

Socioeconomic picture of Western Hemisphere 10 years after global crisis - Evidence from selected economies

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Abstract: The world economy of the 21st century is characterized by globalization, internationalization and regional economic integration processes. The new era of interconnectedness results in a growing number of international contacts and international business transactions with partners around the globe. Therefore, it is necessary to understand the specific features and characteristics of national economies not only in Europe but also in other continents, including the Western Hemisphere. The main aim of the paper is to identify and assess socioeconomic development of selected Western Hemisphere economies ten years after global financial and economic crisis 2008+. The comparative study embraced the following 12 economies: Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Ecuador, Guatemala, Mexico, Peru, the United States and Venezuela. Moreover, the engagement of the Western Hemisphere economies in both international trade and international transfer of capital in the form of foreign direct investment was studied. Finally, changes in international competitiveness of the selected Western Hemisphere economies between 2008 and 2018 were identified.

Keywords: Western Hemisphere, socioeconomic development, comparative study

1 Introduction

Global crisis of the first decade of the 21st century significantly influenced the world economy: both Eastern Hemisphere and Western Hemisphere were hit by 2008+ crisis. The overall dynamics of phenomena and processes in the globalized economy changed. Some processes were redirected. It seems that even now, ten years after the beginning of the crisis, the world economy and its subjects do remain unstable and the whole global environment is turbulent.

The problem of research: The main problem of this paper is the exploration and assessment of socioeconomic condition of selected Western Hemisphere economies in the post-crisis period.

The objective of research: The paper aims at presenting the socioeconomic situation in Western Hemisphere ten years after the beginning of the global crisis of the first decade of the 21st century. The parallel objective is to diagnose the engagement of Western Hemisphere in international trade and international transfer of capital in the analyzed period of time.

The object of research: 12 Western Hemisphere economies selected by population and area, and in particular: Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Ecuador, Guatemala, Mexico, Peru, the United States and Venezuela.

The tasks of research: A) To gather statistical information regarding the socioeconomic situation in selected Western Hemisphere countries; B) To explore and diagnose the situation in the analyzed subjects in terms of socioeconomic development in order to identify the economies characterized by the highest and the lowest level of synthetic index of socioeconomic development; C) To compare the engagement of studied Western Hemisphere economies in international trade and international transfer of capital; D) To compare the studied Western Hemisphere economies in regard to international competitiveness.

The methods of research: Research tools used in the paper included literature studies, descriptive analysis and comparative analysis with the implementation of selected taxonomic methods. Statistical material provided by CIA and taken from the World Factbook was used for the analysis; additionally, UNCTAD statistics taken from the World Investment Reports and WTO data taken from WTO Database were used.

2 Research methods and input data

2.1 Research methods

The research tools used in the article included literature studies, descriptive analysis and taxonomic analysis. Due to a complexity of a category of economic development, selected taxonomic methods were applied. Research was conducted with the application of Hellwig's method of taxonomic measure of development as well as standard deviations' method. Hellwig's method of multivariate comparative analysis made it possible to make a hierarchy of the analyzed subjects, i.e. twelve Western Hemisphere economies, in regard to synthetic measure of economic development. After selecting the set of diagnostic variables, the character of each of the variables was determined. Variables were standardized and development model was constructed – a model unit, where diagnostic of variables were determined according to the rule, where:

$$z_{0j} = \max_i (z_{ij})$$

for stimuli or

$$z_{0j} = \min_i (z_{ij})$$

for destimuli.

The distance of i-unit from the development model was calculated using Euclid's measure:

$$d_{oi} = \sqrt{\sum_{j=1}^m (z_{ij} - z_{oj})^2}$$

Taxonomic measure of development (TMD) was calculated according to the formula (Hellwig 1968; Nowak 1990):

$$TMD_i = 1 - \frac{d_{oi}}{d_o}, i=1,2,...,n$$

where:

$$d_o = \bar{d}_o + 2S_o$$

and:

$$\bar{d}_o = \frac{1}{n} \sum_{i=1}^n d_{oi}$$

while:

$$TMD_i \in [0; 1], i=1, 2, ..., n.$$

Finally, the analyzed subjects were put in order according to the level of development expressed by taxonomic measure of development (TMD).

Additionally, the implementation of cluster analysis for the research resulted in grouping of the studied subjects – twelve Western Hemisphere economies – in four clusters according to the level of economic development measured by TMD. A selected method of grouping of linearly ordered objects, and in particular, method of standard deviations was used for this purpose. Twelve Western Hemisphere economies were divided into four clusters, according to the following rule:

$$\begin{aligned} G_1 : s_i &< \bar{s} - S(s), \\ G_2 : \bar{s} > s_i &\geq s_i - S(s), \\ G_3 : \bar{s} + S(s) &> s_i \geq \bar{s}, \\ G_4 : s_i &\geq \bar{s} + S(s), \end{aligned}$$

where: $\bar{S}$ - arithmetic mean of synthetic variable (in this study: arithmetic mean of TMD), while $S(s)$ - standard deviation of synthetic variable (in this study: standard deviation of TMD), s_i - value of the synthetic variable of the object i (in this study: TMD value in i Western Hemisphere economy).

2.2 Input data

The comparative study embraced 12 Western Hemisphere economies selected by population and area, and in particular: Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Ecuador, Guatemala, Mexico, Peru, the United States and Venezuela. They were described by the following nine indices: X_1 – GDP dynamics (%), X_2 – GDP per capita according to purchasing power parity – (Int. \$), X_3 – share of services sector in GDP creation (%), X_4 – unemployment rate (%), X_5 – general government deficit (% GDP), X_6 – general government gross debt (% GDP), X_7 – life expectancy at birth (years), X_8 – infant mortality rate (per 1000 life births), X_9 – inflation rate (%). Table 1 presents the input data set which formed the basis for the research. Statistical information was taken from the World Factbook [29].

Table 1. Input data

Economy	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9
Argentina	2.5	20700	60.9	8.1	6.1	53.7	77.3	9.8	26.9
Bolivia	4.2	7500	54.1	4.0	6.2	51.5	69.5	35.3	3.2
Brazil	0.7	15500	72.8	13.1	1.1	78.4	74.0	17.5	3.7
Canada	3.0	48100	70.2	6.5	2.0	98.2	81.9	4.5	1.6
Chile	1.4	24600	64.3	7.0	3.1	25.2	78.9	6.6	2.3
Colombia	1.7	14500	61.4	9.3	3.3	53.0	75.9	13.6	4.3
Ecuador	0.2	11200	59.7	5.1	5.5	41.0	77.0	16.4	0.7
Guatemala	2.8	8200	63.2	2.3	1.3	24.7	71.8	23.2	4.4
Mexico	2.1	19500	64.0	3.6	1.9	51.5	76.1	11.6	5.9
Peru	2.7	13300	56.1	6.7	2.8	25.7	74.0	18.4	3.2
United States	2.2	59500	80.2	4.4	3.4	77.4	80.0	5.8	2.1
Venezuela	-12.0	12400	57.4	26.4	38.1	25.8	76.0	12.2	652.7

Source: *The World Factbook 2018*, CIA. <https://www.cia.gov/library/publications/the-world-factbook/index.html>, (accessed: 10.11.2018).

3 Presentation of research results

3.1 Disparities in socioeconomic development in the light of taxonomic research

Before the proper multidimensional comparative analysis could be begun, the socioeconomic situation in all analyzed Western Hemisphere economies was studied taking into consideration nine variables one by one. The intention of this initial study was to determine the disparities among the Western Hemisphere economies in regard to each and every variable. The initial analysis has led to the following conclusions:

- GDP dynamics in the analyzed Western Hemisphere economies ranged from minus 12% in Venezuela to plus 4.2% in Bolivia with an average amounting to 0.96%;
- The average GDP per capita (PPP) equaled 21250 Int. \$, its maximum level was noted in the United States (59500 Int. \$) and its minimum level was observed in Bolivia (7500 Int. \$);
- The share of services sector in GDP creation ranged from 80.2% in the United States to 54.1% in Bolivia and the average for the 12 studied economies amounted to 63.7%;
- The average unemployment rate in the analyzed group of economies equaled 8.04%. The highest unemployment was observed in Venezuela (26.4%) and the lowest unemployment was noted in Guatemala (2.3%);
- General government deficit ranged from 1.1% GDP in Brazil to 38.1% GDP in Venezuela, with the average for the 12 economies amounting to 6.23% GDP;
- The average level of general government gross debt equaled 50.51% GDP; its maximum was noted in Canada (98.2% GDP) and its minimum was observed in Guatemala (24.7%);
- Life expectancy at birth ranged from 69.5 years in Bolivia to 81.9 years in Canada, and the average life expectancy at birth for the 12 studied economies amounted to 76.0 years;
- The average infant mortality rate for the analyzed group of economies was quite high – it equaled 14.57 per 1000 life births, its maximum was observed in Bolivia (35.5 per 1000 life births) and its minimum was noted in Canada (4.5 per 1000 life births);
- Inflation rate ranged from 0.7% in Ecuador to 652.7% in Venezuela and the average for the 12 economies amounted to 59.25%.

The application of Hellwig's taxonomic measure of development (TMD) made it possible to make a hierarchy of 12 Western Hemisphere economies in regard to synthetic index of socioeconomic development. Table 2 presents the results of research with the use of Hellwig's method. TMD ranged from 0.742 in the case of the United States (the unquestionable leader in terms of socioeconomic development among the twelve studied Western Hemisphere countries) to 0.040

for Venezuela (the least developed one). The top-three group included also Chile (with TMD amounting to 0.634) and Canada (for which TMD equaled 0.617). It should be stressed here that TMD for Venezuela represented only a bit over 5% of TMD for the United States. The top position of the United States resulted from several elements, namely: the 1st place in terms of GDP per capita PPP (59500 Int. \$) and the highest share of service sector in GDP creation (80.2%), as well as the 2nd lowest infant mortality rate (5.8 per 1000), the 2nd highest life expectancy (80 years) and the 3rd lowest inflation rate (2.1%). On the other hand, Venezuela's last place with respect to synthetic index of development expressed by TMD resulted from: the very last position of this country in terms of GDP dynamics (minus 12%), the highest unemployment rate (26.4%), the highest inflation rate (hyperinflation amounting to 652.7%) and the highest budget deficit (38.1%); moreover, Venezuela was characterized by a relatively low share of service sector in GDP creation (57.4% GDP which resulted in the 10th position among the studied economies).

Table 2. Socioeconomic development of 12 Western Hemisphere economies measured by Taxonomic Measure of Development - TMD

Position	Economy	TMD
1	United States	0.742
2	Chile	0.634
3	Canada	0.617
4	Mexico	0.560
5	Argentina	0.541
6	Colombia	0.492
7	Ecuador	0.481
8	Brazil	0.455
9	Peru	0.426
10	Guatemala	0.408
11	Bolivia	0.219
12	Venezuela	0.040

Source: Own calculations.

The next stage of research was the application of standard deviations' method of linearly ordered subjects' classification. As a result, the twelve Western Hemisphere countries were divided into four classes (according to the level of their socioeconomic development), where class G4 included countries with the highest TMD (TMD of those economies amounted to at least arithmetic mean of TMD plus standard deviation of TMD), and class G1 included economies with the lowest TMD (for those economies TMD was lower than arithmetic mean of TMD minus standard deviation of TMD). The results of analysis with the adoption of standard deviations' method of classification of linearly ordered subjects for the year 2017 are presented in table 3.

In 2017 there was only one country in class G₄, i.e. the United States of America. The next class, i.e. G₃, was formed by six economies, namely: Chile, Canada, Mexico, Argentina, Colombia and Ecuador. Class G₂ embraced three countries, in that: Brazil, Peru and Guatemala. Class G₁ was formed by two economies with the lowest level of synthetic measure of economic development TMD, namely: Bolivia and Venezuela.

Table 3. Division of 12 Western Hemisphere Economies into Classes

Economy	Class
United States	G ₄
Chile	G ₃
Canada	G ₃
Mexico	G ₃
Argentina	G ₃
Colombia	G ₃
Ecuador	G ₃
Brazil	G ₂
Peru	G ₂
Guatemala	G ₂
Bolivia	G ₁
Venezuela	G ₁

Source: Own calculations.

3.2 Western Hemisphere economies as participants of international trade and international transfer of capital

The international position of a national economy in the world economy is determined to a great extent by its engagement in international trade and international transfer of capital. Table 4 presents data regarding merchandise exports and imports of the studied Western Hemisphere economies in 2007 (just before the global crisis) and in 2017 (the last year for which statistical information was available). In 2007 the studied 12 Western Hemisphere economies accounted for 16.15% of world merchandise exports, while in 2017 they represented 16.13% of World exports; that means no significant change in the position of the region in the global economy in terms of merchandise exports was observed. When it comes to individual countries from the analyzed region, one should note a slight increase of the United States' share in world merchandise exports (from 8.13% in 2007 to 8.63% in 2017) as well as a bit higher increase in the case of Mexico (from 1.93% to 2.30%). At the same time the share of Canada in world merchandise exports was reduced to 2.36% (from initial 2.98%). Between 2007 and 2009 the United States held the number one position in the World in terms of merchandise exports, since 2010 the United States has been classified as the 2nd biggest merchandise exporter in the World (outpaced by China). The United States, Canada, Mexico

and Brazil represented as much as 87.9% of total merchandise exports of the twelve Western Hemisphere countries in 2007 and as much as 90.2% in 2017, which means that the above listed four Western Hemisphere economies determined the position of the region in terms of merchandise exports.

In the analyzed period of time the share of the 12 economies in world merchandise imports was slightly reduced: it amounted to 21.32% in 2007 and 20.61% in 2017. The United States managed to protect its leading position in the World in terms of merchandise imports though its share dropped from 14.12% in 2007 to 13.36% in 2017. One should stress an increase in the share of Mexico in world merchandise imports (from 2.03% in 2007 to 2.4% in 2017). Four Western Hemisphere economies, i.e. the United States, Canada, Mexico and Brazil accounted for 19.77% of world merchandise imports in 2007 and 19.08% in 2017; that means that the aforementioned countries represented as much as 92.73% of the region's merchandise imports in 2007 and 92.56% in 2017. Again, the four economies determined the position of the region in the global economy in terms of merchandise imports.

Table 4. Merchandise exports and imports of Western Hemisphere economies in 2007 and 2017

Economy	Merchandise exports				Merchandise imports			
	Billion USD		% World		Billion USD		% World	
	2007	2017	2007	2017	2007	2017	2007	2017
Argentina	55779	58427	0.40	0.33	44706	66899	0.31	0.37
Bolivia	4504	7752	0.03	0.04	3586	9304	0.03	0.05
Brazil	160649	217756	1.14	1.22	126645	157502	0.89	0.87
Canada	420693	421101	2.98	2.36	390188	442184	2.73	2.45
Chile	67972	69230	0.48	0.39	47164	65062	0.33	0.36
Colombia	29991	37881	0.21	0.21	32897	46076	0.23	0.26
Ecuador	14321	19122	0.10	0.11	13893	20010	0.10	0.11
Guatemala	6898	11001	0.05	0.06	13576	18389	0.09	0.10
Mexico	271821	409401	1.93	2.30	290246	432153	2.03	2.40
Peru	28094	45275	0.20	0.25	20368	39883	0.14	0.22
United States	1148199	1546270	8.13	8.68	2020403	2408480	14.12	13.36
Venezuela	69980	31410	0.50	0.18	46097	10505	0.32	0.06
World	14116000	17820000	100.00	100.00	14309000	18028000	100.00	100.00

* - provisional data

Source: WTO Statistics Database, <http://stat.wto.org/Home/WSDBHome.aspx>, (accessed: 6.12.2018) and own calculations.

Statistical information on the participation of the 12 Western Hemisphere economies in international commercial services trade in 2007 and 2017 was presented in table 5. Altogether the studied economies accounted for 17.11% of world commercial services in 2007; in 2017 eleven of them (there was no data available for Venezuela) represented 18.02% of world commercial services exports. The United States with its 13.15% in 2007 and 14.38% in 2017 hold the number one position in the World as the leading commercial services exporter. In 2007 the United States alone represented almost 77% of total commercial services

exports of the studied region, while the United States and Canada stood for as much as 88.25% of total commercial services exports of the studied group of economies. In 2017 the share of the United States in commercial services exports of the 12 Western Hemisphere economies amounted to 79.8%, while the share of the United States and Canada represented as much as 88.79% of total commercial services exports of the analyzed region. The two aforementioned economies determined the position of the studied Western Hemisphere in the global economy in terms of commercial services exports in a predominant way.

When it comes to commercial services imports, the share of the analyzed region in the World amounted to 15.64% in 2007 and it reached 15.81% in 2017 for eleven of them (there was no data available for Venezuela for 2017). The United States with its 10.3% share in world commercial imports in both 2007 and 2017 held the number one position in the World. Canada accounted for 2.44% of world commercial services imports in 2007. In 2017 its share was a bit lower – it equaled 2.1%. It is worth noting that the share of Brazil in world commercial services imports increased from 1.04% in 2007 to 1.33% in 2017. The United States alone accounted for around 66% of total commercial services imports of the studied region in 2007 and for about 65.3% in 2017. The United States, Canada and Brazil represented as much as 88% of total commercial services imports of the twelve Western Hemisphere economies in 2007 and for almost 87% in 2017.

Table 5. Commercial services exports and imports of Western hemisphere economies in 2007 and 2017

Economy	Commercial services exports				Commercial services imports			
	Billion USD		% World		Billion USD		% World	
	2007	2017	2007	2017	2007	2017	2007	2017
Argentina	9915	13937	0.28	0.26	10721	23758	0.32	0.48
Bolivia	676	1339	0.02	0.03	880	2985	0.03	0.06
Brazil	22615	33677	0.64	0.64	34700	66293	1.04	1.33
Canada	69289	85666*	1.95	1.62	81384	105240*	2.44	2.10
Chile	9022	10209*	0.25	0.19	9453	13062*	0.28	0.26
Colombia	3899	8353*	0.11	0.16	6752	11792*	0.20	0.24
Ecuador	1118	2177	0.03	0.04	2487	3200	0.07	0.06
Guatemala	1619	2753	0.05	0.05	2017	3202	0.06	0.06
Mexico	17425	26920	0.49	0.51	25472	36664	0.76	0.73
Peru	3022*	7209*	0.09	0.14	4224	8649*	0.13	0.17
United States	467475	761724*	13.15	14.38	344315	516018*	10.31	10.32
Venezuela	1748	l.d.	0.05	l.d.	10723	l.d.	0.32	l.d.
World	3554000	5297000	100.00	100.00	3341000	5000000	100.00	100.00

* - provisional data

Source: WTO Statistics Database, <http://stat.wto.org/Home/WSDBHome.aspx>, (accessed: 6.12.2018) and own calculations.

The position of a national economy or a region in the global economy is determined not only by the intensity of its international trade relations but also by its international capital ties. Due to a particular significance of international transfer of capital in the form of foreign direct investment (FDI) the study

included the analysis of participation of the twelve Western Hemisphere countries in international transfer of capital in the form of FDI. Table 6 presents the engagement of the 12 studied Western Hemisphere economies in international transfer of capital in the form of FDI expressed by inward and outward FDI stock. Data for both 2007 and 2017 were presented in order to identify changes in the overall situation and relative international position of the analyzed countries.

Table 6. Inward and outward FDI stock of Western Hemisphere economies in 2007 and 2017

Economy	Inward FDI stock				Outward FDI stock			
	Billion USD		% World		Billion USD		% World	
	2007	2017	2007	2017	2007	2017	2007	2017
Argentina	67.57	76.58	0.43	0.24	27.54	40.94	0.17	0.13
Bolivia	5.48	12.30	0.03	0.04	0.09	0.73	0.00	0.00
Brazil	309.67	778.29	1.98	2.47	136.10	358.91	0.84	1.16
Canada	497.20	1084.41	3.17	3.44	521.65	1487.13	3.21	4.82
Chile	99.49	275.29	0.64	0.87	32.69	124.28	0.20	0.40
Colombia	56.45	180.23	0.36	0.57	10.93	55.51	0.07	0.18
Ecuador	11.33	17.25	0.07	0.05	0.20	1.92	0.00	0.01
Guatemala	4.62	15.52	0.03	0.05	0.32	0.99	0.00	0.00
Mexico	272.73	489.13	1.74	1.55	44.70	180.06	0.28	0.58
Peru	26.81	98.24	0.17	0.31	1.54	5.45	0.01	0.02
United States	2109.88	7807.03	13.47	24.77	2916.93	7799.05	17.98	25.29
Venezuela	43.56	22.17	0.28	0.07	14.92	25.40	0.09	0.08
WORLD	15660.50	31524.36	100.00	100.00	16226.59	30837.93	100.00	100.00

Source: World Investment Report 2018. Investment and New Industrial Policies, UNCTAD, New York – Geneva 2018; World Investment Report 2009. Transnational Corporations, Agricultural Production and Development, UNCTAD, New York – Geneva 2009; World Investment Report 2010. Investing in a Low-Carbon Economy, UNCTAD, New York – Geneva 2010 and own calculations.

Inward FDI stock in the studied Western Hemisphere economies amounted to USD 3504.79 billion in 2007 and it increased to USD 10856.32 billion in 2017. The share of the analyzed region in the World in terms of inward FDI stock equaled 22.38% in 2007 and it increased significantly to as much as 34.44% in 2017. The leading position of the United States with its inward FDI stock worth USD 2109 billion in 2007 and USD 7807 billion in 2017 meant the share of the US economy in the World of 13.47% in 2007 and 24.77% in 2017. When it comes to the US position among the studied economies in regard to inward FDI stock, it increased from 60% in 2007 to 71.9% in 2017. Three more Western Hemisphere economies must be listed here as important recipients of FDI, and in particular: Canada, Brazil and Mexico. The four Western Hemisphere economies listed above, accounted for over 91% of total inward FDI stock in the analyzed region in 2007 and for almost 93.6% in 2017; that means that the four economies represented as much as 20.36% of world inward FDI stock in 2007 and 32.23% in 2017.

Outward FDI stock of the 12 Western Hemisphere economies amounted to USD 3707.61 billion and it reached USD 10080.37 billion in 2017. The share of the studied region in the world in terms of outward FDI stock equaled 22.85% in 2007

and it reached 32.67% in 2017. Obviously, the United States itself represented the vast majority of the whole outward FDI stock of the studied region: as much as 78.69% in 2007 and 77.41% in 2017. The international position of one more economy should be mentioned in regard to outward FDI stock, namely: Canada. Outward FDI of Canada increased from USD 521 billion in 2007 to 1487 billion in 2017 and its share in the world rose from 3.21% to 4.82% respectively. The United States and Canada accounted for 81.9% of total outward FDI stock of the region in 2007 and they represented as much as 82.23% of total outward FDI stock of the 12 Western Hemisphere countries in 2017. The position of other Western Hemisphere economies in terms of outward FDI was marginal.

3.3 Disparities in international competitiveness

Table 7 presents disparities in international competitiveness of the analyzed 12 Western Hemisphere economies and changes of their competitive positions between 2008-2009 and 2018 in the Global Competitiveness Reports published by World Economic Forum.

Table 7. The Global Competitiveness Index of Selected Western Hemisphere Economies according to

World Economic Forum i 2008-2009 and 2018					
Specification	2008-2009	2009-2010	2017-2018	2018	2008/09 - 2018 change
United States	1	2	2	1	0
Canada	10	9	14	12	-2 ↓
Mexico	60	60	51	46	+14 ↑
Argentina	88	85	92	81	+7 ↑
Brazil	64	56	80	72	-8 ↓
Bolivia	118	120	l.d.*	105	+13 ↑
Chile	28	30	33	33	- 5 ↓
Colombia	74	69	66	60	+14 ↑
Ecuador	104	105	97	86	+18 ↑
Guatemala	84	80	84	96	-12 ↓
Peru	83	78	72	63	+20 ↑
Venezuela	105	113	127	127	-22 ↓

* - excluded from the GCR due to insufficient data

Source: The Global Competitiveness Report 2008-2009, ed. M.E. Porter, K. Schwab, WEF, Geneva 2008; The Global Competitiveness Report 2009-2010, ed. K. Schwab, WEF, Geneva 2009; The Global Competitiveness Report 2017-2018, ed. K. Schwab, WEF, Geneva 2017; The Global Competitiveness Report 2018, ed. K. Schwab, WEF, Geneva 2018.

The United States of America was classified on the 1st position in 2018 ranking and it also took the 1st place in 2008-2009 ranking. Canada took the 12th position in 2018 ranking (in the 2008-2009 edition it was positioned even two places higher). Chile was classified as the 33rd most competitive economy in 2018 ranking and as the 28th one in 2008-2009 ranking. Moreover, Venezuela took the lowest position in 2018 ranking of all twelve studied Western Hemisphere

countries (it was classified as the 127th economy). The 105th position was taken by Bolivia in 2018. When it comes to 2008-2009 ranking Bolivia was the least competitive economy of the twelve studied Western Hemisphere countries (118th position) and Venezuela was classified above Bolivia then (it took the 105th place). It is worth mentioning here that six studied economies significantly improved their international competitive positions between 2008 and 2018: Mexico (+14 places), Argentina (+7 places), Bolivia (+13 places), Colombia (+14 places), Ecuador (+ places) and Peru (+20 places). On the other hand, however, in case of five studied Western Hemisphere economies international competitive position worsened over the last ten years: Canada (-2 places), Brazil (-8 places), Chile (-5 places), Guatemala (-12 places) and Venezuela (-22 places).

4 Discussion

There have been numerous studies relating the development of national economies and regions in post-crisis period. Miles studied the impact of the United States on business cycles in Latin American economies [14]. Arsel, Hogenboom and Pellegrini analyzed the role of the state and the intensification of natural resources extraction in Latin America [2]. Institutions as a key variable for economic development of Western Hemisphere economies was discussed by Vianna and Mollick (2018). The role of institutions was also studied by Mingo, Junkunc and Morales (2018). Redelico, Proto and Ausloos [23] investigated the duration of recession and prosperity in selected 19 Latin American economies. Purchasing power parity for selected Latin American countries was evaluated by He, Chou and Chang [8]. The need for a sustainable growth was stressed by Roman-Collado and Morales-Carrion[24], Toumi, Le Gallo and Rejeb [30], as well as Desbureaux and Rodella (2019). The development profiles of Latin American countries in terms of techno-economic and socio-political spheres were discussed by Dutrenit, Natera, Anyul and Vera-Cruz [6]. The problem of limited innovation and innovativeness of Latin American countries was examined by Fernandez [7], Crespi and Zuniga [4]. The significance of well-developed transport infrastructure for the promotion of economic development was stressed by Tei and Ferrari [25]. The connection between economic growth and transport energy consumption in Western Hemisphere economies was evaluated by Rehmann and Pablo-Romero [22]. The problem of educational inequality in Latin America was studied by Neidhofer, Serrano and Gasparini [17]. The connection between foreign direct investment and economic growth was studied by Alvarado, Iniguez and Ponce [1]. The problem of monetary policy and its impact on productive activity in selected Latin American countries was discussed by Otero [19]. The so far advancement of and prospect for further digitalization of Latin American countries was assessed by Katz and Callorda [11], while the development of e-government in some Western Hemisphere states was evaluated by Lau, Aboulhoson, Lin and Atkin

[13]. Environmental inequalities in Latin America were studied by Laterra, Nahuelhual, Vallejos et. al [12]. Recent transformations and current challenges in a changing world for Latin America were discussed by Bianchi, Mingo and Fernandez [3]. Taxonomic methods have been applied for the evaluation on economic development by Pawlas [20][21], Młodak [16].

There is a gap in recent literature regarding the assessment of disparities in development among Western Hemisphere countries ten years after the global crisis 2008+ with the implementation of taxonomic methods (multivariate comparative analysis) accompanied by the study of their group role in international trade and international transfer of capital in the form of FDI. Therefore, the undertaken research has filled in the existing gap.

5 Conclusions

The contemporary world economy undergoes dynamic changes determined by various economic, social and political factors. On the one hand, the changes remain immanent feature of progress and development, on the other, however, they bring numerous challenges for individual subjects of the world economy, as well as its functioning as a system. Global economic environment becomes more and more turbulent. Multidimensional, complex and radical character of the changes in the development conditions means transition towards a new paradigm of the world economy development. Post-crisis period brought significant changes in the global world economic order and considerable changes in the intensity and forms of international economic relations. Undertaken research proved the existence of huge disparities among the analyzed 12 Western Hemisphere economies ten years after the global crisis 2008+. The studied group entails both well developed economies (The United States, Canada, Chile) and the ones characterized by a really low level of socioeconomic development (Venezuela, Bolivia). Moreover, the analyzed economies differ significantly both in regard to international competitiveness and the engagement in international trade and international transfer of capital in the form of FDI. What's more, in the case of many of them huge income disparities remain a serious problem. The Gini index amounting to as much as 50 or more was characteristic for two Western Hemisphere economies: Brazil (51.3 – 2015) and Colombia (51.1 - 2015). In the case of Guatemala, it amounted to 48.7 (2014) and in the case of Mexico the Gini index equaled 48.2 (2014). The Gini index for Chile reached 47.7 in 2015. In the case of Venezuela, it amounted to 46.9 in 2006 (unfortunately this was the very last year for which the Gini index for this country was published; it seems' however, that the recent problems of the Venezuelan economy had to be reflected in the considerably worsened situation in terms of income inequalities). The Gini index for Ecuador amounted to 46.5 (2015) and for Bolivia it was 45.8 (2015). In

the case of the Peruvian economy the Gini index equaled 44.3 (2015). The Gini index for Argentina amounted to 42.7 (2014). The United States represented the Gini index of as much as 41 (2013). Canada was the economy with the lowest level of income inequalities among the studied 12 Western Hemisphere countries – the Gini index in Canada amounted to 34.0 (2014) [10].

When it comes to the limitations of the research, one ought to consider the number of studied objects, the set of diagnostic variables, as well as the period of research. Future research ought to embrace more Western Hemisphere countries and a longer period of time. One could also point out to the possibility of evaluating separately a number of fields, e.g. demographic potential, labor market, technical and technological infrastructure and economic potential. Moreover, specific institutional and systemic features of individual Western Hemisphere states ought to be analyzed. Unfortunately, due to the limited scope of the article, it was not possible to include more elements in the current research. Additionally, some limitations resulted from the lack of statistical data for all studied Western Hemisphere countries or the analyzed year (e.g. initially it was planned to use two additional diagnostic variables, namely: R&D expenditure as % GDP and number of granted patents by US Patent Office; unfortunately, those statistical data were not available for 2017 for all analyzed 12 Western Hemisphere countries). Moreover, the future analysis of the engagement of the studied Western Hemisphere economies in international trade and international transfer of capital should include both geographical pattern of merchandise exports and imports, commercial services exports and imports, as well as inward and outward FDI stock.

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References

- [1] Alvarado, R., Iniguez, M., Ponce, P.: Foreign direct investment and economic growth in Latin America, “*Economic Analysis and Policy*” 2017, Vol. 56, pp 176-187.
- [2] Arsel, M., Hogenboom, B., Pellegrini, L.: The extractive imperative in Latin America, “*The Extractive Industries and Society*” 2016, Vol. 3, pp. 880-887.
- [3] Bianchi, C., Mingo, S., Fernandez, V.: Strategic management in Latin America: Challenges in a changing world, “*Journal of Business Research*”

- 2018, October, [online] <https://doi.org/10.1016/j.jbusres.2018.10.022>, (accessed: 10.12.2018).
- [4] Crespi, G., Zuniga, P.: Innovation and Productivity: Evidence from Six Latin American Countries, "*World Development*" 2012, Vol. 40, No. 2, pp. 273-290.
 - [5] Desbureaux, S., Rodella, S.: Drought in the city: The economic impact of water scarcity in Latin American metropolitan areas, "*World Development*" 2019, Vol. 114, pp. 13-27, [online] <https://doi.org/10.1016/j.worlddev.2018.09.026> (accessed: 10.12.2018).
 - [6] Dutrenit, G., Natera, J.M., Anyul, M.P., Vera-Cruz, A.O.: Development profiles and accumulation of technological capabilities in Latin America, "Technological Forecasting & Social Change" 2018, [online] <https://doi.org/10.1016/j.techfore.2018.03.026> (accessed: 10.12.2018).
 - [7] Fernandez, V.: The finance of innovation in Latin America, "International review of Financial Analysis" 2017, Vol. 53, pp. 37-47.
 - [8] He, H., Chou, M.C., Chang, T.: Purchasing power parity for 15 Latin American countries: Panel SURKSS test with Fourier function, "*Economic Modelling*" 2014, Vol. 36, pp. 37-43.
 - [9] Hellwig, Z.: Zastosowanie metody taksonomicznej do typologicznego podziału krajów ze względu na poziom rozwoju oraz zasoby i strukturę wykwalifikowanych kadr, „*Przegląd Statystyczny*” 1968, No. 4, pp. 307-326.
 - [10] Index Mundi. GINI index (World Bank estimate) - Country Ranking. [online] <https://www.indexmundi.com/facts/indicators/SI.POV.GINI/rankings>, (accessed: 11.12.2018).
 - [11] Katz, R., Callorda, F.: Accelerating the development of Latin American digital ecosystem and implications for broadband policy, "*Telecommunications Policy*" 2018, Vol. 42, pp. 661-681.
 - [12] Laterra, P., Nahuelhual, L., Vallejos, M. et. al.: Linking inequalities and ecosystem services in Latin America, "*Ecosystem Services*" 2018, December, [online] <https://doi.org/10.1016/j.ecoser.2018.12.001>, (accessed: 10.12.2018).
 - [13] Lau, T.Y., Aboulhosen, M., Lin, C., Atkin, D.J.: Adoption of e-government in three Latin American countries: Argentina, Brazil and Mexico, "*Telecommunications Policy*" 2008, Vol. 32, pp. 82-100.
 - [14] Miles, W.: The impact of the US on Latin American business cycles: A new approach, "*Economic Systems*" 2017, Vol. 41, pp. 320-331.

- [15] Mingo, S., Junkunc, M., Morales, F.: The interplay between home and host country institutions in an emerging market context: Private equity in Latin America, "*Journal of World Business*" 2018, Vol. 53, Issue 5, pp. 653-667.
- [16] Młodak, A.: *Analiza taksonomiczna w statystyce regionalnej*, Difin, Warszawa 2006, 262 pp.
- [17] Neidhofer, G., Serrano, J., Gasparini, L.: Educational inequalities and intergenerational mobility in Latin America: A new database, "*Journal of Development Economics*" 2018, Vol. 134, pp. 329-349.
- [18] Nowak, E.: *Metody taksonomiczne w klasyfikacji obiektów społeczno-gospodarczych*, PWE, Warszawa 1990.
- [19] Otero, J.D.Q.: Industrial structure and transmission of monetary policy in Latin American countries, "*Investigacion Economica*" 2017, Vol. LXXVI, No. 302, pp. 103-129.
- [20] Pawlas, I.: Regional Disparities in Development Based on Taxonomic Research: A Case of Poland, "*Regional Formation and Development Studies*" 2017, Vol. 23, No. 3, pp. 86-101.
- [21] Pawlas, I.: *Rozwój polskiej gospodarki na tle pozostałych krajów Unii Europejskiej w okresie niestabilności w gospodarce światowej*, Wydawnictwo Uniwersytetu Ekonomicznego w Katowicach, Katowice 2014, 266 pp.
- [22] Rehmann, F., Pablo-Romero: Economic growth and transport energy consumption in the Latin American and Caribbean countries, "*Energy Policy*" 2018, Vol. 122, pp. 518-527.
- [23] Redelico, F.O., Proto, A.N., Ausloos, M.: Power law for the duration of recession and prosperity in Latin American countries, "*Physica A*" 2008, Vol. 387, pp. 6330-6336.
- [24] Roman-Collado, R., Morales-Carrion, A.V.: Towards a sustainable growth in Latin America: A multiregional spatial decomposition analysis of the driving forces behind CO₂ emissions changes, "*Energy Policy*" 2018, Vol. 115, pp. 273-280.
- [25] Tei, A., Ferrari, C.: PPIs and transport infrastructure: Evidence from Latin America and the Caribbean, "*Journal of Transport Geography*" 2018, Vol. 71, pp. 204-217.
- [26] *The Global Competitiveness Report 2008-2009*, ed. M.E. Porter, K. Schwab, WEF, Geneva 2008;
- [27] *The Global Competitiveness Report 2009-2010*, ed. K. Schwab, WEF, Geneva 2009;

- [28] *The Global Competitiveness Report 2017-2018*, ed. K. Schwab, WEF, Geneva 2017; *The Global Competitiveness Report 2018*, ed. K. Schwab, WEF, Geneva 2018.
- [29] *The World Factbook 2018*, CIA. [online] <https://www.cia.gov/library/publications/the-world-factbook/index.html>, (accessed: 10.11.2018).
- [30] Toumi, O., Le Gallo, J., Rejeb, J.B.: Assessment of Latin American sustainability, “*Renewable and Sustainable Energy Reviews*” 2017, Vol. 78, pp. 878-885.
- [31] Vianna, A.C., Mollick, A.V.: Institutions: Key variable for economic development in Latin America, “*Journal of Economics and Business*” 2018, Vol. 96, pp. 42-58.
- [32] *World Investment Report 2018. Investment and New Industrial Policies*, UNCTAD, New York – Geneva 2018.
- [33] *World Investment Report 2010. Investing in a Low-Carbon Economy*, UNCTAD, New York – Geneva 2010.
- [34] *World Investment Report 2009. Transnational Corporations, Agricultural Production and Development*, UNCTAD, New York – Geneva 2009.
- [35] *WTO Statistics Database*, [online] <http://stat.wto.org/Home/WSDBHome.aspx>, (accessed: 6.12.2018).