

GOVERNMENT INTERVENTION IN THE ECONOMY AND CRISIS RESILIENCE

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ABSTRACT

The author relies on the results of the latest global crisis to discuss the methodology by which the correlation between the level of government intervention in the economy and its crises resilience is assessed.

She proceeds from the modified variant of the Index of Leftness (Rightness) of Economy formulated by Prof. Nazim Muzafarli and the Cumulative Loss Index. An

analysis of this correlation calculated for 57 states revealed that in the countries with a higher degree of government intervention in the economy before the global crisis the defensive response to crisis was weaker and cumulative losses bigger, which made it clear that government intervention in the flow of capitals, price formation and licensing greatly undermines the economic entities' "immunity" to crises.

KEYWORDS: *Index of Leftness (Rightness) of Economy, Cumulative Loss Index, crisis resilience of economy, global financial crisis, government intervention in the economy.*

Introduction

In his *Capitalism, Socialism and Democracy* Joseph Shumpeter wrote: "The opening up of new markets, foreign or domestic, and the organizational development from the craft shop and factory to such concerns as U.S. Steel illustrate the same process of industrial mutation—if I may use that biological term—that incessantly Revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one. This process of Creative Destruction is the essential fact about capitalism."¹

Caused by "creative destruction" and unfolding inside the economic system, the process of renovation during which weak and inefficient enterprises are replaced by more efficient ones consists of several phases called economic (or business) cycles. During the crisis phase, the most difficult and practically unpredictable stage of an economic crisis, inefficient enterprises go bankrupt, new technologies are introduced, while either new and more efficiently managed enterprises appear on the market or the old-timers expand at the expense of bankrupt enterprises' shares. The innovational

¹ J.A. Shumpeter, *Capitalism, Socialism and Democracy*, Taylor & Francis e-Library, London, New York, 2003, p. 83.

enterprises that replace the “weak links of the chain” lead to a more efficient distribution of resources while the economy is gradually reviving from the crisis. This means that in market economy crises are accompanied by economic purification and revival.

In fact, today the state is also involved in economic processes and directly affects them. It adds efficiency to the market system by creating the basic conditions of business activities (infrastructure, security, etc.) and more refined mechanisms of economic rivalry and fair control of the “rules of the game.” However, excessive government intervention in price formation, free movement of commodities, services and labor creates vast monetary resources used for state funding while the private sector is “squeezed out”; this, in the final analysis, interferes with “creative destruction” and, therefore, with the process of market purification and revival.

A higher level of government intervention undermines the economic entities’ “immunity” to crises, weakens their ability to respond promptly and efficiently. This means that economic growth, distribution of profit and greater resilience to crises need clear definitions of an efficient level of government intervention in the economy.

The correlation between the level of government intervention in the economy and its crises resilience is assessed below in the context of the latest financial crisis to specify whether a higher level of government intervention in the economy makes it more responsive to crises. In addition, the comparative analysis of this correlation in 57 countries with different development levels is given.

Methodology

Cumulative Loss Index (CLI) was used to assess the crisis resilience of economy in units of actual rate of cumulative growth in 2009-2010 vs. its pre-crisis expected (potential) growth rate, relying on the figures of expected (forecasted) growth rates in the next two years supplied by the International Monetary Fund.²

The CLI was calculated in the following way:

$$CLI = (Agrowth / Egrowth) - 1, \quad (1)$$

where *Agrowth* is the actual rate of cumulative growth (as a coefficient) in 2009-2010, while *Egrowth* is the expected, forecasted growth (presented, likewise, as a coefficient).

The countries with calculated CLI value below zero sustained the greatest losses from the crisis.

To assess the extent of government intervention in the economy, the modified variant of the Index of Leftness/Rightness of Economy formulated by Prof. Muzaffarli³ was used.

In the reports regarding the Indices of Leftness/Rightness of Economy for 2015, the extent of government intervention in the economy (according to the formulated methodology) was calculated on the basis of sub-indices.⁴

Public Finance Sub-Index (PF) signifies the level of income redistribution through taxes, and is calculated as a simple average of two indices, namely, Budget Expenditures and Business Tax Burden. The former is calculated by indexing the share of budget expenditures in GDP (in %). The latter is counted by indexing the total taxes paid in a given year by a modeled company as share of its profit. For both indices $V_{\min} = 0$ and $V_{\max} = 100$.

² See: International Monetary Fund “World Economic Outlook: Housing and the Business Cycle,” April 2008.

³ See: N. Muzaffarli, *Sotsialnaia orientirovannost ekonomiki v pravistskikh i levistskikh sistemakh*, Sharg-Garb, Baku, 2014.

⁴ See: *IL(R)E-2015: Liberal Potential of Economy*, ed. by N. Muzaffarli, Institute of Economics, NANA, Baku, 2017, p. 13 (in Azeri).

Price Regulation Sub-Index (PR) identifies the level of freedom of pricing, and, at the same time, the level of government intervention in price formation. When the PR of a country approaches 0, it means that pricing is growing more liberal; if it approaches 1, it means that the state is tightening price regulation. PR is calculated as a simple average of two indices, that of Price Freedom and Monetary Freedom. For Price Freedom Index $V_{\min} = 0$, $V_{\max} = 10$, for Monetary Freedom Index $V_{\min} = 0$, $V_{\max} = 100$. Since in the statistical bases used in calculation of both indices higher scores denote less government intervention, the final values of PR Sub-Index are obtained by subtracting from 1.

Foreign Trade Sub-Index (FT) measures the freedom of foreign trade and the rigidity of foreign trade regulations. If FT Sub-Index of a country goes down to 0, it means that the freedom of these countries' companies to trade internationally is increasing; if government regulations of foreign trade are becoming stricter, then FT Sub-Index approaches 1. FT Sub-Index is calculated as a simple average of three indices, namely, Foreign Trade Freedom, Economic Value of Imports, and Trade Freedom. For Foreign Trade Freedom Index $V_{\min} = 0$, $V_{\max} = 10$, for Economic Value of Imports Index $V_{\min} = 1$, $V_{\max} = 7$, and for Trade Freedom Index $V_{\min} = 0$, $V_{\max} = 100$. Since in the statistical bases used to calculate the sub-indices higher scores point to less government intervention, the final values of FT Sub-Index are obtained by subtracting from 1.

Licensing Sub-Index (L) calculations lean on the World Bank's methodology and are based on the indicators of time and costs required for a hypothetical company to obtain licenses and construction permits. Licensing Sub-Index is a simple average of two indices. For Licensing Time Index $V_{\min} = 0$, $V_{\max} = 1000$, and for Licensing Cost Index $V_{\min} = 0$, $V_{\max} = 100$.

Employment Regulation Sub-Index (ER) measures the extent to which the government intervenes in the employer-employee relationship, and regulates the labor process. ER Sub-Index is based on two indices, specifically, Rigidity of Employment and Redundancy Cost. The former, in turn, is an average of three indicators: difficulty (ease) of hiring, rigidity (flexibility) of working hours and difficulty (simplicity) of redundancy. Considering the greater importance of the Rigidity of Employment Index, it is weighted as 0.75, and Redundancy Cost Index, accordingly, as 0.25. For both indices— $V_{\min} = 0$, $V_{\max} = 100$.

Minimum Wage Sub-Index (MW) is the indexed version of the legal minimum wage share in GDP per capita. It is accepted that $V_{\min} = 0$, $V_{\max} = 100$.

For 2015 the Index of Leftness/Rightness of Economy is calculated by the formula:

$$IL(R)E_i = 0.30*PF_i + 0.14*PR_i + 0.14*FT_i + 0.14*L_i + 0.14*ER_i + 0.14*MW_i \quad (2)$$

As was already noted above, the Index of Leftness/Rightness of Economy was included in price formation in a modified form that differed from the original:

The Price Regulation Sub-Index (**PR**) is calculated with correction for the purchasing power parity (PPP). The idea stems from the thesis that, all other factors being equal, the highest level of state involvement in price formation is observed in the countries with high PPP coefficients. For this reason, the Max-min variant of the indicative method was used to calculate the average of the PPP coefficient for the three pre-crisis years (2006, 2007, and 2008).

The Foreign Trade Sub-Index, or Trade Regulation Sub-Index (**TR**), is a variant of the indicative Max-min method calculated as an average of three indices adopted in the original methodology on the basis of the Index of Economic Freedom elaborated by the Heritage Foundation.⁵

Price formation includes the Capital Flow Regulation Sub-Index (**CFR**) as a separate component; it comes to the fore when crises emerge and spread far and wide. It is a variant of the indicative

⁵ See: K.R. Holmes, E.J. Feulner, M.A. O'Grady *et al.*, "2008 Index of Economic Freedom. USA," Heritage Foundation and *The World Street Journal*, 2008.

Max-min method related to the figures of the Restrictions on Capital Flows presented by the World Economic Forum in its Global Competitiveness Report.⁶

Since the data for the period of calculations of the final values of the Index of Leftness/Rightness of Economy is unavailable, we could not take into account the Minimum Wage Sub-Index.

In this work, the Index of Leftness/Rightness of Economy was calculated by the following formula:

$$IL(R)E_{mod} = 0.30*PF + 0.15*TR + 0.15*CFR + 0.15*PC + 0.15*ER + 0.10*L. \quad (3)$$

The following formula of the equality of regression coefficients was used to calculate the correlation between the extent of government intervention in the economy and its resilience to crises for the Index of Leftness/Rightness of Economy and its sub-indices:

$$CLI = \beta_0 + \beta_1*IL(R)E + \beta_2*D_1 + \beta_3*D_2 + \varepsilon, \quad (4)$$

where *CLI* — the Cumulative Loss Index;

IL(R)E — the Index of Leftness/Rightness of Economy (also calculated separately, and its subindices);

*D*₁, *D*₂ — fictitious variables used to express the biggest and the smallest (as compared to the average) losses observed in certain countries for several reasons;

ε — the white noise element.

The number of analyzed countries was limited due to their accessibility/inaccessibility. The results obtained for 57 countries are presented below.

The Level of Government Intervention in the Economy and Cumulative Losses (By Country)

The calculated levels of the Index of Leftness/Rightness of Economy before the world crisis point to Switzerland (0.172) as the most “Right” (the closest to the Right pole), in which government intervention is minimal. The most developed states are among the top ten countries that approach the Right pole.

At the same time, government intervention in India (0.600), Iran (0.500), and China (0.481) is at the maximum level and very close to the Left pole. Italy is the only exception among the countries found close to the Left pole: all others are developing countries.

In the Table where the countries are arranged from the smallest to the biggest index values, Azerbaijan’s economy occupies the 45th place with the index of prices at 0.375, and as such it belongs to the Leftness economy group. The mean index for 57 countries, that is, the relative center of the scale is found at 0.334, the median, at 0.326 (Croatia). In this respect, Azerbaijan is close to the Left pole (see Table 1 and Fig. 1).

In 2009-2010, when the global crisis reached its peak, the economy of the analyzed countries (Uruguay, Singapore and Iran being the only exceptions) sustained considerable losses. The highest

⁶ See: K. Schwab, M.P. Porter, “The Global Competitiveness Report 2008-2009,” *World Economic Forum*, 2008.

Table 1

Ranking of Countries according
to the Level of Government Intervention in the Economy
(the Index of Leftness/Rightness of Economy) before the Global Crisis (IL(R)E)

Place	Country	IL(R)E	Place	Country	IL(R)E
1	Switzerland	0.172	30	Slovenia	0.332
2	Singapore	0.179	31	Belgium	0.334
3	Denmark	0.192	32	Mexico	0.339
4	Iceland	0.198	33	Rumania	0.343
5	Luxembourg	0.245	34	Poland	0.344
6	Ireland	0.246	35	Greece	0.344
7	United States	0.247	36	Czech Republic	0.348
8	United Kingdom	0.257	37	Lithuania	0.348
9	Canada	0.261	38	Hungary	0.351
10	Israel	0.268	39	Portugal	0.353
11	Chile	0.271	40	Spain	0.355
12	New Zealand	0.274	41	Uruguay	0.365
13	Australia	0.285	42	Macedonia	0.370
14	Finland	0.285	43	France	0.373
15	Norway	0.294	44	Bulgaria	0.374
16	Estonia	0.300	45	<i>Azerbaijan</i>	0.375
17	Latvia	0.300	46	Albania	0.386
18	Korea	0.302	47	Bosnia and Herz.	0.392
19	Netherlands	0.302	48	Moldova	0.414
20	Sweden	0.302	49	Kyrgyz Republic	0.418
21	Austria	0.303	50	Serbia	0.421
22	Turkey	0.306	51	Ukraine	0.436
23	Georgia	0.313	52	Russia	0.439
24	Armenia	0.313	53	Italy	0.449
25	Germany	0.314	54	Brazil	0.450
26	Kazakhstan	0.318	55	China	0.481
27	Slovak Republic	0.319	56	Iran	0.500
28	Japan	0.322	57	India	0.600
29	Croatia	0.326	IL(R)E-average arithmetic		0.334

Source: Author's calculations.

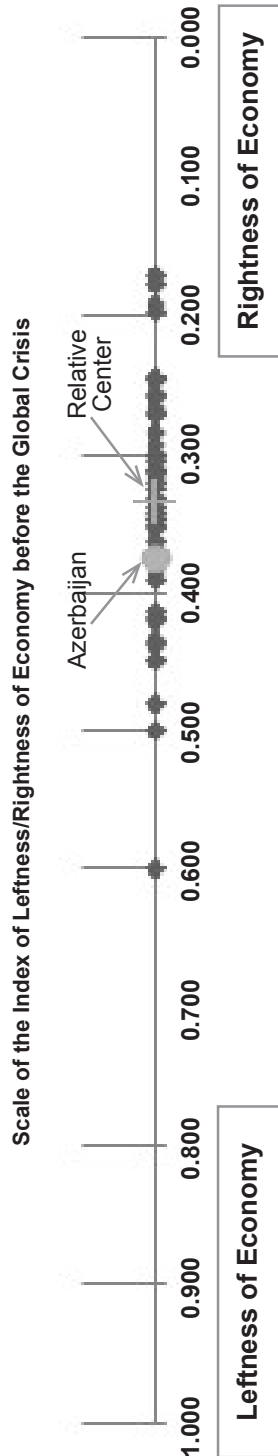
Table 2

**Cumulative Losses of Countries at
the Peak of the Global Crisis (2009-2010):
Cumulative Loss Index (CLI) Results by Country**

Place	Country	CLI	Place	Country	CLI
1	Armenia	-0.242	30	Austria	-0.055
2	Lithuania	-0.224	31	Denmark	-0.055
3	Estonia	-0.194	32	Azerbaijan	-0.053
4	Latvia	-0.186	33	New Zealand	-0.052
5	Ukraine	-0.177	34	France	-0.052
6	Rumania	-0.166	35	Turkey	-0.051
7	Croatia	-0.158	36	Albania	-0.050
8	Russia	-0.147	37	Portugal	-0.050
9	Bulgaria	-0.140	38	Norway	-0.050
10	Slovenia	-0.137	39	Canada	-0.048
11	Moldova	-0.133	40	Italy	-0.047
12	Georgia	-0.131	41	Chile	-0.046
13	Serbia	-0.128	42	Japan	-0.044
14	Greece	-0.128	43	Belgium	-0.043
15	Iceland	-0.124	44	United States	-0.041
16	Ireland	-0.122	45	Germany	-0.039
17	Slovak Republic	-0.121	46	Sweden	-0.038
18	Bosnia and Herz.	-0.113	47	Poland	-0.036
19	Hungary	-0.110	48	Korea	-0.024
20	Czech Republic	-0.102	49	Australia	-0.023
21	Finland	-0.095	50	Switzerland	-0.016
22	Kyrgyz Republic	-0.093	51	Brazil	-0.010
23	Luxembourg	-0.092	52	Israel	-0.007
24	Spain	-0.084	53	China	-0.003
25	Macedonia	-0.080	54	India	-0.001
26	Mexico	-0.074	55	Iran	0.004
27	United Kingdom	-0.069	56	Singapore	0.028
28	Kazakhstan	-0.057	57	Uruguay	0.039
29	Netherlands	-0.056			

Source: Author's calculations.

Figure 1



cumulative losses were registered in Armenia, while Lithuania and Estonia followed with smaller, yet considerable losses. Developing countries belonged to the top ten with the biggest losses.

Azerbaijan came 32nd among 57 countries, close to some of the developed countries (Austria, Denmark, New Zealand and France) (see Table 2).

Regression Analysis Results

Figure 2 does not reveal a clear connection between CLI and IL(R)E, yet the outlines of this connection can be clearly seen in the period of neutralization of crisis repercussions in the countries that sustained the greatest losses (in the process of price formation this was realized through fictitious variables).

Table 3 demonstrates that greater government intervention in the economy weakens its resilience and increases cumulative losses.

According to calculations based on 4.1 model, an increase of IL(R)E by 0.100 units decreases the CLI volume by 0.032 units, which means that the process is accompanied by an increase of cumulative losses by this value. The determination coefficient (R^2 —R squared) indicates that 63.3% of losses in the selected countries during the global financial crisis were caused by new variables added to the model. In some countries (Armenia, Latvia, Lithuania, Estonia, and Rumania) cumulative losses proved to be bigger than calculated, while in other countries (Brazil, China, India, Iran, Italy, and Uruguay) they were smaller.

A similar picture is observed in different trends of government intervention in the economy, which are related to sub-indices IL(R)E. All sub-indices, with the exception of the Employment Regulation Sub-Index (ER), have negative coefficients. This means that the state’s greater involvement in any trend expressed by any of the sub-indices negatively affects crisis resilience and increases cumulative losses. It is hard to describe the effects of these processes on the Public Finance Sub-Index (PF) and Foreign Trade Sub-Index (TR) in definite terms since statistically their coefficients are negligible. This effect is much clearer for other sub-indices.

A 0.100 increase in the value of the sub-index related to the restrictions on capital flows decreases crisis resilience of economy by 0.0123 units. In other words, it increases the volume of CLI by this value. The coefficient at the level of 0.01 is statistically valid.

Greater price regulation, likewise, negatively affects crisis resilience: an increase in the value of the sub-index by 0.100 units decreases crisis resilience by 0.006 and increases the volume of CLI.

Figure 2

Diagram of Correlation between Fictitious Variables
(extract from *EViews*)

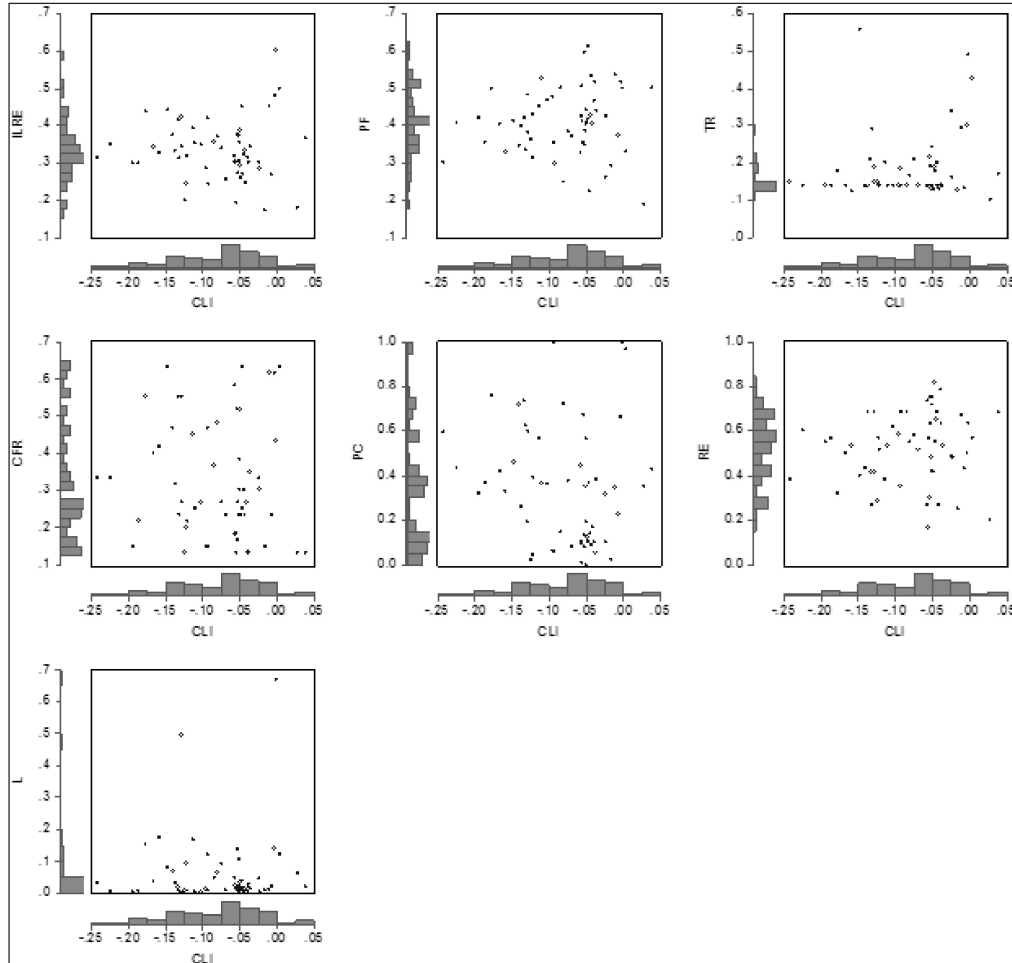


Table 3

The Influence of the Level of Government Intervention in the Economy on Crisis Resilience:
Regression Analysis Results

	CLI						
	4.1	4.2	4.3	4.4	4.5	4.6	4.7
IL(R)E	-0.316						
	0.000						
PF		-0.082					
		0.245					

Table 3 (continued)

	CLI						
	4.1	4.2	4.3	4.4	4.5	4.6	4.7
TR			-0.109				
			0.153				
CFR				-0.123			
				0.001			
PC					-0.057		
					0.013		
ER						0.003	
						0.936	
L							-0.091
							0.095
C	0.024	-0.044	-0.058	-0.039	-0.059	-0.078	-0.072
	0.369	0.130	0.000	0.004	0.000	0.000	0.000
D ₁	-0.125	-0.128	-0.129	-0.129	-0.119	-0.126	-0.129
	0.000	0.000	0.000	0.000	0.000	0.000	0.000
D ₂	0.123	0.082	0.089	0.099	0.089	0.073	0.084
	0.000	0.000	0.000	0.000	0.000	0.001	0.000
R ²	0.633	0.539	0.545	0.610	0.580	0.527	0.551
F stat.	30.410	20.646	21.153	27.637	24.368	19.676	21.708
Durbin-Watson stat.	2.263	2.224	2.255	2.005	2.176	2.201	2.215
AIC	-3.623	-3.396	-3.409	-3.563	-3.488	-3.370	-3.423
N—number of observations (countries)	57	57	57	57	57	57	57
<i>Note:</i> The figures in plain script under the coefficients reflect probable indices.							
<i>Source:</i> Author's calculations.							

Greater licensing regulation, likewise, limits the possibilities of crisis response. According to the result of price formation, an increase of the Licensing Sub-Index (L) by 0.100 units (which tightens the rules of coming into the market/pulling out of the market) increases the volume of cumulative losses by 0.009 units.

The empirical conclusions, therefore, confirm the stated thesis that an increase in government intervention in the economy undermines its crisis resilience.

Conclusions

Analysis and assessment of the correlation between the level of government intervention in the economy and its crisis resilience in 57 countries at the stage of maximum cumulative losses (2009-2010) in the period of the latest global crisis have demonstrated that the countries, in which the pre-crisis level of government intervention in the economy was higher, responded to the crisis weakly and sustained the greatest cumulative losses.

This suggests that a lower level of government intervention in the economy, particularly free movement of capital (the absence of administrative economic barriers), market price formation (non-interference of state in price formation) and the absence (through licensing) of pinching limitations of entering to/pulling out of the market raises the immunity of economy and creates conditions in which its response to crises becomes efficient and timely.
