB) – correlations

		Time	Costs	Recovery rate	GDP_inh
Time	r_{yx}		0.3808	-0.6944	-0.2700
	p-value		0.0604	0.0001	0.1917
Costs	r_{yx}	0.3808		-0.7585	-0.2078
	p-value	0.0604		0.0000	0.3190
Recovery rate	r_{yx}	-0.6944	-0.7585		0.3821
	p-value	0.0001	0.0000		0.0594
GDP_inh	r_{yx}	-0.2700	-0.2078	0.3821	
	p-value	0.1917	0.3190	0.0594	

Source: own calculations.

We need to cope with the possible objection that confirmation of the hypothesis in the poor countries does not have a particularly high information value, for the state of the professional environment in their structure and mutual relationships the same as the results gained in the rich countries (as may be just as poor as the state of institutions there. However, the results gained in the poor countries are we shall soon see). This certainly indicates that the quality of professional responses in the poor countries cannot be cast into doubt merely because we consider them generally unstable.

3.2. Wealthy countries

In the world's 25 wealthy countries (Group marked as XA), the following equation (equation 2) highly correlates with the aforementioned equation describing the situation of the 25 poor countries.

$$Recovery\ rate = 107.286 - 12.1552 * Time - 1.94144 * Costs \quad (2)$$

Meaning of the variables is same as in the case of equation 1. Recovery rate represents the proportion of debts which were repaid to creditors. Time is the period spent on the solving of insolvency proceedings and costs are money which had to be paid during insolvency proceedings to gain money from assets' selling. The quality of overall model is represented by R-squared and other characteristics mentioned in Table 19a.

We once again find GDP per inhabitant being statistically insignificant. Even this time we explain this by the relative homogeneity of the countries. This assertion may seem absurd when comparing with Table 14. The minimum value in the sample reaches 6,618 dollars and the maximum almost 101 thousand. But here too we need to observe other data from Table14, especially the relationship of average and median. These are practically identical (37,686 dollars and 38,634 dollars).This means that the sample includes certain extreme values on both sides, but its core is rarely compact. This can appropriately be shown on the relationship between the border of the 25th and 75th percentiles in the countries in group XB and group XA. In the 25 poor countries (XB), the 25th and 75th percentile limits are 494 and 2,868 dollars, so the latter is 6.2 times higher than the former. In the group of wealthy countries (XA), the same datum is only 3.2 times (16,186 and 51,958 dollars). It thus applies as for GDP per inhabitant, the group of wealthy countries (XA) is more compact than the group of poor countries (XB).

Table 19a

Regression analysis of 25 wealthy countries (XA) – dependence on recovery rate

Dependent Variable: RECOVERY_RATE				
Included observations: 25				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CONSTANT	107.286	4.75748	22.5511	0.0000
Time	-12.1552	2.75279	-4.41558	0.0002
Cost	-1.94144	0.541608	-3.58458	0.0017
R-squared	0.756347	F-statistic		34.15
Adjusted R-squared	0.734196	Prob(F-statistic)		0.0000
		Durbin-Watson stat		1.9605

Source: own calculations.

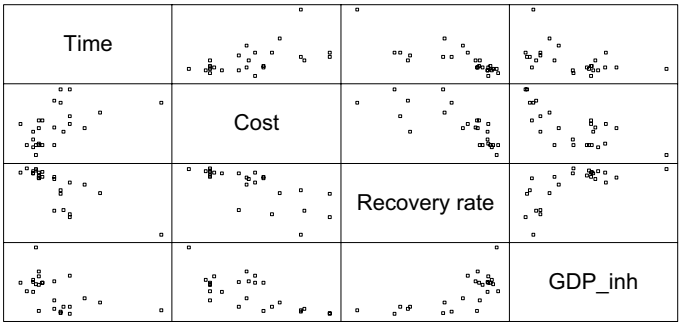

Figure 2: Scatterplot matrix of wealthy countries
Source: own calculations.

For gaining more complex information we again state the pair dependences, which can be identified from Figure 2 and Table 19b. As is clear from the table, all pair relationships between the analysed variables are statistically significant on a 5% significance level; these are medium strong to strong inversely proportional relationships, with the exception of the relationship of costs and time, where this relationship is (quite logically) directly proportional.

Table 19b

Regression analysis of 25 wealthy countries (XA) – correlations

		Time	Costs	Recovery rate	GDP_inh
		1	2	3	4
Time	r_{yx}		0.5299	-0.7836	-0.4911
	p-value		0.0064	0.0000	0.0127
Costs	r_{yx}	0.5299		-0.7351	-0.7147
	p-value	0.0064		0.0000	0.0001

		1	2	3	4
Recovery rate	r_{yx}	-0.7836	-0.7351		0.6927
	p-value	0.0000	0.0000		0.0001
GDP_inh	r_{yx}	-0.4911	-0.7147	0.6927	
	p-value	0.0127	0.0001	0.0001	

Source: own calculations.

As we see in Table 19a and Table 19b, the basic relationships are absolutely the same as in group XB. Only the significance of individual inverse proportions is different. If costs increase by one percentage point, the recovery rate drops by 1.94 percentage points. If time increases by one year, the recovery rate decreases by more than 12 percentage points. Here too these relationships apply if the other variable remains constant. If we turn this relationship in a mirror-like manner, it can be said that reduced time or costs bring a higher recovery rate. Yet it is a stronger relationship than in group XB, which applies despite the fact proved above that group XA is more compact than group XB as for GDP per inhabitant.

3.3. Interpretation

The fact that we find in the group of wealthy countries (XA) a stronger relationship between individual insolvency proceeding parameters could be surprising at first glance, and it could again be understood as casting our basic hypothesis into doubt, but this is not so in reality.

Let us recall that although wealthy countries are very different in their limit data, they are internally more compact than the identically composed group of poor countries. It can thus be assumed that their general economic environment is also more compact, including asset prices. This has to mean that the specific organization and institutional development per se has a correspondingly greater influence. But then the developed (more compact) group demonstrates a stronger dependence between individual parameters of insolvency proceedings than the least developed group (less compact). This is because in the least developed countries (XB), the issue of institutional maturity is overlapped by the economic (political and social) situation. This becomes a dominant element, and due to low asset prices there is also a reduction of the sensitivity of results of insolvency processes to the institutions as such and their quality.[22] Also national competitiveness highly influences the level of countries' economic development, more detail in Nečadová and Soukup (2013).

3.4. Analysis of the whole sample

The analysis of the entire sample of 60 countries includes the oil-producing states and the most populated countries in the world. Let us observe that samples distinguished by the efficiency of the economy (except for groups 6A and 6B) – have been analysed until now. Then we placed somewhat opposite each other groups XA and XB, i.e. selected wealthy states and selected poor states, whereas we accepted, besides the standard of living measured by GDP per inhabitant, also a territorial division characterized by groups 2 to 5A and 2 to 5B, by which we relativized both groups (XA a XB) to a certain extent. On the other hand, we made them globally far more representative, which confirms the ranking of groups 6A and 6B (wealthy oil-producing states and the most populated countries). If we did not use a regional key in the poor countries, for instance, this group would be representative primarily for Africa and to certain extent Asia, but not globally. The same procedure in wealthy countries would form as a counterweight Europe and North America, supplemented by selected states such as Japan, Australia or South Korea. This procedure would be

"cleaner" statistically, but for capturing the real impact and significance of insolvency proceedings it would be rather problematic. For instance, almost none of the five most populated countries would appear there in.

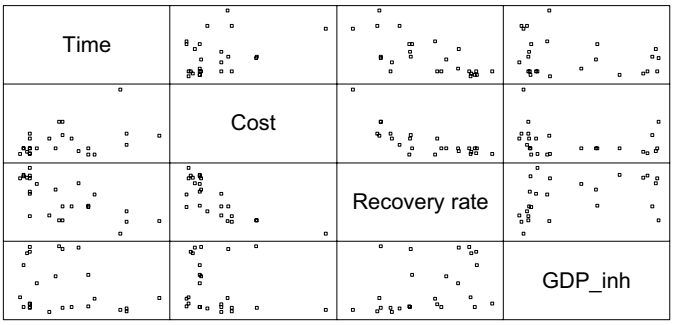

Figure 3: Scatterplot matrix of 60 countries
Source: own calculations.

Table 20a

Regression analysis of 60 countries – correlations

		Time	Cost	Recovery rate	GDP_inh
Time	r_{yx}		0.4829	-0.7792	-0.4520
	p-value		0.0001	0.0000	0.0003
Cost	r_{yx}	0.4829		-0.6615	-0.4170
	p-value	0.0001		0.0000	0.0009
Recovery rate	r_{yx}	-0.7792	-0.6615		0.7412
	p-value	0.0000	0.0000		0.0000
GDP_inh	r_{yx}	-0.4520	-0.4170	0.7412	
	p-value	0.0003	0.0009	0.0000	

Source: own calculations.

Table 20b

Regression analysis of 60 countries – dependence on recovery rate

Dependent Variable: RECOVERY_RATE				
Included observations: 60				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CONSTANT	69.3233	4.34935	15.9388	0.0000
Time	-10.1366	1.38348	-7.32689	0.0000
Cost	-0.610066	0.143755	-4.24379	0.0001
GDP_inh	0.000469678	0.0000672857	6.98035	0.0000
R-squared	0.846688	F-statistic		103.09
Adjusted R-squared	0.838475	Prob(F-statistic)		0.0000
		Durbin-Watson stat		1.5869

Source: own calculations.

Table 20a and Table 20b show that here, in this broad comparison and a highly compact sample, the GDP per inhabitant finally becomes statistically significant. This is because we are now surveying wealthy and poor countries as one system; this means that the divergence of these sixty states (measured by GDP) is truly fundamental. The limit of the lower quartile (25th percentile) is 1,156 dollars; the limit of the upper quartile (75th percentile) is 40,841.5 dollars, which is more than thirty five times the lower value. In group XA this value was 3.2 times, in group XB 6.2 times – the divergence is quite evident.

The basic equation for the whole group of sixty countries is as follows:

$$Recovery\ rate = 69.3233 - 10.1366*Time - 0.610066*Cost + 0.0004697*GDP\_inh \quad (3)$$

From the equation (3), Table 20a and Table 20b one can define that the recovery rate is inversely proportional to cost and time, and directly proportional to GDP per inhabitant. If costs rise by one percent, the recovery rate drops on average by 0.61 percentage points. Prolonging the proceedings by one year reduces the recovery rate by 10.14 percentage points, and if the GDP per inhabitant increases by one dollar, the recovery rate increases on average by 0.00046 cents from the dollar (percentage point).

4. CONCLUSIONS

As for our hypotheses expressed in the introduction, the main relationship is the one which puts in direct proportion GDP per inhabitant and recovery rate. We have demonstrated that higher efficiency of an economy measured by GDP per inhabitant is accompanied by higher efficiency of the insolvency system. The other described relationships between recovery rate, costs and time are significant, but indicate rather the internal logic of the system and the better or poorer actual functionality thereof. The whole time we have considered it to be a proven fact that high efficiency of an economy is not possible without high-quality institutions. We assume that only when institutions have been installed on a high level, when the rule of law is enabled, and especially when enforceability of a contract, not to mention enforceability of a claim, exist, can an economy reach truly high efficiency.

Yet in reality there are exceptions to this rule. The most marked ones belong to groups 6A and 6B (Table 12 and Table 13, summary Table 17). Wealthy oil-producing states (6A) reach a high GDP per inhabitant as a result of their natural wealth, not as a result of long-term development of the economy. As we see in Table12 and Table17, their average GDP per inhabitant is almost 51,000 dollars. Despite this, they reach poorer results in all three categories (time, costs, and recovery rate) than states from group 2A (wealthy African countries) whose average GDP per inhabitant amounts only to less than 10,200 dollars.

In the world's most populated countries (6B) it is demanding to create a system ensuring the enforceability of law and enabling the emergence of an efficient economy. States such as China or India are, by the number of inhabitants, divergence of cultures and surface area, countries extremely demanding logistically. Nevertheless, even these countries reach parameters of insolvency proceedings comparable to the wealthy oil-producing countries, although their GDP per inhabitant is not even a tenth.

It thus transpires that given certain conditions, high economic efficiency can be achieved even without the corresponding institutional background. Yet such countries are limited in number, and besides the states with extremely significant oil wealth, only individual cases appear. In all standard economies it applies that a high GDP per inhabitant cannot be reached without the corresponding institutional structure (see also Arltová, Smrčka, Strouhal, 2016).

One can thus declare that the hypotheses expressed in the introduction of our text have been proved adequately and can be considered to be truthful. This is also a confirmation of the hypotheses arrived at in other ways, for instance by Mancur Olson (Olson 1982) or David S. Landers (Landers 1999).

The actual relationship between the quality of institutions and economic efficiency is not in any way surprising. But it becomes significant for economies which, after a shorter or longer period of institutional destruction, embark once again on the road to renewal of standard economic relationships. It has here transpired (in 1990 – approx. 2000) that reform projects which leave the formation of institutions "to a later date" as being less significant in comparison to liberalization of prices, liberalization of foreign trade or privatization can exist and truly function. After all, the development of post-communist countries and the enormous changes these states implemented during a relatively short time exclude such interpretation. However, we consider – also on the basis of our results – as evident that this choice of priorities incurs certain long-term costs which must be borne by all economic systems with an imperfectly built institutional environment.

In our models, these costs are hidden in poorer-quality parameters of insolvency proceedings, although we assume that it is only one of the aspects of the situation, and similarly, it would also be possible to define them elsewhere, in other economic quantities.

Possible future directions of research are connected with aforementioned statements about institutional environment which has a serious impact on the efficiency of insolvency proceedings in the different countries. These impacts are highly discussed although they have not been proved statistically yet. Further research will lead to the direction of institutional and legal framework impacts on the efficiency of insolvency proceedings in the national conditions

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NOTES

1. E.g. Poland, Hungary, Czech Republic, Slovakia, Slovenia, Lithuania, Latvia, Estonia. The development in each of these countries was specific, and the presented description of the situation cannot be taken literally for any of them (Smrčka, Arltová, Schönfeld, 2013).
2. See for instance the EBRD "Transition Report 2013" (EBRD 2014, pp. 8–9, 38–60), in which Erik Berglof, the main economist of the bank, doubted that transforming economies were able to reach in the reasonable future the development of the wealthy states. Berglof built his hypothesis on the small advancement in building institutions, which is reflected in low economic growth.
3. Works attempting a broader concept of this problem are few, and have until now tended rather towards individual probes (Holman, 2000).
4. Only under the rule of law institutions can be effective. Other conditions include the existence of the market environment and inalienable private ownership. (Hayek 1998a, pp 41–96; Olson 1982).

5. At the same time we leave aside the complex issue of the evident disparity between the "rule of law" and "democracy" in our current sense of the word (Hayek 1998b).
6. All details are available on the Doing Business pages in the Methodology section (http://www.doingbusiness.org/methodology).
7. In reality, payment of yields usually takes place prior to the closure of the proceedings. This applies especially among secured creditors. Nevertheless, necessary data in this degree of detail are unavailable.
8. However, this does not mean that the shorter the proceedings, the better. If monetization is postponed and a better price is being sought, this is certainly a correct procedure – if it takes into account both factors hidden in the prolonging, i.e. greater costs and the time value of money.
9. We leave aside whether the given case is settled by liquidation or by reorganization because it has no influence on this study.
10. The figures were used from World Bank resources (World Bank 2015).
11. Data on GDP per inhabitant are unavailable for many countries such as Bermuda, Cuba, Greenland, Guam, Somalia, Syrian Arab Republic, etc.
12. Luxembourg and Switzerland would significantly affect the results of the world's wealthiest countries, but in a manner which would reduce the information value of the entire study. By an irony of fate, the data gathered on insolvency proceedings in these countries are rather average.
13. Out of the twenty poorest countries in the world, eighteen are from Africa. The hegemony of the "Dark Continent" is disturbed only by Afghanistan and Nepal.
14. Although many states should be represented in more groups (usually in two), we did not rank a country already included among the poorest states, for instance, among the poorest in Africa – such a state allowed the first subsequent one to take its place. With another method, some countries would carry greater weight than others, for they would be represented twice. The downside of our approach is that Africa now has greater representation than the other continents. However, we believe that the greater weight of one continent is more acceptable than a total of eight countries belonging to a greater number of groups. If we chose to classify the subject countries into two groups, but count them only once in greater analyses, we would reduce the sample.
15. The data used in the survey are for 2013 or 2014, as the case may be. They thus do not capture the latest development in Venezuela and other countries, where the economic situation deteriorated drastically during 2015 and 2016.
16. Put precisely, this occurs in eight groups from the twelve (1A, 1B, 2A, 2B, 4A, 4B, 6A, 6B).
17. The second region with an inverse proportion is Asia (groups 5A and 5B). Here the values in both surveyed extremes are quite close to each other, and the tilt on the median side is only in the range of hundreds of dollars.
18. These data reflect the specific national-economic aspects of individual regions. A whole range of similar calculations could be made. Among others, we would discover that the GDP per inhabitant of the poorest state from the whole sample (226 dollars – Malawi) represents 0.224 percent of the wealthiest state (100,819 dollars – Norway).
19. This applies especially when comparing the situation in Africa.
20. The bankruptcy of the Mirage hotel (the model case) is formulated so that the result is not influenced by numerous local aspects – such as asset price. The value of the Mirage is defined as one hundred times the GDP per capita or 200,000 dollars expressed in the local currency – depending on which is higher.
21. The efficiency of the insolvency system is dependent not only on the quality of institutions, but also on the general asset price level and the possibilities of the correct monetization thereof in the event of bankruptcy.
22. If the highest attainable price of a debtor's moveable and immovable property is a fifth as against another country, then given equally well (or poorly) functioning institutions, the result of insolvency proceedings will primarily depend on this price. In accordance with our hypotheses, the very fact of lower prices originates in the general institutional quality of the country.

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