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PAPER

Ukraine's export diversification: the impact of economic integration and disintegration

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Abstract Using the Herfindahl-Hirschman Index (HHI), Gini index and Thiel index, the paper outlines the consequences of the parallel acceleration of the economic integration and disintegration processes of Ukraine with its main trade partners - the EU and Russian Federation (RF) - in 2013-2018 for the country's export diversification. It tests the hypothesis that the enhanced trade barriers under the economic disintegration increase commodity and spatial concentration of exports, mainly due to physical reduction in the trade volumes while the economic integration provides for export diversification: the overall impact of economic integration and disintegration on the export diversification depends on the depth and scope of the trade barriers increased and reduced and exporter's ability to adapt to new terms of trade. Consequently, the results of HHI computation gave evidence of the gradual diversification of the commodity and spatial structure of the Ukrainian exports. It was revealed as a result, that the commodity nomenclature had increased to the largest extent for the following positions: products of chemical and related industries; textiles and products made there of; non-precious metals and products made thereof; machinery, equipment and mechanisms, electrical supplies. The research of the consequences of the parallel processes of trade liberalization (with the EU countries) and imposition of trade barriers (between Ukraine and RF) confirms the author's hypothesis that the commodity and spatial concentration of the Ukrainian exports has decreased given the abovementioned terms of trade. As a result, the research highlights the ability of domestic manufacturers to adapt to new challenges of

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foreign trade and compensate the losses of commodity positions at the markets in RF, whereas the demand in the EU market is determined as a core driver for diversification of the commodity structure of the Ukrainian exports, including the ones to third countries.

Keywords: integration; disintegration; trade liberalization; trade barriers; commodity and spatial diversification.

JEL Classification: F16; F150; F140

1. Introduction

The accelerating processes of economic integration and disintegration determine economic consequences for not only the countries initiating integration and disintegration efforts, but also for third countries, affecting the overall structure of foreign trade, which raises the importance of issues related with spatial and commodity diversification of exports in order to reduce the risks of export concentration. The process of disintegration of Ukraine and the Russian Federation was marked by the aggravating economic and political risks of export concentration, characterized, in the short term, by the increasing volatility and instability in foreign exchange earning which have adverse macroeconomic effects on growth, and by the unpredictable declining terms of trade trends which exacerbate short run effects in the long term. Use of the export diversification potential will enable for adaptation to the new terms of the trade, which will be promoted by taking advantage of the opportunities opened up before Ukraine in the process of its economic integration with EU. The present research outlines the consequences of the parallel acceleration of integration and disintegration processes of Ukraine with its main partners, the EU and RF, in the second half of the second decade of the 21st century.

The objective of the research is to analyze the impact of the economic integration and disintegration processes on diversification of the Ukrainian exports, and to test hypothesis that the enhanced trade barriers under disintegration increase commodity and spatial concentration of exports, mainly due to physical reduction in the trade volumes. Bearing in mind that the scientific literature has not established a causal link between spatial concentration of exports and economic disintegration, e. g. due to insufficiency of empirical data required to make such analysis, the scientific novelty of this research lies in finding out the synchronous impact of the processes involved in the international economic integration and disintegration with main trade partners on diversification of the country's exports.

The optimal diversification of exports is a determinant of the Ukrainian economy's competitiveness, because industry development and creation of new export-oriented production facilities are supposed to promote overall diversification of the domestic exports by inertial diversification criterion (when the overall exports cover goods and services adjusting the existing specialization rather than markedly changing it) as well as by innovation diversification criterion (i. e. further development and

enhancement of the national competitive advantages, creation of new competitive production facilities, improvements in international standardization parameters of a country). The transitional nature of factors underlying the export competitiveness opens up the opportunities for gradual diversification of the commodity structure of exports due to the increasing scopes of goods with a higher value added. The expanding economic integration and the deepening disintegration processes determine economic consequences not only for the countries acting as sources of integrative or disintegrative activity, but for third countries, affecting the overall structure of foreign trade and raising the problems of geographical and commodity diversification of exports in order to reduce the risks of export concentration. The process of Ukraine's disintegration with Russian Federation aggravated economic and political risks of export concentration, which are characterized, in the short term, by the increasing volatility and instability in foreign exchange earnings which have adverse macroeconomic effects on growth, and unpredictable declining terms of trade trends which exacerbate short run effects in the long term (S. Samen, 2010). Use of the export diversification capacities will enable for adjustments to the new terms of trade, which will be promoted by use of the opportunities opened before Ukraine in the process of its economic integration with the EU.

2. Literature Review

Conventional explanations for the reasons of the country's specialization in manufacturing certain categories of goods are confined to the statement that the established structure of domestic exports is by far and large determined by the parameters of the available physical and human capital, human and material resources required for competitive manufacturing of goods and services, and the quality of national institutes. These factors set the level of relative production costs, forming the range of goods which manufacturing proves to be competitive in a given country. It follows that the structure of manufacturing and exports can be essentially modified only by changing somehow these fundamental variables. An alternative explanation of the export specialization is proposed by Hausmann, Hwang & Rodrick (2007) and Hidalgo & Hausmann (2009). They argue that the structure of manufacturing and exports is not merely and solely dependent on the abovementioned "fundamental" factors. One of the central ideas in their approach is that manufacturing of various goods has different impact on the economic development capacities. It implies that a country can improve the perspectives of its economic growth through implementing one of the two alternative strategies: to manufacture and export the increasing amounts of goods with high export productivity or to launch manufacturing / exports of goods with high export productivity, which are new for this country. The authors who analyzed the correlation between export diversification benefits and overall exports for economic growth argue that the desired economic growth can be achieved through diversifying the economies of countries (the increasing diversity in manufacturing and exports of goods) and their investment in innovation rather than due to the existence of comparative advantages, as was commonly accepted in the conventional literature

in economics. The importance of exports diversification as an appropriate tool of comparative advantages receiving as well as the further increase in state's integration aspirations are revealed by Goryanska, (2014), Duginets (2017), Heyets & Ostashko (2016), Panchenko & Nanavov (2018).

Diversification of exports as the process of expanding commodity nomenclatures and geographical structures of foreign economic relations is dealt with in a significant array of economic studies. The problem of systematization and analysis of the factors with impact on export diversification of a country is specifically emphasized in these studies. The continually growing numbers of international integration agreements at the beginning of 21-th century along with the increasing complexity of their contents call for analysis of the economic integration's impact on export diversification. The boosting export activity of enterprises operated in the countries prone to economic integration, mainly through the Free Trade Agreement (FTA) mechanism, is observed. Urata & Ando (2011) give empirical evidence of the impact of FTA between Japan and Mexico on the overall diversification of these countries' exports and confirm the existence of a direct FTA impact on the growing number of countries importing the products of Japanese and Mexican manufacturers. De Rosa (1991), Athukorala (2003), Athukorala & Yamashita (2006), Damuri, Atje, & Gaduh (2006), giving quantitative and qualitative estimates of the increased level of export diversification of countries (mainly South-East Asian and South American ones) that establish FTA or preferential trade areas, reveal their positive impact on the rates of economic growth. The produced results confirm general conclusions of Samen (2010) about a causal link between the degree of export diversification and the stability in export earnings, which enable to enhance growth through many channels. These channels cover improved technological capabilities via broad scientific and technical training as well as learning by doing, facilitation of forward and backward linkages within output of some activities which then become input of some other activities; increased sophistication of markets, scale economies and externalities, and substitution of commodities with positive price trends for those with declining price trends (Samen, 2010). However, very few studies still can be found where diversification is considered as a response on disintegration processes accompanied by losses of markets and withdrawals from regional production networks. Some possible trade effects of Ukraine and Russia disintegration were considered by Shnyrkov, Rogach & Chugaiev (2015).

3. Hypothesis, methodology and data

Given the circumstances of the parallel processes of trade liberalization (with the EU countries) and imposition of new trade barriers (between Ukraine and RF) we examine hypothesis that the commodity and spatial concentration of the Ukrainian exports has decreased as a result of the abovementioned terms of trade and exporter's ability to adapt to these terms and compensate the losses of certain markets.

Analysis of the EU-Ukraine free trade area's impact on diversification of the Ukrainian exports, based on a phased study of the consequences of change in the trade regime with the EU and the manifestations of disintegration processes with RF,

accompanied by losses of markets and withdrawal from regional production networks, was made by the method of constructing main indices, used by experts from WTO and UNCTAD, e. g. The Herfindahl-Hirschman Index (HHI), Gini index and Thiel index. According to the existing methodology, the statistical base is built either by two (three) digits of the commodity nomenclature, the so called "broad" economic categories, or by 12 digits, through selecting only the commodity positions with the export share higher than 10,000 USD. In this study indices were calculated for commodity positions of the Ukrainian exports by 12 digits of commodity nomenclature and, according to the methodology of WTO experts, for the exports value ≥10,000 USD (Table 1). It should also be noted that since 2014 the State Statistics Committee of Ukraine has not provided the data on foreign economic activities of the enterprises located in the Autonomous Republic of Crimea and some areas of Donetsk and Luhansk regions. The Ukrainian Classification of Goods for Foreign Economic Activities (UCGFEA) is built on the basis of the Harmonized Commodity Description and Coding System and the Combined Nomenclature of the EU. UCGFEA matches the Harmonized Commodity Description and Coding Systems (HS) at the six digits level, and the Combined Nomenclature (CN) – at the eight digits level of the commodity code.

4. Results

4.1. Free Trade Area of Ukraine and the EU: the basis for diversification of the Ukrainian exports

The central purpose of creating the deep and comprehensive FTA of Ukraine and the EU is to enhance the technological effectiveness and competitiveness of the Ukrainian products on foreign markets, to increase the welfare of Ukrainian citizens and assure the sustainable development of the Ukrainian economy. These goals can be achieved through practical implementation of the main characteristics of FTA with the EU, which lay the background for diversification of the Ukrainian exports:

- extensiveness: Ukraine must implement more than 400 regulatory acts of the EU in its core economic policies;
- comprehensiveness: the EU rules cover the movement of goods, services, capital, intellectual property (and workforce in a way);
- accuracy: clear terms for implementation of EU rules are set, i. e. during 2–10(15) years;
- binding nature: Ukraine takes on the responsibility to implement the economic regulation of the EU, whereas the EU takes on the responsibility to gradually open its internal market for Ukraine;
- partial delegation: while implementing the EU regulation, Ukraine does not take part in its elaboration and approval;
- resource capacity: Ukraine must spend annually several percent of domestic GDP on restructuring and adaptation of the EU rules and standards;
- integrative nature: once the Association Agreement is fulfilled, Ukraine will become an integral part of the internal EU market without being the EU member,

e. g. first and foremost by incorporation in regional and global international production networks.

The implementation of Association Agreement with respect to foreign trade of Ukraine with the EU has to gradually liberalize the conditions of trade, eliminate and/or reduce barriers for Ukrainian exports, which would have positive effects for its scopes and diversification.

4.2. Change of the trade regime with the EU

We believe that the impact of liberalization of the foreign trade regime on export diversification should be determined considering the change in import duties, tariff quotas, compliance with technical standards and observance of phytosanitary standards, other non-tariff restrictions set by EU:

- simultaneous application of two trade regimes of the EU for Ukraine: the autonomous trade preferences and the regime of deep and comprehensive FTA;
- the import duty for Ukraine is to be reduced to 0 for 89.4 % (White Paper, 2016) tariff lines, the average level of custom protection for the EU is to make 0.84 % (Burakovskiy, 2016);
- tariff quota is to be kept by the EU for 50 positions of the commodity nomenclature of the Ukrainian agricultural exports;
- 5105 national standards (Quality, 2017) were adopted in Ukraine at the beginning of 2019, with 91 % of the respective norms harmonized with the EU norms;
- within the short term of 2016–2017, the number of Ukrainian companies exporting to the EU grew from 13402 to 14136 (MEDTAU, 2018).

4.3. Disintegration with Russian Federation

The exports began to plummet and disintegration processes with RF accelerated after Association Agreement between Ukraine and the EU was signed. We believe that the Russia's hybrid economic war against Ukraine with a direct impact on the commodity and geographic diversification of Ukrainian exports has the following characteristics:

- destruction of enterprises and occupation of Donbass regions as a factor blocking the European integration of Ukraine (more than 13 thousand dead, 1.5 million of temporarily replaced persons, 25 % and 10 % of industrial enterprises stopped and devastated, 20 % of the domestic export capacities lost);
- "forceful de facto economic integration" of Crimea in RF and the Eurasian Economic Community (EAEC);
- trade wars (more than 40 in 2004–2018);
- mutual economic sanctions in 2014–2018;
- withdrawal of RF from the free trade regime with Ukraine at 01.01.2016 and reinstatement of the m*ost-favored*-nation treatment (MFN) regime, which affected nearly 90 % of the Ukrainian export nomenclature, with tariff rates grown from 0 % to 5–20 % and the average weighted rate increased to 7.7 %;

- inclusion of Ukrainian exporters to the list of risky ones, with the supplementary procedure of custom control launched in 2013;
- embargo on the imports of Ukrainian agricultural products introduced in 2015;
- withdrawal of Ukrainian enterprises from regional production networks with Russian companies;
- ban on the transit of Ukrainian goods across the Russian territory to Middle Asian countries, imposed in 2016;
- ban on the exports of goods with military purposes from Ukraine to Russia, imposed in 2014.

The analysis of indices shown in Table 1 allows us to say that given the computation parameters (2 digits of the commodity nomenclature and the volume in the total exports ≥1,000,000 USD), the commodity structure of the Ukrainian exports is concentrated; new commodity groups were being included at slow rates in the period of 2013–2018, which, we believe, was a consequence of the limited involvement of Ukrainian producers to global and regional production networks with European producers and insignificant amounts of investment from the EU and other countries, high security risks.

Table 1. The assessment of diversification of the commodity structure of the Ukrainian exports in 2013–2018

1. The Herfindahl–Hirschman Index (HHI)		
1.1 By 2 digits of UCGFEA (broad economic categories, 19 key commodity positions) HHI = 3276 in 2013, HHI =3312 in 2018. High concentration of the commodity structure of exports.		
1.2 By 12 digits of UCGFEA (with the export volume ≥1,000,000 USD)		
EU	RF	Third countries
HHI = 4076 in 2013 HHI = 4013 in 2018 High concentration of the commodity structure of exports. Diversification increased moderately	HHI =3202 in 2013 HHI =3289 in 2018 High concentration of the commodity structure of exports	Asian countries HHI=2702in 2013; HHI=1902 in 2018. Increased diversification of exports
		American countries HHI =1765 in 2013;HHI =1912 in 2018 High concentration of the commodity structure of exports
		Countries of Africa and Middle East HHI =1876in 2013;HHI =1782 in 2018. High concentration of the commodity structure of exports. Increased diversification of exports

2. Gini index (G) by 2 digits of UCGFEA (broad economic categories). G=0.58 in 2013; G=0.61 in 2018. The commodity structure of exports is concentrated.	
EU	RF
G=0.57 in 2013; G=0.59 in 2018. The commodity structure of exports is concentrated	G=0.77 in 2013; G=0.79 in 2018.The commodity structure of exports is concentrated
3. Thiel index (T) by 2 digits of UCGFEA (broad economic categories). T=0.45 in 2013, T=0.48 in 2018. The commodity structure of exports is concentrated.	
T=0.47 in 2013, T=0.44 in 2018. The commodity structure of exports is concentrated	T=0.45 in 2013, T=0.44 in 2018 The commodity structure of exports is concentrated

Source: Compiled by the authors

The computation of the above indices was made by us for the commodity positions of the Ukrainian exports by 12 digits of the commodity nomenclature, and, in conformity with the methodology of WTO experts, with the volume in the total exports ≥10,000USD (Table 2).

Table 2. The values of the Herfindahl–Hirschman Index for the Ukrainian exports to RF, the EU and third countries in 2013–2018

2013			**2014**			**2015**		
RF	EU	Third countries	RF	EU	Third countries	RF	EU	Third countries
1987	**2224**	2112	*1965*	**2172**	2043	*1957*	**1989**	2002
2016			**2017**			**2018**		
RF	EU	Third countries	RF	EU	Third countries	RF	EU	Third countries
1942	**1874**	1978	1949	**1881**	1968	1944	**1882**	1979

Source: Elaborated by the authors using the data (State Statistics Service of Ukraine, 2019)

The analysis allows us to say that the increased commodity diversification is demonstrated by the indices on all three destinations of the Ukrainian exports, with the index of exports to the EU reaching the marginal value in 2016, characterizing the nomenclature of Ukrainian exports to the EU as diversified one. The shown tendency obviously needs to be confirmed by the number of commodity positions (Table 3) exported by Ukraine (by 12 digits with the volume≥10,000 USD).

Table 3. The number of commodity positions of the Ukrainian exports to the EU, RF and third countries in 2013–2018

2013				**2014**			
RF	EU	Third countries	Total	RF	EU	Third countries	Total
1668	**1648**	376	**3692**	*1585*	**1799**	395	3779

2015				2016			
RF	EU	Third countries	Total	RF	EU	Third countries	Total
1701	**1925**	414	**4040**	*1487*	**2187**	432	**4106**
2017				**2018**			
RF	EU	Third countries	Total	RF	EU	Third countries	Total
1501	**2207**	428	**4136**	*1512*	**2198**	416	**4126**

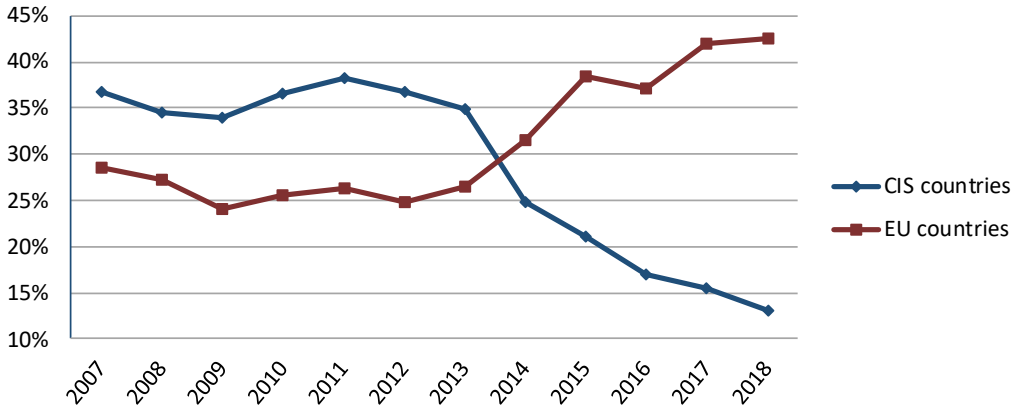
Source: Elaborated by the authors using the data (State Statistics Service of Ukraine, 2019)

The analysis of data (Table 3) confirms the conclusions made from the computation of The *Herfindahl–Hirschman Index* (*HHI*), i. e. the commodity structure of the Ukrainian exports has been gradually diversifying, with including new commodity positions. The nomenclature extended most essentially in the following positions: products of chemical and related industries, textiles and products made thereof, non-precious metals and products made thereof, machinery, equipment and mechanisms, electrical equipment. In 2013–2018, the overall number of commodity positions in the total Ukrainian exports increased by 12 %; by export destination, in the Ukrainian exports to RF it fell by 10 %, in the exports to the EU and third countries it increased by 33 % and 11 %, respectively. This demonstrates that the demand in the internal EU market has already become an essential factor for differentiation of the Ukrainian exports, whereas the contribution of the Russian market in this process has declined. However, the nomenclature of commodity positions of the Ukrainian exports to third countries has so far remained too limited.

It is obvious that the occurrence of diversification at 12 digits and 10,000 USD cannot be regarded as a solid proof of a sustained overall tendency towards expansion of the nomenclature. This relatively insignificant value in the total exports may be an indication of a high volatility of export supplies, and it may be heavily dependent on logistics and fluctuations of exchange rate. But we believe that the revealed tendency demonstrates that Ukrainian producers are really able to adjust their business when the traditional markets of RF (and some market segments in other members of the Commonwealth of Independent States (CIS)) were actually closed: small consignments exported to countries of Europe, Asia, Africa or America can at first be intended to test local consumer likes and after that can be essentially increased in monetary terms and displace products of the manufacturers who used to dominate these markets.

Entries of Ukrainian enterprises to markets of Europe and third countries should increase the geographic diversification of the domestic exports, at least theoretically. The data of 2013–2018 signal the overall tendency to re-orientation of the Ukrainian exports from RF to markets of the EU and third countries, the shrinking share of RF in the Ukrainian exports (from 15.1 % до 7.7 %), and the growing share of EU (from 35.5 % to 42.6 %). The role of the EU and CIS in the structure of the Ukrainian exports has changed significantly (Figure 1).

Figure 1. The shares of CIS and EU in the Ukrainian exports in 2007–2018



Source: Elaborated by the authors using the data of (State Statistics Service of Ukraine, 2019)

It should be noted, however, that Ukraine lags far behind other European countries by the EU share in the total exports: while for the EU members it makes 60 % or more, for some Balkan countries it reaches 73 % and for some EFTA members – 81 %. The share of CIS was declining in parallel with the opening of the EU markets and ones of Asian countries: the share of latest in the Ukrainian exports grew from 24 % in 2012 to 36 % in 2016 and 31 % in 2018. The most rapid rates of growth in 2013–2018 were recorded for the exports of Ukrainian agricultural goods to this group of countries, with the average annual rate of growth ranging from 48 % to 55 %. While the traditional commodity positions (sunflower, corn and wheat) featured changed shares in the exports (decomposition), for the positions like honey, milk, meat and eggs the nomenclature actually extended: with the exports continually grown in 2013–2018, these positions could constitute a stable part in the Ukrainian exports to Asian countries, which had not been the case in previous periods. The remarkable growth in exports to India and China was attributable to the inclusion of new commodity positions: the traditional oil and corn were added by wire made of carbon steel, shaped and special profiles, flat steel made of carbon steel of various sizes, alloyed chemical elements, engines and pumps. The main importer in the Asian region still remains to be Turkey, with basic metals and oil seeds making the lion share of its imports from Ukraine. But the nomenclature of Turkey's imports was extending by including ferrous alloys and some chemical products, first of all ammonia, carbon (soot) and hydrogen. Therefore, the Ukrainian exports to Asian countries featured commodity diversification along with geographic concentration.

As regards African countries, a commodity diversification did not occur, with more than 70 % of the Ukrainian exports accounted for metals and crops. The increased share of Africa in the Ukrainian exports (12 % in 2016 and 11.7 % in 2018) can be explained by nearly total geographic concentration on Egypt (which share in the Ukrainian exports to this group of countries grew from 32 % in 2014 to 60 % in 2016 and 57 % in

2018). At the same time, export supplies to another trade partner of Ukraine, Algeria, actually ceased when the latter started to import metals and foods from the EU.

The trade with American countries was marked by decreasing exports in all the commodity groups, except for foods. This was caused by the decreasing export supplies of fertilizers and oil refinery products due to the fallen domestic output. The major share of commodity exports to America used to be products of metallurgy, but 2013–2018 were marked by the increasing supplies of crops (mainly to Ecuador) and inclusion of new commodity positions, first and foremost milk and fairy products (mainly to Canada and the U.S.).

Concentration of exports on certain countries of regions was the key tendency in the geographic structure of the Ukrainian exports: in 2013–2018 main trade partners in Asia and Africa could actually keep their positions in the list of top ten importers (Table 4).

Table 4. Geographical structure of the Ukrainian exports in 2013–2018

	2013	Share %	2016	Share, %	2017	Share, %	2018	Share, %
1	Russia	23,80	Russia	9,88	Russia	9,10	Russia	7,71
2	Turkey	6,01	Egypt	6,23	Poland	6,30	Poland	6,88
3	China	4,31	Poland	6,05	Turkey	5,82	Italy	5,55
4	Egypt	4,30	Turkey	5,63	Italy	5,71	Turkey	4,96
5	Poland	4,02	Italy	5,31	India	5,10	Germany	4,66
6	Italy	3,72	India	5,23	China	4,71	China	4,64
7	Kazakhstan	3,35	China	5,04	Egypt	4,23	India	4,59
8	Belarus	3,13	Germany	3,92	Germany	4,05	Hungary	3,47
9	India	3,12	Hungary	2,90	Netherlands	3,87	Netherlands	3,38
10	Germany	2,53	Spain	2,76	Hungary	3,07	Egypt	3,28
11	Hungary	2,46	Netherlands	2,74	Spain	2,91	Spain	2,89
12	Netherlands	1,64	Belarus	2,48	Belarus	2,64	Belarus	2,75
13	Spain	1,56	Romania	1,97	Romania	1,95	U.S.	2,34
14	Moldova	1,43	Iran	1,94	U.S.	1,91	Romania	1,97
15	U.S.	1,40	Saudi Arabia	1,63	Czech	1,65	Czech	1,85
16	Azerbaijan	1,37	Czech	1,54	Moldova	1,64	Slovakia	1,82
17	Czech	1,30	Israel	1,34	Slovakia	1,52	Moldova	1,66
18	Iran	1,25	Moldova	1,32	Israel	1,40	Saudi Arabia	1,58
19	Saudi Arabia	1,24	Slovakia	1,30	Iran	1,28	Iraq	1,36
20	Iraq	1,21	France	1,25	Austria	1,24	Indonesia	1,30
21	Slovakia	1,19	the U.S.A	1,17	Algeria	1,24	Belgium	1,27
22	Israel	1,11	Bulgaria	1,15	Saudi Arabia	1,20	U.K.	1,23
23	France	1,09	Korea	1,14	U.K.	1,11	Israel	1,22

	2013	Share %	2016	Share, %	2017	Share, %	2018	Share, %
24			Thailand	1,14	Iraq	1,11	Austria	1,16
25			Kazakhstan	1,10	Belgium	1,05	France	1,13
26			Georgia	1,07			Bulgaria	1,08
27			Iraq	1,03			UAE	1,02
28			Belgium	1,01			Georgia	1,01

Notes: the country share is >1 %

Source: Compiled by the authors

In 2018, the share of the Ukrainian exports to Asia was 1.39 times higher than to CIS. The largest relative growth in the Ukrainian exports in 2016–2018 was recorded for Asian countries, i. e. Singapore (+255 %), and African countries, i. e. Congo (+360 %). The geographical structure of importers of Ukrainian products could also be extended by including Asian countries: Thailand and Indonesia. It should be noted that RF remained to be the main importer of Ukrainian products in 2013–2018, but economic disintegration of the two countries led to the essential decline in the Russia's share in the export structure of Ukraine (from 23.8 % to 7.7 %), and in the first quarter of 2019 it was Poland that went out on top of the importers of Ukrainian products.

The above given analysis of change in the geographical structure of the Ukrainian exports in the period under study demonstrates that the list of importer countries became longer, which is confirmed by the respective indices (Table 5). Yet, such extension concerned a limited number of commodity positions in the Ukrainian exports.

Table 5. Assessment of the diversification of geographic structure of Ukrainian exports in 2013–2018

1. The Herfindahl–Hirschman Index		
1.1 By 2 digits of UCGFEA (broad economic categories): 745.35 in 2013; 368.1 in 2018. The diversified geographic structure of exports. The geographic structure extended.		
1.2 By 12 digits of UCGFEA for all the positions of the commodity nomenclature (>1,000,000 USD)		
EU	RF	Third countries
HHI = 1108 in 2013; HHI = 593 in 2018. The diversified geographic structure of exports. The geographic structure extended.	Not computed	Asian countries HHI = 947 in 2013; HHI = 1601 in 2018. The geographic concentration increased (China, India and Turkey)
		American countries HHI = 2011 in 2013; HHI = 1999 in 2018. High concentration of the commodity structure of exports
		Countries of Africa and Middle East HHI = 778 in 2013; HHI = 1033 in 2018. The geographic concentration increased (Egypt)

Source: Compiled by the authors

5. Conclusions

The purpose of the article is to analyze the impact of economic integration and disintegration processes on Ukraine's export diversification and test the author's assumption that that the enhanced trade barriers under the economic disintegration increase commodity and spatial concentration of exports, mainly due to physical reduction in the trade volumes while the economic integration provides for export diversification: the overall impact of economic integration and disintegration on the export diversification depends on the depth and scope of the trade barriers reduced and increased and exporter's ability to adapt to new terms of trade.

It should be noted that the correlation between geographic concentration of exports and economic disintegration has not been established in the scientific literature. An even more complex problem is investigating the synchronic impact of the processes concerned with international economic integration and disintegration with main trade partners on diversification of country commodity exports. Because only few occurrences of this situation can be found in international trade, the article's objective is to explore the consequences of simultaneous processes of trade liberalization and disintegration of Ukraine with its main partners, i. e. the EU and RF.

Given the parallel involvement of the domestic economy in the processes of international economic integration with the EU and disintegration with RF in 2013–2018, the commodity structure of the Ukrainian exports was extending and gradually diversifying. It indicates that domestic manufacturers were able to adjust to new challenges of foreign trade. But this process was going on too slowly. Our analysis confirmed the research hypotheses, as indices in all the three destinations of the Ukrainian exports (EU countries, the Russian Federation and third countries) showed the increased commodity diversification. It is found that the index of exports to the EU actually reached the boundary value in 2016, which characterizes the nomenclature of the Ukrainian exports to EU as diversified one. Consequently, the results of HHI computation gave evidence of the gradual diversification of the commodity structure of the Ukrainian exports. It was revealed as a result, that the commodity nomenclature had increased to the largest extent for the following positions: products of chemical and related industries; textiles and products made there of; non-precious metals and products made thereof; machinery, equipment and mechanisms, electrical supplies. Moreover, the performed analysis of change in the spatial structure of the Ukrainian exports in the latest years gives evidence of the increased number of importing countries, which is confirmed by the respective indices. However, it is demonstrated that such increase in the Ukrainian exports covers a limited number of commodity positions.

The main driver for diversification of the commodity structure of the Ukrainian exports under the economic integration with the EU and disintegration with RF was the internal market demand in EU and third countries. The diversification of exports to the EU and, partially, to third countries enabled to compensate significantly the narrowing range of commodity positions of the Ukrainian exports to RF. The inclusion

of new commodity groups in the Ukrainian exports is recorded for chemicals, textiles and mechanical engineering, which is an evidence of the growing share of value added in these industries' exports. Yet, the commodity nomenclature of the Ukrainian exports is still dominated by commodities with low value added. This high commodity concentration of the Ukrainian exports is found in all the trade destinations, giving evidence of the slow pace of Ukrainian manufacturers' inclusion in global and regional production networks on the basis of developed forms of production fragmentation. The geographical structure of the Ukrainian exports is quite diversified, with the overall tendency to balancing the shares of all the trading partners. The heavy decline in the share of RF and CIS in the total Ukrainian exports in 2013–2018 was compensated by the increased role of markets of the EU and third countries. However, the reduced value of the Ukrainian exports to RF (as well as to CIS in overall), resulting from the economic disintegration of the two economies, was not fully compensated by the increasing access to markets of the EU and third countries. When seeking for new markets in third countries, Ukrainian exporters should not overlook large and structured EU markets. EU markets, given the size and structure of their demand, are expected to be catalysts of structural change in the Ukrainian economy, and to become an important factor for geographical and commodity diversification of the domestic exports, including ones to third countries.

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PAPER

1989 -2019: Thirty Years After: Re-Enchanting Europe?

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Abstract This paper focuses on the complexities created by the interlinked and complex processes of Central-European transitions that arose as the result of integration into the EU and the undermining influence of turbo-capitalism. During the decades before and after the Annus Mirabilis, 'Europe' and European integration were the models for peaceful regional integration worldwide. Due to the lack of a common vision for the future in "old" and "new" Europe, and due to unexpected internal and external challenges, and increased global uncertainties, the European dream gave way to a common European frustration. Evaluating the transformations of the past three decades, the question remains whether Europe can avoid further disintegration and gain back its role as a model for regional cooperation. Could this provide a window of opportunity for a more important role for Central Europe?

Keywords: solidarity; Central European co-operation; integration; common European home; nation-state paradigm; European civil society; uncertainty; transformation.

JEL Classification: R58.

The Stirling Villa, the New Detente and European Civil Society

What happened during the past three decades and why needs careful consideration, scholarly research, detailed analysis and a balanced debate. Especially if we are to continue the disrupted process of European construction, we need to try to re-enchant Europe again. One cannot fall in love with a cold project such as the single market, as Ralf Dahrendof warned us long ago. Understanding the causes for the failure might help us to identify new methods and hopefully a new design and clearer purpose for our joint enterprise. We cannot be sure this will happen, but if we fail to try, we will never find out. One thing is for sure, the European construction will not and cannot continue in the same old way.

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Photo taken in November 1987 from the author's private collection. See here, center, is the author, Ferenc Miszlivetz; in the foreground to the right is Viktor Orbán.

A photo from November 1987 shows a small group of young people looking into the camera – into their future – with optimism and confidence. They stand before the Stirling Villa in Velem, a tiny settlement in Western Hungary between Kőszeg and Szombathely, right at the Austrian border (then still the Iron Curtain). The photo shows the participants of one of the "Velem weekends" – a series of meetings for college students and intellectuals in the democratic opposition to discuss issues outside the university curriculum of late socialism.[1] The topics discussed were, for example, anti-semitism in East and Central Europe, the '56 revolution in Hungary, the 1968 Prague Spring and the following Warsaw Pact clamp down, the birth of Charta '77, the Polish Solidarnosc movement or the new European Peace Movement and the Network East-West Dialogue. The meetings were initiated by a small group of activists who believed in self-organizing societies and envisaged the future of European democracy based upon horizontal cross border cooperation.

The personal trajectories of the goup are telling: the young lady on the left was the main organizer of the autonomous student self-government (*szakkollégium*) and a chief librarian at the Szombathely Teachers Training College. The young man on the right was a member of the István Bibó student college who soon became a Fidesz (The Party of Young Democrats established in March 1988) activist, and later the head of the Fidesz election campaign. Today he is the Hungarian Ambassador to Austria. Behind him to the right stands the general secretary of the Hungarian Communist Youth Organization (KISZ), which tried hard to transform itself into a democratic youth organization. Next to him is a young member of the Hungarian Socialist Workers Party,

[1] The university curricula in the social sciences at this time did not allow for discussions of important contemporary literature related to the pressing social and political issues of the time.

later Hungarian Socialist Party (MSZP), and a member of the new democratically elected parliament. Next to him is a student from Szombathely, today the President of the County Vas regional government (Fidesz). In front and in the middle stands a young man with short hair and a moustach who was then an informal leader of the István Bibó student self-government. Today, and for the last 10 years, he has been the Prime Minister of Hungary.

At the time this picture was taken, they all had good reasons to be optimistic: the students' movement was gaining momentum; the reform wing of the disintegrating Socialist Workers' Party was trying very hard to organize so-called reform circles throughout the country, entering into dialogue with the local communities about the future of Hungary; the Communist Youth Organization, hoping to survive, stood for openness and metamorphosis, so it became a forerunner of democratic reforms; students were engaged in various mushrooming grassroot movements. Everyone seen in the photo knew that change was inevitable and that they would play a role in them. There were still, however, uncertainties. The meeting in Velem was about establishing a nationwide network for the democratic student movement (*Szakkolégiumok Országos Hálózata*). The organizers invited Imre Pozsgay, the most reform-minded member of the Central Committee of the still ruling communist party. Pozsgay's attendence was prohibited by Károly Grósz, the hardliner party secretary. The rumour was spread that Grósz even intended to clamp down on the students' self-organizations. Instead, Imre Nagy, a young and innocent looking KISZ chieftain, was sent to Velem to assure the audience about the best and most democratic intentions of his organization and their readiness for negotiations with grassroot movements and civil initiatives.

The student leaders in the photo were preparing for their first international meeting, co-organized by the European Network for East-West Dialogue, just a few days later in November. The conference, entitled "New Detente", echoed Gorbachev's message heralding a new epoch, but the conference was prohibited by the university authorities. It was held anyway in a music school in the middle of Budapest. The presence of Western journalists from important news agencies, Reuters, UPI and AFP, restricted the authorities from interfering. Bibó College students allowed each organization to delegate two participants so it happened that leading figures of the democratic opposition, like György Konrád and Miklós Haraszti, sat next to the delegates of the communist party (MSzMP), the fellow traveller People's Patriotic Front and the official, heavily controlled Hungarian Peace Council.

The young, unknown student, in the middle of the sunny picture, practiced his self-written speech several times in English. This short but peppery speech brought Viktor Orbán into the focus of the international public. The more senior and rather cumbersome urban activists of the democratic opposition began to be overshadowed by a younger generation coming mostly from the countryside. [2]

Western participants, like Cornelius Castoriadis, Federigo Argentieri, Mary Kaldor,

[2] My role was to facilitate the bringing together of Western peace and human rights activists and grassroots Hungarian student circles. It was a unique opportunity to create a network of networks, thereby enhancing the social and political impact from both sides of the Iron Curtain.

the anti-Vietnam war hero Jim Skelly, and leaders of the European peace movements, conscientious objecters, and former members of the European Parliament like Dieter Esche, were enchanted by the fresh energies and organizational capacities of their hosts. University authorities withdrew their prohibition of the event the day before the New Detente conference began and offered to host the meeting at the beautiful banquet hall of ELTE University. Their offer was refused but they were kindly invited to participate.

The house in the photo behind the group of young people, the Stirling Villa in Velem, stands untouched today. Mr Stirling[3] built the villa for his daughter before WWII. The Hungarian Arrow-cross (nazi) government, escaping towards Germany, held their last official meeting there on December 24th, 1944. The Holy Crown of the Hungarian kings was taken and hidden by them in a bunker of the villa's garden. The Stirling Villa was nationalized after the war and until recently used as the Vas County Cultural Center, one of the surviving post-communist institutions. Recently, it has been retaken by the municipality of Velem and is awaiting renovation. It is also waiting to tell its stories. An exhibition of the unpublished documents and photos of the Szombathely students' self-government, the László Németh College, together with the transcripts of the lectures given during the Velem weekends between 1986 – 1989 is planned there after the reconstruction of the villa[4].

Three Decades Later: Which Way to Go?

The young people in the photo, did not enjoy the enchantment of Europe for too long. The sparkling moments and euphoria, stemming from a blossoming and promising European civil society, such as the East-West Dialogue networks, disappeared soon after unilateral and unconditional German unification, the resignation of Gorbachev and the outbreak of the war in Yugoslavia. The end of the Cold War, the withdrawal of Soviet troops from former satellite countries and the dissolution of the Soviet Union in 1991 was not the beginning of a linear process and a long march for the actualization of European civil society. The promising process of social democratization from below was halted, and the achievements and innovations of the '80's were declared inconsequential by the new political elite (Miszlivetz 1999).

In contrast to today, thirty years after, the atmosphere is full of anxiety, uncertainty and unfulfilled promises. With Brexit at its Western edge, Russian troops occupying part of Ukraine and building up new military capacities at the Eastern edge, and with the frustrated group of EU candidates and would-be candidates at the Southern flank of former Yugoslavia, we live in a fragmented and uncertain continent amidst the coordinates of an old-new East-West and North-South cleavage. Unable to find

[3] Emil Stirling (1879-1951): lawyer, member of the Knights Hospitaller. Mr. Stirling was born in 1879. In 1932 he bought and rebuilt the Herczeg Hotel (later Palace Hotel) in Szombathely. Between 1938-1944 he had built the Stirling-villa in Velem. He organised many social events that aroused the interest of the authorities. For his monarchist 8legitimist) aspirations he was interned in 1944 to Sopronkőhida. The arrow-cross Szálasi government took over the Stirling villa in 1944. Stirling died in Szombathely in 1951.

[4] Reconstruction of the villa is forecasted to be accomplished by the Fall of 2020. The re-opening of the building will start with the planned exhibition.

adequate and convincing answers to megatrends and the global and intertwined challenges of climate change, migration and the crumbling of the neoliberal world order, Europe as a dream is fading away for those who longed for it before and shortly after 1989 (Outhwaite 2013; Laqueur 2011; Holland 2015; Zielonka 2018; Misztal 1993).

What went Wrong?

1989 (and the social, economic and political transformation that followed) was a real turning point: it changed fundamentally the scope, size and scale of what European integration had been, and its significance extended far beyond Europe. The messages, as well as the impacts of the fermenting years, transgressed Europe's boundaries and heralded a new way of thinking about democracy, cross border solidarity and the capacity of suppressed societies to find peaceful ways to self-organize and confront conflicts non-violently vis a vis their oppressors. Indeed, a new praxis of cross border social networking was born during the '80s. It was the victory of dialogue, compromise, and consensus building.

Still, 1989 was a surprize for the vast majority of status quo believers, especially within the circles of mainstream American Kremlinologists, the builders of the Cold War institutions, including the European Union and, not surprisingly, among hardliner communist leaders within the Soviet bloc countries (Gaddis 1987, 1997). Against some of the interpretations, it was a sort of peaceful revolution in moral and intellectual terms. It was a paradigm shift.

The grassroot movements within the Soviet bloc countries, and also between East and West, created a new language of cooperation and civil society across frontiers. To a large extent, thanks to East-West networking, the vision of and the aspiration for a European civil society was born. This was partly a victory for grassroot social self-organizations, the so-called "movements from below", and solidarity, networking and non-violence were the buzzwords and *de facto* main characteristics of the new movements from below. The vision of nonviolent change of authoritarian regimes were reflections and results of a long learning process in East and Central Europe during the Iron Curtain era that culminated in the Velvet Revolutions of 1989 as a result, a new spirit of democracy and democratization and horizontal civil society cooperation sprang up in Europe.

The major state actors and their international guardian institutions, however, were not prepared for this unexpected turn, and had neither common visions nor agreed upon methods, plans or timetables for the change of the status quo; and European society at large did not engage in debates about a common future. After the first enchanting moments and mirage of sudden and peaceful change, came a quick and bitter awakening.

Western powers, led by the US, declared victory in the Cold War over the Soviet Union (the Empire of Evil as coined by Ronald Reagan). The economically and institutionally well-established neoliberal world order, with its carefully maintained, fragmented political system of nation states as its exclusive playground for democracy,

pushed back and discredited the alternative conceptions of the ’80s. Unfounded expectations, wishful thinking, national egotism and the conviction about the “historical justice” of returning to Europe dominated the thinking of the East and Central European political elites.

From 1990 on, horizontal networking, solidarity, civil society, autonomy and self-governance were quickly replaced by the institutionalized formal, procedural democracy confine by the territorial boundaries of the nation state. The emerging new civil society paradigm was rapidly pushed back and condemned as illusionary, useless and even dangerous by the masters and the mainstream media of the neo-liberal world (e.g., Reagan, Thatcher), as well as global guardian institutions like the World Bank and IMF (Lomax 1995; Jensen and Miszlivetz 2006).

In other words, the old paradigm regained its dominance in the new post-Cold War era, and uncontrollable uncertainties and unpredictable change emerged with the deconstruction of the Iron Curtain. Anxiety, fear and exclusion started to overcome old democracies with a long- time experience in a well-protected “nested” integration. The miraculous spirit of the Velvet Revolutions was gone with the Euro-Atlantic wind, as if it had never existed. With its institutionalized amnesia, the EU did a perfect job to re-settlement the old paradigm. As Lampedusa wrote: “If we want things to stay as they are, things will have to change.” (Lampedusa 1960).

The Post-Cold War European Integration Period

The Post-Cold War European Integration Period pointed towards the reduction of the complex process of integration to “project” dimensions and the one-sided imposition of unclear “conditionalities” from above. Arrogance, ignorance and indifference from Old Europe vis a vis newcomers called “New Europe” (“you have to learn first what democracy and market economy are”) dominated the scene. Against all of the claims and promises, the neglect of “culture” (education, research, higher education, languages, differing values and aspirations, etc.), lead to the strengthening of negative attitudes about non-co-operation, mistrust and the lack of the consciousness of common responsibility for a common European future.

At the end of the first decade of initial enthusiasm a frustrated, ignorant, and at best indifferent Western European public[5], was supposed to integrate with societies that were just escaping from the traumas of a Soviet-type totalitarianism, driven partly by unrealistic expectations, partly by self-paralyzing scepticism and inferiority complexes. After the short moments of “Mirage”, Eastern and Western European societies continued living in parallel realities. Although state borders were fading away step-by-step, the psychological and mental distances remained intact.

Meanwhile, the majority of societies of “Central Europe” were generally convinced they “belong to Europe” without any clear definition of what this “belonging” meant. They were concerned about their material wellbeing but had little to no knowledge and interest about the rapidly changing nature of global capitalism, its general social

[5] For example, the double “no” vote in 2005 (one year after Eastern enlargement) reflects a different attitude of the Western European public regarding further integration.

impact and of actual paradoxes of European institutions and integration. They did not go through the process of "*Vergangenheitsbewältigung;*"[6] in other words, their participation in double dictatorships remained unreflected, and their elites partly entered European construction with the glory of martyrdom (as victims of suppressive regimes), and partly with the aspiration of quick and easy enrichment.

Without structured and institutionalized dialogue, or the elaboration of a common European historiography, proper educational and research institutions, and an interactive and socially and culturally sensitive and informed European Media, and the absence of a well-prepared political class and dedicated experts and professionals to play the role of intermediation, European Union slogans such as *unity in diversity*, or an *ever closer union* remained promising and attractive for EU candidates but less and less convincing to the wider European public. As a consequence, first extreme left- then right-wing nationalist/populist movements emerged in Southern and Eastern Europe, as well as Western Europe. The European re-construction was doomed to continue from the two different parts (East and West) of Europe, each pursuing different goals and aspirations, implementing different and not negotiated methods (superimposed by one side) with predictably different sets of skills and institutional backgrounds. No wonder it went wrong soon.

Consequently, the process of European constitutionalization failed (2005), and the "permissive consensus" about a continuous integration was gone. The attempt at correction (period of consultation and contemplation) did not bring serious results even if José Manuel Barroso and Margot Walström met with members of parliaments and civil society groups in the member states of the European Union. Their presence was especially highlighted in the "New Europe" of the "post-communist", so-called "new member states". Soon thereafter the global economic and financial crisis of 2008 seriously hit the EU, resulting in more fragmentation, disintegration and alienation than solidarity and integration. As a result, the East-West division further deepened and has been extended with a North-South division and with the re-emergence of nationalist stereotypes (GREXIT, PIGS). Paradoxically, the nation state paradigm became the "winner" of the turbulent and unpredictable processes of the East-Central European transitions, intertwined with the global crises and the inadequate answers of the transnational institutions of the European Union (Habermas 2013).

At the same time, the shadow of Germany as a mighty old/new hegemon darkened the horizon of deepening the process of integration. Societies became more divided internally as well; a so-called right-wing populist upheaval evolved in Hungary and soon after in Poland between 2009-2011. Public discontent, vis a vis elite driven integration coupled and strengthened by neo-liberal doctrines and international guardian institutions, increased and became more widespread in the East and West. Right-wing extremist and radical nationalist movements infiltrated mainstream politics, some of them becoming political parties from 2010 on. Ever since racism, xenophobia, antisemitism, etc. are on the rise in varying degrees in the so-called stable,

[6] There were varied attempts by some countries in transition (e.g., Czech Republic, Poland) to instigate some kind of lustration, with uncertain results.

"consolidated" democracies (REDs, Philipp C. Schmitter 2011) such as Germany, France, Great Britain. The game of scapegoating became widespread and permanent all over Europe, deepening further the epistemological crisis of Europe (Jensen and Miszlivetz, 2015).

After the European Dream – a European Nightmare?

The rather self-congratulatory or naive discourse (about the historic success of East-Cenral European transitions, and the dynamizing effects of crisis for integration) in the first decade of the new Millenium quickly disappeared without much self-reflection or follow-up debate. The new discourse, after the inefficient EU management of the multiple intertwining crises, shifted in the opposite direction. EU experts and pundits (Leonard 2005; Rifkin 2004; Schwimmer 2004[7]), including social science institutions and think tanks, did not offer sufficient explanations for this sharp turnaround. The incapability to deal with growing complexities created by unexpected, sharp and rapid change might be a root cause as well as the common denominator of this failure.

The turmoil of the post-Cold War European integration, commonly known as "Eastern or Big Bang enlargement" reached its peak with the 2015-2017 refugee crisis which has revealed crystal clearly all of the above weaknesses in an aggregated and irreversible form. Something fundamentally changed in Europe: the post-2015 EU does not remind us in any sense of the EU around the time of the Big Bang enlargement. The crises put into sharp focus all of the weaknesses and disabilities of the EU polity or the "European Polis" (Schmitter, 2018). This includes uncertain decision making, indecisive professional leadership, the application of double standards and lack of common purpose.

The revolt of the abandoned – the neglected, marginalized half of Europe, an equivalent of the American "deplorables" – raised their voices at the transnational level, and dynamized the rather lame and empty European political space. From Poland via Hungary, through France and Germany, and Brexiting Great Britain, they were and still are condescendingly called anti-democratic and populist. The irony of history, which was supposed to have ended according to the American academic guru Fukuyama and his followers, revealed similar changes of the political-social landscape and public discourse in the United States with the unexpected victory and popularity of the super-magnate-reality show man tycoon Donald Trump. The deep divisions in Western societies has obviously deeper historic causes that may be found in the general exhaustion of Western civilization – a large topic discussed throughout of 20th century by philosophers and historians. (Hankiss 2018).

A New European Paradox

Another new European paradox is the contribution of nationalist Euro-skeptical movements and parties that have galvanized European politics and a new European discourse.

[7] Walter Schwimmer was the General Secretary of the Council of Europe from September 1999 until August 2004.

1) After Failure – a New Beginning?

If we are looking for useful and practical answers to this rather rhetoric question, three consecutive terrains of complex problems need to be addressed:

- what exactly happened in the past three and a half decades?
- why did things happen the way they did (Qui prodest?)
- is there any rational base for pursuing further integration and trying to construct the EU (and 'Europe' in general)?

In short: is (are) there a way(s) out from the present deadlock and turmoil, and if so where to go? Only after finding acceptable answers to these difficult and interconnected questions, can we move together towards a package of actions and measures (like reforms and policy recommendations), and start deliberations about new rules for a new game. In this short paper only an analytic outline of the past and some fragmented suggestions for future action can be offered.

2) The Lost Chance

In the European-global context, it is often mentioned that the EU (formerly EC) seemingly lost a great historic opportunity provided by the Annus Mirabilis and the collapse of the Soviet Union as well as the bipolar logic of the post-Yalta world order. According the experiences of the past 30 years, one can argue that the EC/EU as a larger community and set of institutions, dependent on NATO and under US tutelage, was not prepared for a new global role in 1989. The quick utilization of the new opportunities was exploited at the nation state/member state level, when Germany unilaterally pushed through the first Eastern enlargement without any conditionality in 1991 and united with the former GDR in the name of *einiges Vaterland*. Although not recognized, in a sense this was a clear signal for the comeback of the nation state paradigm vis a vis the Common European Home, with its opposite logic to the idea of deeper integration which was an official slogan of the EU. This could be called the first (probably main) paradox of the EU.

3) The Peace Project as the Basis for Legitimacy of European Integration

European integration as a peace project received a blow with the outbreak of the civil war in former Yugoslavia, a longstanding candidate for EC membership. The acceptance of the claim for Slovenian and Croatian independence, first by Germany as the leading European power, followed by others, clearly heralded the beginning of a new epoch of national rivalry and further fragmentation without stronger integration into the European Community.[8] An undiscussed alternative could have been the rapid acceptance of Yugoslavia into the European Community as a condition for peaceful secession within consolidated and regulated conditions.[9] Since the war was forecasted

[8] A pedantic distinction between "Europe" and the EU especially in case of long-term neighbouring candidate countries is not only a sad product of spiritless bureaucratic narrowmindedness, but an organic part of permanent and structured self-deceit.

[9] On 8 June 1988, the Secretary of State for Foreign Affairs, Budimir Lončar, told to members of the

long before, the EC/EU lost the chance to extend its soft power capabilities towards its immediate neighbourhood. Instead, it watched helplessly as the almost decade-long bloodshed and endless traumas were inflicted on a region of former compatriots.

Helplessness, the lack of proper leadership and political willpower were again revealed in the case of the Euro-Maidan revolution and the following Russian invasion of the Crimea and continuing conflict in the Donbass region of Ukraine. In both cases, any effective and prompt response (in many ways questioned and questionable) came only from the US (sometimes in naked forms, sometimes covered by NATO) with military intervention and economic sanctions. The EU condemned the Russian invasion and later joined the sanctions, while keeping an eye on its financial and economic interests (e.g., Schröder and other European leaders in Gazprom).

In the case of (self)destroyed Yugoslavia, the EU left its candidate and would be candidates struggling alone, with promises of accession tied to severe conditionality and threatening its new member states ("New Europe") with financial and other sanctions if they did not follow the orders from Brussels institutions. No clear vision for the longer-term development of South-Eastern Europe, including the clear responsibility of the EU, was provided. Ineffective and often corrupt structures of monitoring and endless reporting failed to provide viable options for local societies. The recent case of Northern Macedonia and the self-contradicting reactions from the decisive powers of the EU such as Germany and France is a clear example.

4) Ignorance, Arrogance and Institutionalized Amnezia

During the Cold War years up until 1989/1991, European communities and societies had little to nothing to do with their Eastern neighbours: neither mutual, nor one-sided obligations, or responsibilities needed to be taken since the border was hermetically sealed and secured by the Russian/Soviet Army (then called the armed forces of the Warsaw Pact) and a system of increasingly sophisticated technical separation that was called the Iron Curtain. As a result, East and Central European countries (then the Soviet satellites, today's New Europe) only reached the public stage in cases of protests, strikes, revolts, upheavals and revolutions, and later by the successful propaganda of Hungarian Gulash Communism, a proof for the ideology of "peaceful co-existence". As a consequence the Velvet Revolutions, and especially their

collective Presidency of Yugoslavia that there are significant integration processes going on in Europe like the single market which require adaptation from Yugoslavia. In late 1989, Yugoslavia initiated the signing of the association agreement. At that time close to 70% of Yugoslav foreign trade was done with EEC countries. French politician Claude Cheysson,, a member of the Delors Commission responsible for Mediterranean policy and North-South relations, was the strongest advocate of Yugoslav integration with Gianni De Michelis and German foreign minister Hans Dietrich Genscher not being opposed to the idea. Genscher was of the opinion that Yugoslavia might additionally strengthen EEC credibility among the non-NATO member countries, yet official negotiations did not start at that time. In May 1991, EEC President Jacques Delors and Luxembourg Prime Minister Jacques Santer offered to sign an association agreement and an agreement on 4.5 billion dollars support for structural reforms. Members of the EEC were divided over the importance they should give to the controversial principles of self-determination and territorial integrity. German Chancellor Helmut Kohl strongly emphasised the right to self-determination. On 25 November 1991 all agreements on co-operation between the EEC and Yugoslavia were cancelled.

consequences, came as a great and somewhat annoying surprise to Western societies and their political class. The first reactions were fuelled by ignorance, fear and anxiety, followed by arrogance vis a vis the poor and underdeveloped neighbours. Impotence and the political paralysis of the EU followed as a natural result.

5) The Burden We Carried: Cold War History from an East-Central European Civil Perspective

The aspirations and concerns of post-communist societies have not been adequately taken into account or addressed by local, national and supranational authorities and their guardian institutions. Its contributions to European democracy and solidarity was not considered a valuable asset and building block for a future European identity. The events of 1989 would not have been possible without the uprisings of East Berlin (1953) Hungary (1956), the Prague Spring (1968), followed by the successful movements of Charta '77 and the decade long peaceful activity of Polish Solidarnosc and the endless struggles and aspirations for freedom and a dignified life. But these events are still not integral to so-called European identity. These great, heroic, pro-European events, based upon historically developed values and aspirations, are only part of the "Institutionalized European Amnesia". Paradoxically and ironically, when East and Central European societies were revolting against the superimposed Soviet rule and dictatorship, they were acting on the basis of European values (the rule of law, human rights, liberal democracy and social solidarity). Most of them believed that besides their personal or national cause they were also fighting, and in many cases ready to die for, Europe as an idea, an aspiration, a set of values and a civilization (Kundera 1984).

6) Western Triumphalism instead of a Common European Home

By the time the decades-long struggle of East-Central European societies positively and peacefully concluded, they failed to recognise that their European ideal no longer existed, and the vision of a common European home was further away than ever before. Against the promise of Western leaders to Michail Gorbachev about building a peaceful world in cooperation – first of all a Common European Home – a cheap Hollywood version of triumphalism began to dominate the media as well as public and academic discourse. This self-congratulatory, dangerously simplified and misleading interpretation was embodied and amplified in and by the catchphrase "the end of history" (even if Fukuyama elaborated his thesis in a more nuanced way). The clear but false message was that liberalism, a sort of "liberal revolution" (Dahrendorf, 1990) had won, thanks again to the triumphant West, lead by the United States. Ignorance and arrogance hand-in-hand pushed the region of East and Central Europe back to the status of semi-periphery. No wonder a majority of East Central European societies feel that nothing much has changed (as a popular joke says: socialism was nothing more than a long and painful voyage from capitalism to capitalism).[10]

[10] See also: Pew Research Centre. European Public Opinion Three Decades After the Fall of Communism. Available at: https://www.pewresearch.org/global/2019/10/15/european-public-opinion-three-decades-

Another, perhaps even more severe and less curable result of Western triumphalism was the alienation of post-Soviet Russia. The unfair mistreatment of Gorbachev by Western leaders, after his unilateral withdrawal of nuclear warheads and the withdrawal of Soviet troops from former satellite countries by the end of 1991, caused a strong resentment in Russian public opinion which became the hotbed for a more aggressive claim for restoring the country's lost superpower prestige and global influence. This culminated in the dismissal of Gorbachev as a traitor to Russian interests, according to many, in a new wave of Russian rearmament and infiltration, as well as other forms and acts of Putinism.

The most recent tensions between the US and the EU about security issues and the role of NATO might provide a chance to reformulate European security and neighbourhood policies and return to the negotiation tables instead of ineffective sanctions and moral conedemnations reflecting stubborn arrogance and double standards without real vision, strength or political willpower. Europe still has a chance and hopefully an imperative to return to the abandoned idea of the Common European Home and transnational European democratization. This move, however, will not be and cannot be an easy or rapid development. Its conditions and consequences are severe and need to be carefully framed and contemplated. Such a contemplation and deliberation pre-supposes a move away from elite-driven integration by finding the means for a new dialogue among equal partners based on mutual respect and long term interests.

7) Global Anarchy instead of the Monopolar World System

Western triumphalism – the misinterpretation of the cataclysmic and historic changes and the subsequent drawing of false conclusions from it for future actions – did not aid global developments. It did not help the two parts of Europe to start a new process of integration with a clear vision about the purpose, the method and the burden-sharing. It did not help the US to strengthen its position as the leading global power and it did not help the rest of the regions and continents who took the EU and Europe as a model for regional integration and peaceful cooperation (like MERCOSUR, the African Union, etc.). The only player who probably benefited from the emerging global anarchy and uncertainty was China by successfully combining the worst elements of uncontrolled turbocapitalism with authoritarian state socialism/communism.

The global financial and economic crisis of 2008 projected and magnified all the hidden weaknesses of the European construction, i.e., the lack of high quality leadership, lack of capability for rapid and clear reactions in cases of emergency, the lack of real cross border solidarity in the case of a threatening collapse of a member

after-the-fall-of-communism/ (accessed 23 January 2020). or European Commission: 25 years after the fall of the Iron Curtain. The state of integration of East and West in the European Union. Luxembourg: Publications Office of the European Union, 2014. Available at: https://ec.europa.eu/research/social-sciences/pdf/policy_reviews/east-west_integration.pdf (accessed 27 January 2020) or Lan Bui-Wrzosinska: States of Change: Attitudes in East and Central Europe 30 Years after the Fall of the Berlin Wall. Open Society Foundations. 2019. Available at: https://www.opensocietyfoundations.org/publications/states-of-change-attitudes-in-central-and-eastern-europe-30-years-after-the-fall-of-the-berlin-wall (accessed 27 January 2020)

state's economy (the Euro-crisis combined with the Greek crisis and the threat of Grexit); but most importantly Europe fell back to and remained caught in the nation state paradigm. However big and economically strong Germany is compared to most of the other member states, its short term economic and stability interests cannot be mixed up with pursuing long-term European values. Its economic policy cannot be superimposed upon any other member states. Trying to act, for first time after WWII as *primus inter pares*, Germany gave a series of politically and morally wrong answers and signals to fellow EU member states. The superimposition of austerity policies and the undemocratic decision making via the Troika (European Commission, European Central Bank, International Monetary Fund) undermined its reputation as the champion of political correctness and caused new splits and conflicts at the same time reinforcing old cliches and prejudices within the European community. The old German question surfaced under new circumstances: Germany being too big for Europe and too small for the world.

30 Years After: The Battle for the Soul of Europe and for Our Better Angels

The first stage of the power struggle for the Soul for Europe was won by the masters and guardians of the neo-liberal world order such as the World Bank, IMF, WTO, the European Central Bank, and the European Commission itself. (and its unaccountable guardian institutions) and their fellow-traveller assistants/subordinates, the incorporated nation-states. This peculiar neoliberal economic-political paradigm gained an impetus in 1989 and has been dominant up until recently. Cross border solidarity was replaced by national egotism and corporate global/regional (uncontrollably intertwined) interests. "There is no Liberty without Solidarity" was the famous slogan in 1989 and earlier: "There is no Solidarity in Liberty" was noticed by disenchanted Solidarity leader Zbigniew Bujak 30 years later (Bujak 2020).

After a series of accumulating and intertwined crises the supposedly unquestionable neo-liberal paradigm (upon which the End of History theorem was built) started to lose its grip, and the erosion of the neo-liberal order began. In the short decade between 2005-2015 it has lost a great deal of its credibility and attractivity after the 2008 crisis in Europe and globally. Demonstrated against by national, regional, and global social movements (Occupy Wall street, Occupy Europe, Indignados, Podemos, and more recently by climate change movements), the increasingly anti-democratic and elite-character of the ideological expression of the neo-liberal world order and liberal democracy has been revealed.

In the new epoch of the Great Interregnum (Bauman, 2012) or the New Age of Uncertainty (Hankiss, 2018) the world system is unable to regain its balance and, as a result, fragmentation and disintegration coexist with strong countertendencies, e.g., attempts at further integration and supranational democratization. In this rather chaotic constellation so- called wild or wicked problems occur, many times equations without solutions. In the new age of uncertainty new and unexpected players enter the stage. Those, who were seen not so long ago as insignificant, suddenly gain influence. The outcome of global transformation processes is unpredictable. The weakening and

emptying out of Western civilization has left behind a power vacuum**.** After 1989, European integration continued without a clear leadership or visions based on a common purpose. After the crises, new initiatives have been launched by the European elite for the "Soul of Europe" without much success. The war of paradigms has not yet brought any final results: liberal democracies have fallen into a confidence trap (Runciman 2015)and will likely remain there. Nationalistic right-wing or left-wing "populist" movements are also entrapped in a paradox: they are unable to offer any solutions by and in themselves: they need the European stage, the legal, institutional and economic framework, for their campaigns' visibility and survival. The death of democracies is usually followed by the birth of a new kind of democracy. In case of a positive scenario, the dicline of liberal democracy will likely and possibly be followed by a post-liberal civil democracy (Philippe Schmitter's 2018 phrase somewhat modified).

Among the many new and unexpected players of the Great Interregnum we can find cross border global and regional movements, brave intellectuals, networks of dedicated professionals, city assemblies and regional government groupings. Within the European orbit such a new grouping is Central Europe (V4 + as it is called today). Central Europe as a notion and framework of cultural belonging and political solidarity played an important, system- transcending role during the Cold War. In many ways it was the geographic and cultural frame of concrete solidarity actions. During the decades of the post '89 neo-liberal paradigm, the only legitimate and recognized player was the individual nation state. Any forms of non-state, cross border cooperation has been considered redundant, or ideologically driven and seriously disregarded. After a long time of gestation and hesitation, most recently the V4 group gained some prominence in the context of the impasse of the European integration and increasing global turbulence. "New Europe" is aspiring to its own name. It might become one of the driving forces of a possible European renewal. *Nomen est omen.*

A New European Paradox?

Within the turbulence of the past decade, a new European paradox has emerged. The question arises whether populism has become the midwife of a reinvigorated European democracy. Amidst the present global anarchy and stalled European integration, the EU cannot anymore ignore the affirmation of Central European history, culturally ingrained values and aspirations. The 2019 European Parliamentary elections resulted in a breakthrough in European politics in an unexpected way. For the first time in post-Cold War history, conflicts and interests found a larger transnational audience. Paradoxically, thanks to the innovative character and language of right-wing parties and movements, politics appeared at the European level: in other words, as an unintended consequence nationalistic populism has contributed a great deal to the long-awaited birth of transnational democratization via the opening of the European political space. The European public at large is more informed than ever before about the internal political affairs, aspirations and world views of small and "far away" countries.

Eurobarometer, PEW and other opinion polls show that European citizens identify with the EU and want EU institutions more than ever (PEW 2019; Eurobarometer 2019). Paradoxically, "populism", at the end of the day, has successfully strengthened the EU and the process of supranational democracy by stirring up dead waters. In short: open political conflict has played a constructive role.

Post-liberal Civil Democracy and the Central Europeanization of Europe

The various new roles Central Europe (V4+) can play, both within the EU orbit and between the EU and its candidates as well as their contested neighbours, might give a new impetus to European integration. This new potential dynamism might lead to a redefinition of the methods of the European construction as well as to experimentation with and reinvention of politics and public life in a post-liberal civil democracy. Between a never-ending Brexit (a real Britannicum, indeed) and the protracted and frozen conflict between Russia and the Ukraine, Central European resilience and creativity might find new ways (maybe productive solutions) towards an alternative and less gloomy future. The spirit and message of '89 and the Velvet Revolutions might resurface under more complex and less promising circumstances of today's world by bringing back hope, co-operation and solidarity to the European stage and beyond. As elaborated elegantly and in detail in a recent essay by Emil Brix and Erhard Busek, the Central-Europeanization of Europe might bring us closer to a new version of Gorbachev's long forgotten suggestion and aspiration about our common European home (Busek-Brix 2018).

Our Chances Amidst the Global Anarchy of New Geo-politics

The world system (including all of its major components) has lost its capacity to reach equilibrium. It will either transform into a qualitatively different system or will bifurcate and fall into chaos. Being undetermined, the system does not confine, or does it in much lesser way, the activity of new, previously insignificant players. This provides a chance for more public and political activity in both positive and negative ways. This is what Wallerstein called the situation of relative free will (Miszlivetz 2010). This allows us and our communities to take advantage of a rare chance to act and opt for better solutions, although this does not mean that we will create a better world over night and success is not guaranteed. We also need aggregated political will power to realize this chance. One cannot predict whether the outcome of thousands of interacting and counteracting movements, initiatives, coalitions and individual players will end positively or not. The chances for both less and more democracy, freedom and human dignity are open.

If the EU is to become a significant player, striving for a more democratic and less unjust and unequal world, Europeans have to be able to cope with enormous challenges and countervailing tendencies. For the time being chances for a positive scenario look gloomy. Centrifugal forces seem to possess more dynamics, and there is more disintegration and disagreement about integration and less consensus within the European orbit. Without moving towards a new version of democracy, e.g., postliberal civil democracy which widens the scope, the size and scale of democratic decision

making (Schmitter 2018), we will not have a chance to act as a larger community in order to promote a sustainable future. A better understanding of Europe's potential in the transforming world system presupposes a European New Deal based upon a New European Social Contract (Holland 2014). This is a potential common denominator which might bind more closely together Eastern, Western, Southern and Northern Europeans. This is a purpose around which Central Europeans can re-vitalize their European belonging. We need to call upon the better angels of our natures (Meacham 2018) to help us to understand and accept that there is more that unites us than divides us.

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PAPER

Impact of the European Central Bank Monetary Policy on the Financial Indicators of the Eastern European Countries

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Abstract The article presents the study results of the European Central Bank Monetary Policy influence on the Poland, Hungary, Czech Republic, and Slovak Republic financial indicators. By running vector autoregression models and applying Granger causality tests the study reveals the impact of the European Central Bank Monetary Policy on the yield of government bonds, interest rates and the inflow of foreign investments into the CEE countries. The results of the analysis demonstrate that the ECB monetary policy had an overall positive impact on the economies of Poland, Hungary and Czech Republic. In the context of a general decrease of interest rates under the influence of the ECB's unconventional monetary policy, these countries managed to achieve sustainable economic growth along with a decrease in the ratio of government debt to GDP and the ratio of interest payable on debt to GDP as well as stock indices growth. The opposite situation is observed in the euro area countries with a high debt burden, primarily in Greece and Italy. Although the ECB policy had led to the decrease of the interest payable on debt to GDP of the high debt euro area countries, the trend of the ratio of government debt to GDP growth for them (except Ireland) has an upward trend. In this situation, the ECB cannot significantly change the goals of its monetary policy, because any, even slight, increase in the discount rate will lead to a new euro area debt crisis with an epicenter in Italy and Greece. The situation may get worse after a probable sharp decline in the US stock market, caused by its current overheating

Keywords: European Central Bank; monetary policy; unconventional measures; CEE countries; government bonds yield; interest payable; stock indices.

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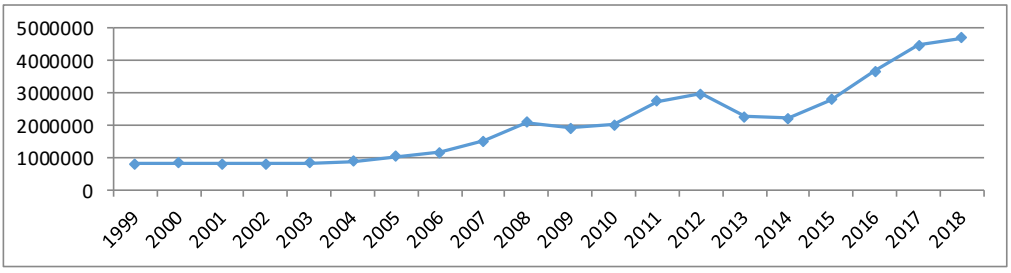
1. Introduction

During the global financial crisis, the central banks of the G7 countries adopted unprecedented monetary policy measures to stabilize their economies and financial systems. The most common method of this policy is the purchase of different types of assets, which is called "quantitative easing" in the economic literature. The European Central Bank was among these banks. The first unconventional method used by the ECB was the announcement of 3-month longer-term refinancing operations (LTRO). After that, in 2009, the announcement of the covered bond purchase program (CBPP) aimed at restoring the functioning of the covered bond market, which is an important source of bank financing. The ECB introduced more unconventional measures in the framework of the Securities Markets Program (SMP) in May 2010 after the emergence of tensions in sovereign debt markets in some countries of the euro area. But these events did not bring the desired result and in 2014 the implementation of the program of targeted long-term refinancing (TLTRO) started. In January 2015, the European Central Bank was forced to launch a quantitative easing (QE) program due to very low economic activity in the euro area. This program included monthly purchases of securities in the secondary market. In October 2017, the quantitative easing program was extended, and the ECB intended to support it until inflation was met with a two percent target. All these measures had a significant impact on the balance sheet of the central bank.

Figure 1. ECB total assets (millions EUR)



Source: data from ECB (2020).

Starting in 2010, ECB has been actively increasing the volume of assets (Figure 1). In 2013 and 2014, there was a slight decrease as compared to the previous year, but in 2015, due to the launch of new asset purchase programs, the upward trend resumed again, and continues to this day.

Despite the fact that the main object of the ECB's policy was the countries of the Eurozone, the countries of the CEE also experienced the consequences of this policy. The following countries of the CEE: Poland, Hungary and the Czech Republic still retain their own currencies. In the paper the impact of the ECB monetary policy on

their financial indicators are explored.

2.Literature review

The issues of the Central Banks monetary policy in general and its influence on the national financial systems and economic development of different countries have been widely studied in the literature.

Halova Klara, Horvath Roman (2015) explore how the unconventional monetary policy of the European Central Bank affects macroeconomic stability in Central and Eastern Europe. They evaluate various panel autoregressions using monthly data for 2008-2014. Using central bank assets as indicators of unconventional policy measures. Scientists conclude that GDP and prices in Central and Eastern Europe are temporarily rising after the expansionary shock of unconventional monetary policy.

Carsten M. Stann, Theocharis N. Grigoriadis (2019) report that the ECB's unconventional monetary policy has produced significant side effects for Eastern Europe and Russia. In particular, asset prices, especially sovereign returns and CDS spreads, reacted strongly to ECB actions.

Alessio Ciarlone, Andrea Colabella (2016) prove that the ECB's asset purchase programs applied to CESEE countries, helping to improve their financial conditions. An event study analysis method was used in the research. Significant responses to announcements of ECB asset purchase programs and actual asset purchases were in the CESEE countries. This indicates a portfolio rebalancing.

Anita Angelovska - Bezhoska (2018) empirically evaluated the impact of the quantitative easing ECB's policy on capital flows in the countries of the Central and Eastern regions. As a result of the study, the unconventional monetary policy of the ESB did not have a special effect on the activation of cross-border financial flows in the regions.

A study by Lesuisse P. (2017) aims to identify the ECB's monetary policy direct impact in Central and Eastern Europe (CEE). The scientist is guided by the exchange rate regime to determine various reactions. The exchange rate regime plays a significant role in studying prices, but does not play a role when it is focus on real variables such as GDP.

In the article Halyna Alekseievska et al. (2019) studied the main outcomes of unconventional monetary policy measures of the developed countries and formulated recommendations for the developing countries. The results of the analysis show that unconventional monetary policy methods of the central banks of the developed countries reached major goals - to prevent bankruptcies of large financial institutions in national economies. In developing countries, the use of unconventional methods is still limited.

The results of other research – Rodionova et al. (2019) and Yakubovskiy et al. (2019) showed the high level of income of foreign investors in East European economies in the conditions of unconventional monetary policy of the developed countries.

There is also a large number of studies contributed to identifying the influence of different financial factors on national and world economies development. Among them there are the studies of Babenko (2019), Dominese (2019, 2020), Matyushenko (2019)

and Rogach (2019, 2020). A wide range of possible monetary policy transmission channels is also considered in the literature. In particular, Bairn (2011), Krishnamurthy and Vissing-Jorgensen (2011), ECB (2015), Falagiarda et al. (2015), Georgiadis G. and Gräb J. (2016), Fratzscher et al. (2018), study and describe the various transmission channels of non-standard monetary policy of both the EU and the Fed. The most common channels are: interest rate channel, signaling channel, exchange rate channel, credit channel and portfolio rebalancing channel.

The first channel is the interest rate channel. With monetary tightening, the cost of capital rises, which leads to lower investment. In addition, since monetary policy changes domestic interest rates compared to foreign ones, relative demand indicates that investors will redistribute their funds. (Berge and Cao, 2014).

Signaling channel is the channel that can affect market uncertainty by providing new information about the state of the economy. The Falagiarda et al. (2015) suggest that a change in confidence as a result of a monetary policy decision can, on the one hand, cause capital flows reflecting close ties in CEE countries; on the other hand, renewed confidence may cause a reassessment of risk and lead to an outflow of capital from CEE countries, especially if earlier the inflow was caused by periods of high uncertainty in the euro area.

Through a credit channel local liquidity conditions also have international implications (Falagiarda et al., 2015). Amid excess liquidity, banks improved access to finance through interbank operations and foreign exchange markets, which stimulates lending and investment activity. Given the wide presence of banks that are headquartered in the EU, operating in the CEE region, an international credit channel can have direct consequences for countries in the region (Stann and Grigoriadis, 2019).

One of the main channels for transmitting monetary policy works through the reaction of private agents of the securities market to changes in the price and return on assets - a portfolio rebalancing channel (Chinn, 2013). This channel transmits the actions of asset purchase policies. When the central bank buys any asset, and this limits its offer, the price of the asset rises and its profitability automatically decreases. Investors interested in high returns replace this asset with another. Investors enter the international market to replace assets and, as a result, international spreads on comparable assets appear. Relative changes in prices motivate international capital flows, which are the engine of international side effects. Dahlhaus and Vasishtha (2014) and Hamilton and Wu (2012) distinguish this channel as the central transmission channel through which asset purchases affect cross-border capital flows and transfer domestic monetary policy abroad.

3. Hypothesis, methodology and data

In general, in empirical studies, the influence of the volume of assets of the European Central Bank on various types of foreign investment flowing into CEE countries did not receive enough attention.

To test the hypothesis that the value of the ECB's assets is an important factor causing the inflow investment in emerging markets, the Vector Autoregression (VAR)

was chosen, since it provides the ability to evaluate the rich dynamics in multiple time series.

The first model is an assessment influence unconventional monetary policy measures of the ECB, expressed in the balance sheet of the ECB assets, and also the yield of ten-year Eurobonds on the yield of ten-year government bonds of CEE countries. For comparison, we take countries outside the euro zone, the Czech Republic, Poland and Hungary, as well as countries that are its members, the Slovak Republic, which goes the same way of transforming the economy, and also the troubled countries of the European Union, Greece and Italy. This model is presented in the form:

$$\begin{aligned} Y10_t &= a_1 + \sum_{i=1}^{p} \beta_{1i} Y10\_E_{t-1} + \sum_{i=1}^{p} \gamma_{1i} TAECB_{t-i} + \sum_{i=1}^{p} C_{1i} Y10_{t-i} + \varepsilon_{1t} \\ Y10\_E_t &= a_2 + \sum_{i=1}^{p} \beta_{2i} Y10_{t-i} + \sum_{i=1}^{p} \gamma_{2i} TAECB_{t-i} + \sum_{i=1}^{p} C_{2i} Y10\_E_{t-1} + \varepsilon_{2t} \\ TAECB_t &= a_3 + \sum_{i=1}^{p} \beta_{3i} Y10\_E_{t-1} + \sum_{i=1}^{p} \gamma_{3i} TAECB_{t-i} + \sum_{i=1}^{p} C_{3i} Y10\_E_{t-1} + \varepsilon_{3t} \end{aligned} \quad (1)$$

Where TAECB is the total assets of the balance sheet of the European Central Bank(USD millions) , Y10 is the yield on 10-year government bonds of the studied country (%); Y10_E is the yield on 10-year government bonds on average in the euro area(%).

The next step in evaluating is finding out how influential the internal economic conditions for the yield of government bonds are.

$$\begin{aligned} Y10_t &= a_1 + \sum_{i=1}^{p} \beta_{1i} IR_{t-i} + \sum_{i=1}^{p} C_{1i} Y10_{t-1} + \varepsilon_{1t} \\ IR_t &= a_1 + \sum_{i=1}^{p} \beta_{2i} IY10_{t-i} + \sum_{i=1}^{p} C_{2i} IR_{t-1} + \varepsilon_{2t} \end{aligned} \quad (2)$$

Where IR is the short-term rate of the country's central bank (%), because this is the main instrument of monetary policy in these countries.

And it is also necessary to determine the impact of the ECB policy on domestic indicators of the economy, in particular the short-term interest rate.

$$\begin{aligned} IR_t &= a_1 + \sum_{i=!}^{p} \gamma_{1i} TAECB_{t-i} + \sum_{i=1}^{p} C_{1i} IR_{t-i} + \varepsilon_{1t} \\ TAECB_t &= a_2 + \sum_{i=1}^{p} \gamma_{2i} IR_{t-i} + \sum_{i=1}^{p} C_{2i} TAECB_{t-i} + \varepsilon_{2t} \end{aligned} \quad (3)$$

In particular, in order to assess the impact of the balance of assets of the ESB and various types of investments in CEE countries, the following VAR systems are presented:

$$\begin{aligned} LIIP_t &= a_1 + \sum_{i=1}^{p} \gamma_{1i} TAECB_{t-i} + \sum_{i=1}^{p} C_{1i} LIIP_{t-i} + \varepsilon_{1t} \\ TAECB_t &= a_2 + \sum_{i=1}^{p} C_{2i} LIIP_{t-i} + \sum_{i=1}^{p} \gamma_{2i} TAECB_{t-i} + \varepsilon_{2t} \end{aligned} \quad (4)$$

Where LIIP denotes a certain indicator of Liabilities according to the international investment position (USD millions). LDIE - Direct investment - Equity and investment fund shares**;** LDID - Direct investment - Debt instruments**;** LPIE - Portfolio investment - Equity and investment fund shares**;** LPID - Portfolio investment - Debt instruments.

In all of these models: ε is error term; α is a constant term; β, γ and C denote the coefficients to be estimated, p is the lag order selected.

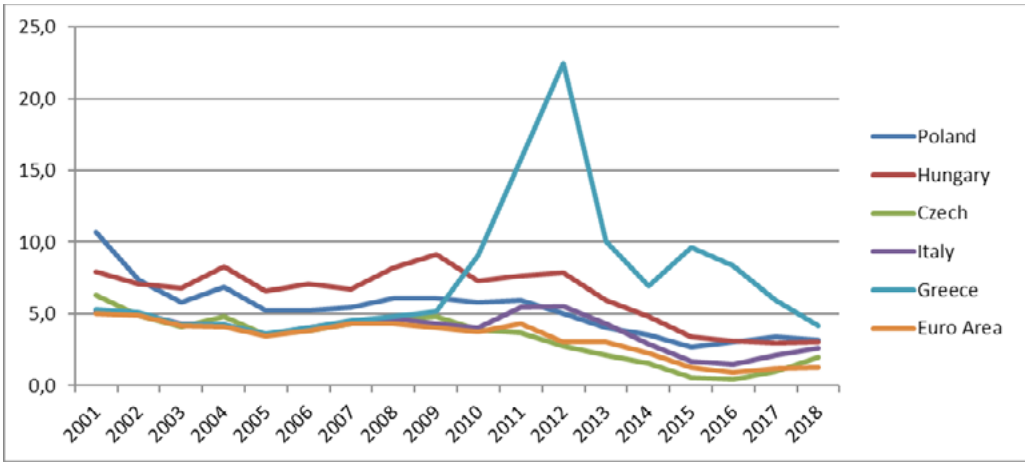
Models are evaluated as follows. First, an unlimited VAR is estimated. Granger causality is then tested. The optimal amount of lag length was selected taking into account the AIC and SIC criteria.

The quarterly data statistics from the International Monetary Fund and Organization for Economic Co-operation and Development are used in the models.

4. Results

During the financial crisis, investors viewed the bonds of CEE countries as an attractive substitute for Eurobonds, as government bond yields in Poland and Hungary were several times higher than the euro area average (figure 2). Certainly, during the Greek debt crises its national bond yield was the highest for the euro area countries, but the risk from this investment was unreasonably high.

Figure 2. 10-year government bonds yield (%)



Source: data from ECB (2020).

In 2010, the ratio of public debt to GDP in several Eurozone countries reached such a dangerous level that the ECB was forced to take additional measures which led to the launch of the Securities Markets Program (SMP). Initially focused on debt securities in Greece, Ireland and Portugal, the SMP was expanded in August 2011 to cover debt securities of Italy and Spain. In addition, two Long Term Refinancing Operations (LTROs) were introduced by the ECB.

The results of the Granger test that evaluate the hypothesis of the impact of

the value of the ECB assets on the yield of government bonds of CEE countries in comparison with three Eurozone countries are shown in the table 1.

Table 1. Granger's test for the model 1

Country	AIC and SIC	Lags			
		Indicators	TAECB	Y10_E	Y10
Poland (2004Q1 2019Q2)	1	TAECB		0.10 (0.75)	0.02 (0.96)
		Y10_E	2.5 (0.10) [c]		0.02 (0.87)
		Y10	0.01 (0.90)	4.5 (0.04) [b]	
Hungary (2002Q1 2019Q2)	2	TAECB		1.2 (0.52)	1.3 (0.49)
		Y10_E	8.4 (0.01)[a]		2.8 (0.23)
		Y10	2.2 (0.31)	9.7 (0.00)[a]	
Czech Republic (2004Q1 2019Q2)	1	TAECB		0.4 (0.4842)	1.5 (0.21)
		Y10_E	2.6 (0.10)[c]		1.4 (0.28)
		Y10	0.01 (0.90)	1.01 (0.90)	
Slovak Republic (2002Q1 2019Q2)	2	TAECB		2.2 (0.32)	4.7 (0.19)
		Y10_E	8.4 (0.01)[a]		0.2 (0.88)
		Y10	0.3 (0.82)	17.3 (0.00)[a]	
Italy (2002Q1 2019Q2)	1	TAECB		2.3 (0.1281)	4.6 (0.03)[b]
		Y10_E	0.25 (0.61)		0.9 (0.3186)
		Y10	4.2(0.03)[b]	7.5(0.00)[a]	
Greece (2002Q1 2019Q2)	5	TAECB		6.8 (0.23)	17.05(0.00)[a]
		Y10_E	1.86 (0.86)		3.9 (0.55)
		Y10	21.1(0.00)[a]	13.0 (0.02)[b]	

Note: behind the country name the sample range is listed in parentheses. The numbers in the parentheses beside the Wald statistics are the P-values: a, b, c represent the 1%, 5%, and 10% significance levels, respectively. All coefficients are filled in the table.
Source: authors` calculations, data from IMF (2020).

According to the Granger causality test for the assets of the ECB balance sheet do not affect the yield of government bonds of the studied countries, except Greece and Italy. At the same time bonds purchase of the ECB together with the interest rate policy on the main refinancing operations had strong impact on the yield of Eurobonds. In this case, the main goal of the unconventional monetary policy of the ECB to reduce the long-term interest rate in the euro area was successfully achieved. Moreover, as it is shown in the table 1, the yield of Eurobonds has a significant impact on the yield of government bonds in Poland, Hungary and, of course, on the bond yield of the euro area countries – Italy, Greece, Slovak Republic.

In the case of Greece and Italy, there is also a two-way relationship between the ECB balance sheet and government bond yields. This is due to the fact that when applying quantitative easing, a large volume of debt securities of these troubled countries was bought in order to overcome the European debt crisis.

Table 2. Granger causality test for the model 2 and 3

	Model 2			Model 3		
	AIC and SIC crit.	Lags		AIC and SIC crit.	Lags	
Country		Indicators	IRC		Indicators	IR	TAECB
Poland (2004Q1 2019Q2)	2	IR	6.8(0.03)[b]	2	IR		8.7(0.01)[a]
		Y10	0.1 (0.92)		TAECB	7.8(0.92)	
Hungary (2002Q1 2019Q2)	2	IR	6.5(0.03)[b]	3	IR		10.4(0.01)[a]
		Y10	11.6(0.00)[a]		TAECB	4.6 (0.19)	
Czech Republic (2004Q1 2019Q2)	2	IR	13.2(0.00)[a]	4	IR		17.9(0.00)[a]
		Y10	1.5(0.4)		TAECB	5.2(0.25)	

Note: behind the country name the sample range is listed in parentheses. The numbers in the parentheses beside the Wald statistics are the P-values: a, b, c represent the 1%, 5%, and 10% significance levels, respectively. All coefficients are filled in the table.
Source: authors` calculations, data from IMF (2020).

The results of the Granger test that evaluate the hypothesis of the impact of the short-term rate of the country's central bank on 10-year government bonds yields and of the impact of the ECB policy on the national short-term interest rates are shown in table 2.

According to the Granger causality test in Hungary, there is a double interdependence between the short-term interest rate and the yield of long-term government bonds. An only one-sided relationship is proved in Poland and the Czech Republic. In these countries, the yield on 10-year government bonds affects the short-term interest rate of the Central Banks.

Results of the model 3 predictably demonstrate the relationship between the short-term interest rates of Poland, Hungary and Czech Republic and the value of the ECB balance sheet assets.

Expansion policy of the ECB aimed at stimulating investment activity in the EU countries was supposed to lead to an increase of foreign investments into the EEC area. The results of the Granger test that evaluate the hypothesis of the impact of the value of the ECB assets on the inflow of various types of foreign investments are shown in table 3. For all countries, AIC and SIC criteria are equal to 1.

Table 3. Granger causality test for the model 4

Country	Direct investment				AIC and SIC criteria	Portfolio investment			
	Indicators	Lags				Indicators	Lags		
		TAECB	LDID	LDIE			TAECB	LPID	LPIE
Poland (2004Q1 2019Q2)	TAECB		0.7 (0.39)	0.3 (0.58)	2	TAECB		4.9 (0.84)	4.8 (0.62)
	LDID	1.5 (0.21)		0.19 (0.65)		LPID	7.1 (0.02) b		41.3 (0.0)[a]
	LDIE	1.19 (0.27)	9.9 (0.99)			LPIE	7.1 (0.02)b	1.1 (0.57)	
Hungary (2002Q1 2019Q2)	TAECB		0.8 (0.36)	1.4 (0.23)	1	TAECB		0.16 (0.68)	0.7 (0.39)
	LDID	1.6 (0.10)[c]		8.6 (0.00)[a]		LPID	0.5 (0.44)		2.5 (0.11)
	LDIE	0.52 (0.47)	0.05 (0.82)			LPIE	0.29 (0.58)	5.4 (0.01) a	
Czech Republic (2004Q1 2019Q2)	TAECB		0.04 (0.83)	0.0 (0.97)	1	TAECB		1.6 (0.20)	0.3 (0.54)
	LDID	3.8 (0.04)[b]		3.8 (0.04)[b]		LPID	8.0 (0.00)a		0.8 (0.35)
	LDIE	9.3 (0.00)[a]	4.9 (0.02)[b]			LPIE	1.8 (0.17)	3.3 (0.06)[b]	
Slovak Republic (2002Q1 2019Q2)	TAECB		0.7 (0.37)	0.5 (0.47)	3	TAECB		9.3 (0.25)	1.2 (0.64)
	LDID	8.4 (0.00)[a]		7.5 (0.00)[a]		LPID	14 (0.00)a		6.5 (0.0)[c]
	LDIE	3.3 (0.06)[b]	1.8 (0.17)			LPIE	3.49 (0.32)	1.8 (0.75)	

Note: behind the country name the sample range is listed in parentheses. The numbers in the parentheses beside the Wald statistics are the P-values: a, b, c represent the 1%, 5%, and 10% significance levels, respectively. All coefficients are filled in the table.
Source: authors` calculations, data from IMF (2020).

Based on the data of model 4, the balance sheet of the ECB's assets affects the flow of foreign direct investment in Hungary, Czech Republic and Slovak Republic. In Hungary and Czech Republic, this effect is more reflected in the flows of foreign direct investment in equity, and in Slovak Republic in debt assets. In these countries there is also a correlation between different types of direct investments. For Poland the correlation was not determined.

The ECB's asset balance affects inflows portfolio investments in Poland and for investments in capital and shares, and also in debt instruments, in the Czech Republic

and the Slovak Republic. In most cases, an increase in the ECB's assets had an impact on investment flows and it was mainly debt instruments.
The overall impact of the ECB monetary policy on the main national indicators of the explored countries is shown in table 4.

Table 4. Dynamics of national indicators

Country	GDP at market prices, bln, euro		Government debt to GDP		Interest payable on debt to GDP		Stock indexes changes, % 2010-2018
	2010	2018	2010	2018	2010	2018	
Poland	361.8	496.4	53.1	48.9	2.5	1.4	WIG - +51.7
Hungary	99.0	133.8	80.6	70.2	4.1	2.4	BUX - +87.1
Czech Republic	156.7	207.6	37.4	32.6	1.3	0.8	SE PX* - +35.2
Slovak Republic	68.1	89.7	41.0	49.4	1.3	1.3	SAX - +38.2
Italy	1611.3	1765.4	119.2	134.8	4.3	3.7	FTSE MIB - -11.9
Greece	226.0	184.7	146.2	181.2	6.0	3.3	ASE - -68.8

Note: ASE - Greece Stock Market Index; FTSE MIB - Italy Stock Market Index; WIG - Warsaw Stock Exchange Index; SE PX - Czech Republic Stock Market; BUX – Hungary Stock Market; SAX - Slovakia Stock Market; * - data for 2009-2018.
Source: authors` calculations, data from IMF (2020).

Results of the analysis of the data given in table 4, show that the ECB monetary policy had an overall positive indirect impact on the economies of Poland, Hungary and Czech Republic. In all of these countries the economic growth was accompanied by a decrease in the ratio of government debt to GDP and in the ratio of interest payable on debt to GDP as well as by stock indices growth.

The opposite situation is observed in the countries of the euro area with a high level of government debt, primarily in Greece and Italy. Indeed, in these countries the ECB monetary policy led to the decrease of the interest payable on debt to GDP, but the ratio of government debt to GDP has increased, as in all of the high debt Eurozone countries, except Ireland. Stock indices have also declined in Italy and Greece.

Conclusion

The global financial crises that began in 2008 showed the weakness of the financial systems of most developed countries. The peak of the crisis in the EU countries came at the end of 2009 when several euro area member states were unable to cope with refinancing of their government debt without external assistance.

From 2010 to overcome the crisis the ECB (as the Federal Reserve System, Bank of Japan and other Central Banks of developed countries) started to use unconventional monetary policy measures. The application of these measures in this case is unique since the ECB is the central bank of more than one country. Its policy affects not

only countries that are part of the euro currency union, but also countries that are not its members. This influence spreads through many channels of monetary policy transmission. The most common are the interest rate channel and the rebalancing channel, which were investigated in the article. The results of the analysis proved that the ECB's unconventional policy, in particular quantitative easing aimed at lowering long-term interest rates, affected the yield of government bonds of almost all EU countries (not only the countries – members of the euro area). All this subsequently led to a reduction in the yield of 10 government bonds in CEE countries. On this basis, the interest rate channel is effective in the process of transferring monetary policy shocks to foreign markets.

Portfolio rebalancing channel is also applicable for transferring the influence of trade policy on CEE countries. It has been revealed that carrying out a non-traditional monetary policy and increasing the ECB's balance affect the investments flows into the studied countries, but this cap is mainly debt instruments both in direct and portfolio investments. At the time of worsening economy and debt crisis, which had an adverse effect on the euro area countries, investors are interest in CEE countries with higher interest rates and incomes increased.

Thus, the results of the analysis show that the ECB monetary policy had an overall positive impact on the economies of Poland, Hungary and the Czech Republic. In the context of a general decrease of interest rates under the influence of the ECB's unconventional monetary policy, these countries managed to achieve sustainable economic growth along with a decrease in the ratio of government debt to GDP and in the ratio of interest payable on debt to GDP as well as by stock indices growth.

The opposite situation is observed in the euro area countries with high debt burden, primarily in Greece and Italy. Although the ECB policy had led the high debt euro area countries to the debt-to-GDP ratio decrease, there is the upward trend of the government debt to GDP ratio (except Ireland). In this situation, the ECB simply cannot significantly change the goals of its monetary policy, because any, even slight, increase in the discount rate will lead to a new euro area debt crisis with an epicenter in Italy and Greece.

The investment attractiveness of the EU countries was also influenced by the situation in the US economy, in which the use of unconventional methods by the Fed led to a sharp increase in stock indexes (almost 200% increase of the Dow Jones Industrial Average over the past 10 years). In this situation, even European investors preferred to invest in American high-yield securities rather than in European low-yield assets. At the same time, after a sharp decline in the US stock market, caused by its current overheating, European investors are likely to suffer losses, which will lead to a further deterioration of the situation in the euro area.

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PAPER

Temporal Causality between Human Capital, Trade, FDI, and Economic Growth in Cointegrated Framework. Empirical Evidence from Pakistan

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Abstract We investigate causal links between human capital, foreign direct investment (FDI), trade openness, domestic investment, and economic growth for the case of Pakistan. In a multivariate vector autoregressive (VAR) framework, we apply Johansen and Juselius co-integration, Granger causality, and vector error correction model (VECM) using annual data from 1980 to 2017. Results of the co-integration analysis indicate the positive association among human capital, trade openness, foreign direct investment, and economic growth for the long run. Granger causality reveals that bidirectional causality exists between human capital and trade openness, human capital and economic growth, and foreign direct investment and trade openness. The unidirectional results of Granger causality analysis reveal that human capital and domestic investment influence economies growth through FDI, and trade openness influences economic growth through domestic investment. The most obvious finding to emerge from this empirical investigation is that human capital and trade openness enhance domestic and foreign investment, which leads to the economic growth of Pakistan.

Keywords: Trade; Human Capital; Economic Growth; Co-integration; Granger Causality.

JEL Classification: F14; J24; O47.

1. Introduction

The key objective of every economy is to ensure the sustainable improvement in the living standard of their general public, which is achieved through the consistent improvement in the economic growth (Azam & Ahmed, 2015).[1] Amongst many,

[1] This key objective is consistent with couple of sustainable development goals including SDG 8 (decent

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human capital (Benhabib & Spiegel, 1994; Romer, 1989; Gemmell, 1996), trade (Shahbaz, 2012; Kalaitzi, 2015), and foreign direct investment (Borensztein, Gregorio & Lee, 1998; Li, Liu & Rebelo, 1998)[2] are the important factors contributing to the economic growth, especially in developing countries (Marwah & Klein, 1998; Gemmell, 1996).[3] Through technological innovations, human capital has developed a foundation of the new concepts for the endogenous growth of the economy.[4] In particular, Glomm and Ravikumar (1992) reveal that investment in human capital through formal schooling is the engine of growth in any economy.[5] Human capital, help an economy as the main actor of growth, also plays its role as a key input besides labour and capital. Development in human capital increases the marginal return to capital which mounts the local as well as the foreign investment demand (Zhang and Markusen, 1999; Youssef, 2017).

One of the key roles of foreign direct investment (FDI) is that it stimulates local investment and contributes to enhancing human capital in host countries.[6] In the presence of local and foreign investment, trade facilitates the efficient production of goods and is an important source of economic growth (Frankel and Romer, 1999; Zulkifli et al., 2018).[7] Trade improves in the stock of human capital and contributes to the growth of the economy (Haq et al., 2014). The existing literature provides empirical pieces of evidence on these economic association (see Benhabib & Spiegel, 1994; Romer, 1989; and Gemmell, 1996). However, there is a substantial lake of empirical evidence from the developing economies like Pakistan. The current study tries to investigate the causal links between human capital, foreign direct investment (FDI), trade openness, domestic investment, and economic growth for Pakistan.

Pakistan is important for trading nations in many goods among many others. The period of 1951-1990 observed extraordinary growth in Pakistan's international trade. The increase in the production of profitable crops like wheat, cotton, and rice was mainly due to the success in trade—export trade. Foreign direct investment and human capital play a significant role in the growth of the Pakistani economy (Rehman, 2016). However, this economic phenomenon needs empirical investigation. Therefore, the objective of this research is to analyse the causal links between human capital, foreign direct investment (FDI), trade openness, domestic investment, and economic growth for Pakistan for the period of 1980–2017. This research objective is twofold. First, this study attempts

work and economic growth), SGD 1 (no poverty), SGD 2 (zero hunger), and SGD 9 (industry, innovation and infrastructure). For further details, see Robert, Parris, & Leiserowitz, 2005).

[2] For further details on this nexus, also see Lim and McAleer (2002), Liu (2002), Makki and Somwaru (2004), Ramirez (2000), and Sun (1998).

[3] Also see Hanushek (2013) for the role of school attainment and cognitive skills for the economic growth in developing economies.

[4] Human capital plays a distinct role in economic activity and progress of economy in technological entrepreneurship (see Wright, Hmieleski, Siegel, & Ensley, 2007).

[5] Glomm and Ravikumar (1992) developed the overlapping generational model with the heterogeneous agents. In this framework, they provide useful insights on the benefits of public education. They report that income inequaltiy declines abruptly with the public education.

[6] See Ram and Zhang (2002) for the cross-country evidences on this nexus.

[7] Also see Zafar (2007) for some evidences on this linkage from China and Sub-Saharan Africa.

to examine the long-run association between human capital, foreign direct investment (FDI), trade openness, domestic investment, and economic growth. Second, this research attempts to explore the effect of human capital, the openness of trade, foreign and domestic investment on economic growth. We also attempt to examine the direction of causality, unidirectional or bidirectional, among the selected variables.

Study in the next sections is arranged as follows. In the second section, we discuss the literature related to human capital, the openness of trade and growth. Next section provides some detail on data and methods applied in the research. Section four describes the results and analysis. In the last section, we provide some suggestions and recommendations.

2. Literature Review

Existing empirical literature examines the association among human capital and economic growth under the framework of growth accounting (Barro, 1991; Cavalcanti, 2017; Benhabib & Spiegel, 1994) and endogenously determined growth models (Grossman and Heolpman, 1991; Romer, 1989).[8] This literature suggests that the level of education increases the efficiency of human capital[9] which ultimately contributes to economic growth (Strulik, 2005; Gemmell, 1996). Later, different researchers extend this empirical literature by incorporating the role of physical capital (Caballe & Santos, 1993) and technology (Foster & Rosenzweig, 1996) in this nexus. More specifically, Foster and Rosenzweig (1996) and Rehman (2016) reveal that technology adoption driven human capital accelerates economic growth. Another strand of the literature reveals the causality relationship between human capital and economic growth. For instance, In and Doucouliagos (1997) observe the causal relationship between human capital and economic growth in a bivariate context. Likewise, Meulemeester and Rochat (1995) examine the Granger causality among variables like education and economic growth in different countries. Applying Granger causality in a cointegrated VAR framework, Narayan and Smyth (2004) investigate the linkages between human capital, trade and the economic growth for the case of China. They report a unidirectional Granger causality running from human capital to income in the long run, and the unidirectional causality running from income to human capital in the short run.

Most of these empirical studies are conducted in developed economies. However, Khan et al. (1991) observe unidirectional causality between knowledge and output of Pakistani labour. Apart from this empirical evidence, there is a substantial lack of literature analysing the causal association among human capital and economic growth—in the developing country like Pakistan. This transmission mechanism works through different channels, including trade openness (export and imports) and technological innovations (Chuang, 2000; Haq et al., 2014; and Foster & Rosenzweig, 1996).

The higher level of export concentration improves the human capital stock in the

[8] See Schultz (1961) for the policy related discussion on the investment in human capital.

[9] See Berry and Glaeser (2005) for the divergence of human level across the cities. They present a model where entrepreneurial innovation drives the clustering of educated people in metropolitan areas.

developing economies (Agosin, Alvarez, & Bravo-Ortega, 2012) in different ways.[10] Firstly, the state-of-the-art technology transmits from advanced to developing nations through trade openness (Kalaitzi, 2018). Technology adoption by the human capital further attracts the foreign direct investment especially in the developing economies which ultimately leads to the economic growth (see Gholami, Tom Lee, & Heshmati, 2006; Marwah & Klein, 1998; Borensztein, Gregorio & Lee, 1998; Makki & Somwaru, 2004; Pissarides, 1997; Foster & Rosenzweig, 1996; and Rehman, 2016). These empirical studies suggest that FDI has a positive impact on the economic growth of developing economies. For instance, Li, Liu and Rebelo (1998), Sun (1998), Liu (2002) provide the similar evidences from China; Ramirez (2000) from Mexico; Lim and McAleer (2002) from Singapore; Marwah and Klein (1998) from India; Borensztein, Gregorio and Lee (1998) and Makki & Somwaru, 2004 for the cross-countries analysis from developing economies.

Secondly, trade encourages learning by doing (Chuang, 2000; Haq et al., 2014) which develops the human capital stock of any economy, especially of the developing economies (Young, 1993). Thirdly, exports enhance the technological-based management, marketing and production skill that can uphold the efficiency of physical capital and labour force (Kim, 1995). Considering all this literature, exports enhance economic growth in multiple ways. Furthermore, export-led growth theories assume that the capital accumulation (Kavoussi, 1984), technological advances (Foster & Rosenzweig, 1996) and the creation of employment (Fields, 1984) improves the distribution and production process which leads to the economic growth (Feder, 1983; Zulkifli et al., 2018).[11] Economic growth theoretically roots trade. Firstly, variations of models about trade possess the extended concept that economic growth causes trade openness (Kalaitzi, 2015; Findlay, 1984). Secondly, growth devices can well explain the progress of exports. Thirdly, new models having the economy of scale with path-dependent are reliable with economic growth producing exports.[12]

Some empirical investigations reveal the unidirectional causality running from foreign direct investment to economic growth in the long-run and bidirectional causality between these variables over the short-term period (Ghazali, 2010). Working on the role of export-growth linkage in Pakistan, India, the Philippines, Malaysia and Thailand, Vohra (2001) reports that exports have a positive and significant impact on economic growth. She further reveals that this positive impact is significant when a country achieves some level of economic development. Applying Granger causality in a cointegrated VAR framework, Narayan and Smyth (2004) investigate the linkages

[10] Improves human capital further improves labor productivity. However, the human resource management policies matter in this interaction. For further details, see Koch and McGrath (1996).

[11] Also see Abou-Stait (2005), Al-Yousif (1997), Balassa (1978), Feder (1982), Michaely (1977) and Vohra (2001).

[12] The interested readers can see the Evald, Klyver, and Christensen (2011). The focus of this study is on the effects of human capital, social capital and perceptual values on the exporter's intentions of nascent entrepreneurs. However, they also discuss the limited causality on this relationship. Also see Benhabib and Spiegel (1994) for the further details on the effects of openness and trade orientation on the factor productivity.

between economic growth, human capital and trade for the case of China. They report a unidirectional Granger causality running from human capital to income in the long run, and the unidirectional causality running from income to human capital in the short run. Significant impact is reported on the growth of the economy by investment at the local level and openness in trade in Thailand (Tanna and Topaiboul, 2005). While for Chen and Gupta (2009) inspected the impact on economic growth by openness in trade and outcomes support the view that openness in trade strongly influences the growth of an economy.

3. Econometric Methodology

This research analyses the causal links between human capital, foreign direct investment (FDI), trade openness, domestic investment, and economic growth for Pakistan for the period of 1980–2017. For this purpose, we extract the data on human capital, trade openness (exports and imports), domestic investment, foreign direct investment and the economic growth from WDI dataset for Pakistan from 1980 to 2017. For this empirical investigation, we start our analysis with the following specification (Borensztein et al., 1998; Barro, 1991; Barro & Sala-i-Martin, 1995).[13]

$$EG_t = \beta_0 + \beta_1 HC_t + \beta_2 OPT_t + \beta_3 FDI_t + \beta_4 EXR_t + \beta_5 DOMI_t + \varepsilon \tag{3.1}$$

Where *EG, HC, OPT, FDI, EXR and DOMI* are the economic growth rate, human capital, the openness of trade, foreign direct inward investment, exchange rate and gross domestic capital formation respectively. We define human capital as spending on education. The openness of trade is defined as the sum of imports and exports as the per cent of gross domestic product. In this setting, we investigate the role of exogenous factors in the growth of the economy. We use gross domestic capital formation as a proxy for the investment at the domestic level.

We conduct this empirical investigation in different stages. Before estimating Granger causality, we ensure that all variables are integrated of the same order. Therefore, in the first stage, we perform the Augmented Dickey-Fuller (ADF) unit root test to check whether selected variables possess unit-roots. We use these results for the co-integration analysis in the next stage. Then, we utilise the Johansen co-integration method for identifying the nature and strength of the long-run association among the selected variables. The existence of a cointegration relationship among these economic variables indicates that there must be Granger causality in at least one direction. However, the results of Johansen co-integration does not indicate the direction of the temporal causality between the variables (Narayan & Smyth, 2004). Therefore, we extend our analysis by applying Granger Causality test. Engle and Granger (1987) reveal that the Granger causality test is misleading in certain cases in the presence of a cointegrating relationship between the variables. Granger causality within the first difference vector autoregressive model is misleading, and Engle and Granger (1987) proposed that an error-correction term should be included in the dynamic model to

[13] Also see section 'The empirical model' from the Tanna and Topaiboul (2005, June).

capture the equilibrium relationship between the cointegrating variables.

3.1 Unit Root Test

To avoid spurious regression, we ensure that the economic variables are stationary or cointegrated. For this purpose, we apply Augmented Dickey-Fuller unit test to test the stationary of all series including economic growth rate, human capital, the openness of trade, foreign direct inward investment, exchange rate and gross domestic capital formation. We apply ADF unit root test at a level as well as at first differenced series by utilising three models.

The first model is with no trend and constant.

$$\Delta w_t = \gamma w_{t-1} + \sum_{i=1}^{k} \beta_t \Delta w_{t-i} + \varepsilon_t \tag{3.1.1}$$

The second model is with constant and no trend.

$$\Delta w_t = \alpha_0 + \gamma w_{t-1} + \sum_{i=1}^{k} \beta_t \Delta w_{t-i} + \varepsilon_t \tag{3.1.2}$$

The third model is with both constant and trend.

$$\Delta w_t = \alpha_0 + \alpha_{2t} + \gamma w_{t-1} + \sum_{i=1}^{k} \beta_t \Delta w_{t-i} + \varepsilon_t \tag{3.1.3}$$

Where $\Delta w_t = w_t + w_{t-1}$ refers series w_t first difference and $\Delta w_{t-1} = (w_{t-1} - w_{t-2})$ is the first difference w_{t-1}. Further, α, β and γ represent parameters which are estimated, and ε represent stochastic disturbance term.

3.2 Johansen-Juselius Cointegration Test

The series are cointegrated if two economic series are integrated of the first order, but their linear combinations are stationary at level. To test the long-term association between the growth rate, human capital, the openness of trade, foreign direct inward investment, exchange rate and gross domestic capital formation, we use Johansen-Juselius method which is based on the maximum likelihood estimation technique (Johansen & Juselius, 1990). This method determines the number of cointegrating vectors in the presence of cointegration. In the Johansen and Juselius (1990) procedure, we estimate the vector auto-regressive (VAR) model to examine the long-run association between our selected economic variables. In this framework, the autoregressive model of Z_t (5 X 1) vector is expressed as follows.

$$Z_t = \mu + \delta_1 Z_{t-1} + \delta_2 Z_{t-2} + \ldots\ldots\ldots + \delta_k Z_{t-k} + \varepsilon_t \tag{3.2.1}$$

The Z vector consists of the economic variables including growth rate, human capital, the openness of trade, foreign direct inward investment, exchange rate and gross domestic capital formation. The rank of δ determines the number of cointegrating vectors. Moreover, the cointegrating rank is presented in Equation 3.2.2, in the presence of cointegration.

$$\delta = \alpha\beta' \tag{3.2.2}$$

Where α and β represent the matrixes of parameters indicating the convergence speed and cointegrating vectors, respectively. The rows of $\beta'(6\ X\ r)$ forms the r cointegrating vector when (β'_j) is the $(j^{th} row\ of\ \beta', \beta'_j\ \ Z_t \sim I(0))$ To test the number of cointegrating rank in this system, the Johansen and Juselius (1990) procedure provide two maximum likelihood test statistics, including trace statistics and maximum Eigenvalues as follows.

$$\lambda_{trace} = -T\sum_{i=r+1}^{n} \ln(1-\lambda_i) \tag{3.2.3}$$

$$\lambda_{\max} = -T\ln(1-\lambda_{r+1}) \tag{3.2.4}$$

In Equation 3.2.3 and 3.2.4, T and λ indicate the number of observations and the estimated Eigenvalues, respectively. These test statistics are compared with the critical values to decide about the null hypothesis of no integration between the variables.

3.3 VECM Model

The existence of a cointegration relationship among these economic variables indicates that there must be Granger causality in at least one direction. However, the results of the Johansen co-integration do not indicate the direction of the temporal causality between the variables (Narayan & Smyth, 2004; Maddala & Kim, 1998). Therefore, we extend our analysis by applying Granger Causality test. Engle and Granger (1987) reveal that the Granger causality test is misleading in certain cases in the presence of a cointegrating relationship between the variables. In particular, the Granger causality within the first difference vector autoregressive model is misleading. To overcome this econometric issue, Engle and Granger (1987) suggested that an error-correction term should be included in the dynamic model to capture the equilibrium relationship between the cointegrating variables. In this set-up, we use the following vector error correction models for this empirical investigation.

$$\Delta HC_t = \alpha_1 + \sum_{i=k}^{k} \alpha_{11}\Delta HC_{t-i} + \sum_{i=1}^{k} \alpha_{12}\Delta OPT_{t-i} + \sum_{i=1}^{k} \alpha_{13}\Delta FDI_{t-i} + \sum_{i=1}^{k} \alpha_{14}\Delta DOMI_{t-i} + \sum_{i=1}^{k} \alpha_{15}\Delta GDPR_{t-i} + \beta_1 D_t + \varphi_1 EC_{t-1} + \mu_{HC} \tag{3.3.1}$$

$$\Delta OPT_t = \alpha_2 + \sum_{i=k}^{k} \alpha_{21}\Delta OPT_{t-i} + \sum_{i=1}^{k} \alpha_{22}\Delta HC_{t-i} + \sum_{i=1}^{k} \alpha_{23}\Delta FDI_{t-i} + \sum_{i=1}^{k} \alpha_{24}\Delta DOMI_{t-i} + \sum_{i=1}^{k} \alpha_{25}\Delta EG_{t-i} + \beta_2 D_t + \varphi_2 EC_{t-2} + \mu_{OPE} \tag{3.3.2}$$

$$\Delta FDI_t = \alpha_3 + \sum_{i=k}^{k} \alpha_{31}\Delta FDI_{t-i} + \sum_{i=1}^{k} \alpha_{32}\Delta OPT_{t-i} + \sum_{i=1}^{k} \alpha_{33}\Delta HC_{t-i} + \sum_{i=1}^{k} \alpha_{34}\Delta DOMI_{t-i} + \sum_{i=1}^{k} \alpha_{35}\Delta EG_{t-i} + \beta_3 D_t + \varphi_1 EC_{t-3} + \mu_{OPE} \tag{3.3.3}$$

$$\Delta DOMI_t = \alpha_4 + \sum_{i=k}^{k} \alpha_{41}\Delta DOMI_{t-i} + \sum_{i=1}^{k} \alpha_{42}\Delta OPT_{t-i} + \sum_{i=1}^{k} \alpha_{43}\Delta FDI_{t-i} + \sum_{i=1}^{k} \alpha_{44}\Delta HC_{t-i} + \sum_{i=1}^{k} \alpha_{45}\Delta EG_{t-i} + \beta_4 D_t + \varphi_4 EC_{t-4} + \mu_{DOMI} \tag{3.3.4}$$

$$\Delta EG_t = \alpha_5 + \sum_{i=k}^{k} \alpha_{51}\Delta EG_{t-i} + \sum_{i=1}^{k} \alpha_{52}\Delta OPT_{t-i} + \sum_{i=1}^{k} \alpha_{53}\Delta FDI_{t-i} + \sum_{i=1}^{k} \alpha_{54}\Delta DOMI_{t-i} + \sum_{i=1}^{k} \alpha_{55}\Delta HC_{t-i} + \beta_5 D_t + \varphi_5 EC_{t-5} + \mu_{EG} \tag{3.3.5}$$

Where all the variables are the same as defined in Equation 3.1 above. The term ε_{t-1} is the error correction term. D_t, α_t and β_t are defined as the centred seasonal dummy and

parameters. Δ and μ are the first difference operator and the white noise disturbance terms, respectively.

4. Empirical Results

Table 1 presents the results of the ADF unit root test for all selected variables. Column 1 to 3 of Table 1 presents the results of model 1 (Equation 4.1.1), model 2 (Equation 4.1.2) and model 3 (Equation 4.1.3), respectively. The results of Table 1 indicate that all six variables are non-stationary at a level except the gross domestic capital formation series. Table 1 further reveals that gross domestic capital formation is also non-stationary at level using model 1 (γ = 0.78, p >.05) and model 2 (γ = -1.02, p >.05). However, this series is stationary using model 3 (γ = -4.15, p <.01). Then, we extend our unit root analysis by taking first differences of all series using all three models. The bottom part of Table 1 indicates that all time-series variables become stationary at first differences using all three models. Thus, it is determined that variables of time series are integrated of the same level.

Table 1. ADF Test for Checking Unit Roots

Variables	Model-1 (1) With no constant and no trend	Model-2 (2) With constant and no trend	Model-3 (3) With constant and trend
ADF on level			
HC	2.64	2.62	-1.21
OPT	3.52	2.50	0.54
FDI	6.59	5.59	3.05
DOMI	0.78	-1.02	-4.15***
EG	-3.30	2.17	-0.95
EXR	0.93	0.79	-2.30
ADF test on 1st difference			
HC	-4.11***	-4.69***	-4.01***
OPT	0.00***	-4.89***	3.89**
FDI	1.16 ***	0.408***	-5.29***
DOMI	-3.86***	-4.11***	-3.97**
EG	-1.12***	-2.96**	-4.05***
EXR	0.34***	-0.64 ***	-5.93*

*Note: ***, **, * denotes significance at the 1 per cent, 5 per cent and 10 per cent levels.*

The results of unit root analysis reveal that all the economic variables are integrated of the same order. Therefore, we proceed to test the long-run association between the variable using Johansen and Jessulius (1992) approach as elaborated in Section 3.2 above. We apply the Akaike Information Criterion (AIC) criterion for the appropriate lag section. Table 2 present the outcomes of the rank test indicating the existence of 2 vectors co-integration for 1% and 5 % level, respectively. This shows all five variables are associated in the long run, which is consistent with the different previous empirical shreds of evidence. For the similar empirical evidences, see the Tanna and Topaiboul (20015), Benhabib and Spiegel (1994), Romer (1989), Gemmell, (1996), Shahbaz (2012), Kalaitzi (2015), Borensztein et al. (1998), Li et al. (1998), Lim and McAleer (2002), Liu (2002), Makki and Somwaru (2004), Ramirez (2000, and Sun (1998).

Table 2. The Test of Johansen Co-integration

Null-H_0	Alternative-H_1	λ (trace)	5% CV	λ (max)	5% CV
Rank = 0	r ≥ 1	141.66**	68.81	72.03**	33.87
Rank ≤ 1	r ≥ 2	69.63**	47.85	37.19**	27.58
Rank ≤ 2	r ≥ 3	32.43**	29.79	24.99**	21.13
Rank ≤ 3	r ≥ 4	7.44	15.49	6.90	14.26
Rank ≤ 4	r ≥ 5	0.53	3.84	0.53	3.84

*Note: * and ** denote null hypothesis rejection at 5 per cent and 1 per cent.*

Following our econometric methodology, we extend our analysis to discover causal association among stationary time series (i.e. first difference for human capital, foreign direct investment, the openness of trade, gross domestic capital formation, exchange rate and economic growth). Table 3 offers results of Pairwise Granger Causality Test using five lags. For the appropriate lag selection, we apply the Akaike Information Criterion (AIC) criterion throughout this empirical investigation. The results of Table 3 reveal that bidirectional causality exists between (1) human capital and trade openness, (2) human capital and economic growth, and (3) foreign direct investment and trade openness. Table 3 further confirms that unidirectional causality running from (1) human capital to foreign direct investment, (2) trade openness to domestic investment, (3) trade openness to economic growth, (4) foreign direct investment to economic growth, (5) domestic investment to foreign direct investment, (6) domestic investment to economic growth, and finally (7) economic growth to human capital in the long run.

Table 3. Results of Granger Causality Test among HC, OPT, FDI, DOMI, EG and EXR

DV	ΔHC	ΔOPT	ΔFDI	ΔDOMI	ΔEG	ΔEXR
(1)	(2)	(3)	(4)	(5)	(6)	(7)

DV	ΔHC	ΔOPT	ΔFDI	ΔDOMI	ΔEG	ΔEXR
ΔHC		24.09***	1.81	0.50	3.58*	8.77***
ΔOPT	6.98***		14.53***	1.30	0.79	4.29**
ΔFDI	22.64***	91.98***		4.16**	1.32	4.46**
ΔDOMI	1.77	11.44***	1.68		0.59	4.19*
ΔEG	6.75***	5.45**	6.37***	12.62***		2.82*
ΔEXR	9.58***	13.59***	7.12***	9.66***	2.00	

*Note: * and ** reject the null hypothesis at 5 per cent and 1 per cent, respectively. Δ is the first difference parameter. DV indicates the dependent variable.*

These results reveal that human capital and domestic investment influence economic growth through FDI. These results are consistent with the previous studies (see Carkovic & Levine, 2005; Hermes & Lensink, 2003; Benhabib & Spiegel, 1994; Romer, 1989; Gemmell, 1996 Borensztein, Gregorio & Lee, 1998; Li, Liu & Rebelo, 1998; Lim & McAleer, 2002; Liu, 2002; Makki & Somwaru, 2004; Ramirez, 2000; and Sun, 1998). More specifically, Hermes and Lensink (2003) focused on the economic growth of the recipient country. We use inflow of foreign development investment for this empirical investigation. This channel also works through the enhancement of technological changes through the spillover effects of human capital development (Engelbrecht, 2002). These theoretical aspects are also evident from the first part of our empirical investigation where we find the long-term association between human capital, foreign direct investment, trade and the economic growth (also see Alfaro, Chanda, Kalemli-Ozcan & Sayek, 2004). The second most obvious finding to emerge from the analysis is that trade openness influences economic growth through domestic investment. These pieces of evidence are consistent with the existing literature (see Shahbaz, 2012; Kalaitzi, 2015; Makki & Somwaru, 2004). Further, the economic growth Granger causes human capital in Pakistan in the long run.

Table 4 presents the results of the temporal causality derived from the vector error correction model. These results indicate that none of the statistics found significant at 5 per cent level of significance. In all cases, the test statistic falls in the non-rejection region, indicating that the system model is correctly specified. R-squared statistics are 87 per cent, 95 per cent, 83 per cent, 86 per cent and 65 per cent for models (6), (7), (8), (9) and (10) respectively. For the appropriate lag selection, we Akaike information criteria and Schwartz information criteria, and five lags are the appropriate lags.

Table 4. Results of Temporal Causality VECM

Dependent variables	ΔHC_t	ΔOPT_t	$\Delta DOMI_t$	ΔFDI_t	ΔEG_t
Adj-R^2	0.87	0.95	0.83	0.86	0.65

Autocorrelation test
LM (1), $\chi_9^2 = 47.13$, P value = 0.04; LM (8), $\chi_9^2 = 54.53$, P Value = 0.06
Test of Normality $\chi_3^2 = 27.30$, P value = 0.02

*Note: * and ** reject the null hypothesis at 5 per cent and 1 per cent, respectively. Δ is the first difference parameter.*

The present results are significant in at least two major respects — first, human capital larger influence on growth as compared to the investment. Second, high growth will create more employment opportunities, a higher level of income and earnings, which leads to more investment for human capital. Results indicate that trade openness has a significant impact on domestic investment and growth; the same results are reported by Warner (1997). This result leads to support the theory that human capital can have an important impact on openness and investment, also long-run economic growth positively related to human capital, FDI, and trade openness. These results are consistent with Majid and Karimzadeh (2013). Domestic investment is found one of the key factors for promoting long-run economic growth in Pakistan, and these findings are in line with the findings of Tawiri (2010).

5. Conclusion

This paper investigates causal links between human capital, foreign direct investment (FDI), trade openness, domestic investment, and economic growth for Pakistan. For this purpose, we apply Johansen and Juselius co-integration, Granger causality, and vector error correction model (VECM) using annual data from 1980 to 2017 in a multivariate VAR framework. The findings conclude that many factors affecting the growth of the economy for Pakistan, especially trade with other countries, human capital, domestic and foreign investment. The study verifies the hypothesis that human capital brings an inflow of foreign direct investment, and trade enhances domestic investment, which in turn brings economic prosperity in the economy. Having skilled and expert human capital and opening borders for the trade brings stable growth in the economy. So, it is clear from the results of this empirical investigation that human capital and trade openness increases domestic and foreign investment and leads to economic growth. Therefore, proper policies should be adopted to simulate the impact of human capital on economic growth. More specifically, the government should focus on education at the local as well as the federal level. Vocational institutions in Pakistan need more attention to play their positive roles in the development of human skills. The government should focus on creating a favourable environment for foreign investors.

There is abundant room for further progress in determining the causal links between these economic variables and the economic growth at the provincial levels since the economic and social diversity exists in Pakistan. Further, this analysis can be extended to investigate the short-run association between these economic variables and the economic growth using quarterly data.

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PAPER

Does Dividend Policy Determine Stock Price Volatility? (A Case Study of Malaysian Manufacturing Sector)

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Abstract The paper aims to investigate the association between dividend policy and stock price volatility in Malaysian context. The study used multiple regression analysis to explore the association between stock price volatility and both dividend payout ratio and dividend yield. On the basis of diagnostic tests, the study elaborates the results of random effect model. The result is in line with prediction showing that any increase in dividend payout will minimize the stock price volatility. As there is high correlation between dividend yield and dividend payout, the results showed positive and insignificant association between dividend yield and price volatility. The control variables are used in order to address the issue of multicollinearity and to observe if there would be any change in the coefficient of dividend yield. The results show that there is a significant change in dividend yield and the coefficient value changed into negative. Similarly, the results of other variables are also as per expectation. This explains the fact that dividend policy on its own is not the determining factor of price volatility. There are certain other factors that also contribute in measuring stock price volatility. As per results, firm's size is also negatively associated with stock price volatility. The firms with high level of market capitalizations are better in managing their stock price volatility as compared to their counterpart. Moreover, the mature firms are also efficient in managing their stock prices and firm's age is negatively associated with stock price volatility. In contrast, the debt ratio is negatively significant which shows that high levered firms have high volatile stock operating in market. Lastly, the earnings volatility shows insignificant effects on stock price volatility.

Keywords: Malaysia; Dividends policy; stock price; random effect model.

1. Introduction

Since the publication of dividend irrelevancy hypothesis, dividend policy has remained one of the most debatable issues in corporate finance (Allen, Bernardo, and Welch, 2000, p. 2499; Ho, 2003; Denis, D.J. and Osobov, I., 2007; Bhattacharyya,

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2007). It's not only the amount involved and the rhythmic nature of dividend payout that make the topic critical, but also the complex associations with most investment and other financial policies (Allen and Michaely 1994). The controversy stems from the irrelevance theory of Miller and Modigliani (1961) based on the assumption of a perfect market. In emerging markets, the perfect market assumption seems to be a reverie (Vasicek and McQuown, 1972). Quite a few hypothetical models are used to clarify corporate dividend policy but still it remains a puzzle (Baker et al., 2002, p. 255). As per signalling models, managers are equipped with more information about the firm's future prospects than outside stakeholders, and they have the options and incentives to convey the information to investors (Gugler, 2003). Any abrupt change in dividend policy is used to mitigate information between managers and stakeholders (Frankfurter and Wood Jr., 2002). Similarly, agency model explains that dividend payout can be used as a constraint on discretionary management action and better aligns the interests of stockholders (Jensen, 1986).

The absence of an adequate theory to explain the determinants of dividend policy and the observed effect of a firm's dividend policy on its stock prices is coherently stated by Black (1976) and Brealey and Myers (2003), who contend that the "dividend controversy" is of the ten unresolved problems in finance that are "ripe for productive research". DeAngelo and DeAngelo (2006) challenged Black's proposition and stated that this "puzzle" is not a puzzle because it is rooted in the mistaken idea that Miller and Modigliani's (1961) irrelevance theorem applies to payout/retention decisions. Bhattacharyya (2007) was unconvinced by that argument, and concluded that dividend policy remains a puzzle; despite focused extensively. These conclusions echo the view of Baker et al. (2002, p. 255), who assert that "despite a voluminous amount of research, we still do not have all the answers to the dividend puzzle". The following controversies adds to Bhattacharyya (2007) conclusion that dividend seems to be puzzles, with such pieces that don't fit together.

2. Theories of Dividend Policy

A numerous studies on dividend policy clearly show that dividend policy has been a strong bone of contention in the area of finance. This starts from Lintner (1956) to Miller and Modigliani (1961) to Bhattacharya (1979) and, more recently, DeAngelo et al. (1996), Fama and French (2001), Al-Malkawi (2007) and Al-Najjar and Hussainey (2009). Some of the theories related to dividend policy and stock price reaction are mentioned as under:

2.1 Dividend Irrelevance Theory

According to Miller and Modigliani (1961), dividend policy is irrelevant to the stockholders and that shareholder wealth remains unchanged when all aspects of investment policy are fixed and any increase in the current payout is financed by fairly priced stock sales. It is assumed that management distribute 100% dividend every year and the other assumption are; There is a perfect capital market; that is, no transaction cost

or taxes, a single buyer or seller cannot influence market price of a stock and complete information is available to all potential users; The investors are rational and their stock value is based on discounted future cash flows; The management (agent) acts in the best interest of their owners (principal) agents of shareholders; and that there is certainty about the investment policy of the firm, with full knowledge of future cash flows.

2.2 Bird-In-Hand Theory

According to Al-Malkawi (2007), in a world of information asymmetry and uncertainty, dividends are treated differently from retained earnings (capital gains): "A bird in hand (dividend) is worth more than two in the bush". The dividend has been the preferred choice of the investors rather than retained earnings. Despite a lot of criticism, the argument has been supported by Gordon and Shapiro (1956), Lintner (1962) and Walter (1963). It is based on assumptions; The investors are perfectly aware of firms profitability and other performances; The cash dividend are exposed to higher rate of taxation than capital gains realized on sale of stock; Dividends function as a signal of expected future cash flows. Al-Malkawi (2007) also assumed that assets in which management invest outlive management's stay in their position and that ownership of the assets is transferred to new management over time.

2.3 Agency cost and the free cash flow theory.

Agency cost is the cost of the conflict of interest that exists between shareholders and management (Ross et al., 2008). This arises when management acts in their interest rather than on behalf of the shareholders who own the firm. This could be direct or indirect. This is contrary to the assumptions of Miller and Modigliani (1961), who assumed that managers are perfect agents for shareholders and no conflict of interest exists between them. This is somewhat questionable, as the owners of the firm are different from the management. Managers are bound to conduct some activities, which could be costly to shareholders, such as undertaking unprofitable investments that would yield excessive returns to them, and unnecessarily high management compensation (Al-Malkawi, 2007). These costs are borne by shareholders; therefore, shareholders of firms with excess free cash flow would require high dividend payments instead. Agency cost may also arise between shareholders and bondholders: while shareholders require more dividends, bondholders require fewer dividends than shareholders by putting in place a debt covenant to ensure availability of cash for their debt repayment. Easterbrook (1984) also identified two agency costs: the cost of monitoring managers and the cost of risk aversion on the part of managers.

2.4 Signaling Hypothesis

Though Miller and Modigliani (1961) assumed that investors and management have perfect knowledge about a firm, this has been countered by many researchers, as management who look after the firm tend to have more precise and timely information about the firm than outside investors. This, therefore, creates a gap between managers

and investors; to bridge this gap, management use dividends as a tool to convey private information to shareholders (Al-Malkawi, 2007). Petit (1972) observed that the amount of dividends paid seems to carry great information about the prospects of a firm; this can be evidenced by the movement of share price. An increase in dividends may be interpreted as good news and brighter prospects, and vice versa. But Lintner (1956) observed that management are reluctant to reduce dividends even when there is a need to do so, and only increase dividends when it is believed that earnings have permanently increased.

2.5 Clientele Effects of Dividends Theories and Stock Price Volatility

Investors tend to prefer stocks of companies that satisfy a particular need. This is because investors face different tax treatments for dividends and capital gains and also face some transaction costs when they trade securities. Miller and Modigliani (1961) argued that for these costs to be minimised, investors tend towards firms that would give them those desired benefits. Likewise, firms would attract different clientele based on their dividend policies. Though they argued that even though clientele effect may change a firm's dividend policy, one clientele is as good as another, therefore dividend policy remains irrelevant. Al-Malkawi (2007) affirms that firms in their growth stage, which tend to pay lower dividends, would attract clientele that desire capital appreciation, while firms in their maturity stage, which pay higher dividends, attract clientele that require immediate income in the form of dividends. Al-Malkawi (2007) grouped the clientele effect into two groups, those that are driven by tax effects and those driven by transaction cost. He argued that investors in higher tax brackets would prefer firms that pay little or no dividends, to get reward in the form of share price appreciation, and vice versa. Transaction cost-induced clientele, on the other hand, arises when small investors depend on dividend payments for their needs; this clientele prefers companies who satisfy this need because they cannot afford the high transaction cost of selling securities.

3. Variables

3.1 Dependent Variable (Price Volatility)

Price volatility is the dependent variable. It is based on the annual range of adjusted stock price obtained from Datastream, for each year. The range is then divided by the average of the highest and lowest prices obtained in the year and then squared. This was averaged for all available years and a square root transformation was applied so as to obtain a variable comparable to a standard deviation (Baskin, 1989).The use of proxy for share price volatility rather than standard deviation was deliberate. This is basically because standard deviation could be influenced by extreme values. Again, our approach is in line with Baskin's (1989), whose study forms the theoretical framework of this research.

3.2 Independent Variables

1. Dividend Yield

This is expressed as the dividend per share as a percentage of the share price. Figures were obtained directly from Datastream. Dividend is calculated on gross dividends, i.e. excluding tax credits. The average was taken for all available years. The study develops following hypothesis for the purpose of analysis.

Ha: dividend yield has negative significant impacts on dividend policy of the Malaysian firms.

2. Payout Ratio

This is the ratio of dividends per share to earnings per share for all available years. The average over all available years was utilised. The figures were obtained directly from Datastream. The study develops following hypothesis for the purpose of analysis.

Hb: dividend payout has negative significant impacts on dividend policy of the Malaysian firms.

3.3 Control Variables

1. Size (Market Value)

This is the share price multiplied by the number of ordinary shares in issue. A transformation using the base 10 logarithm was then applied to obtain a variable that reflects orders of magnitude. The figures were obtained directly from DataStream. The study develops following hypothesis for the purpose of analysis.

Hc: firm's size positively affects dividend policy of Malaysian firms.

2. Earnings Volatility

Earnings figures were obtained from DataStream. These figures represent the earnings before interest and taxes. Following Dichev and Tang (2009), earnings volatility is calculated by taking the standard deviation of earnings for the most recent preceding five years for each year. The study develops following hypothesis for the purpose of analysis.

Hd: Earning volatility negatively affects dividend policy of Malaysian firms.

3. Long-Term Debt (Debt)

Figures for long-term debt and total assets were obtained directly from Datastream. These figures represent all interest-bearing financial obligations, excluding amounts due within one year, e.g. debentures, mortgages and loans with maturity greater than one year. It is shown net of premiums or discount. The ratio of long-term debt to total assets was calculated and the average over all available years was utilised. The study develops following hypothesis for the purpose of analysis.

He: long term debt negatively affects dividend policy of Malaysian firms.

4. Growth in Assets (Growth)

Figures for growth in assets were obtained directly from Datastream. These figures were obtained by taking the ratio of the change in total assets at the end of the year

to the level of total assets at the beginning of the year. These figures were averaged over all available years. The study develops following hypothesis for the purpose of analysis.

H f: Firm's growth positively affects dividend policy of Malaysian firms.

Table 1. Variable and their Definitions

Variables	Definition	Symbol	References	Expected sign
Price Volatility	It is based on the annual range of adjusted stock price divided by the average of the highest and lowest prices obtained in the year and then squared.	PV	(Baskin, 1989).	Dependent variable
Dividend yield	Dividend per share as a percentage of the share price	DIVY	Dichev and Tang (2009)	Negative
Payout ratio	Ratio of dividends per share to earnings per share for all available years	PAYR	Dichev and Tang (2009)	Negative
Firm Size	Share price multiplied by the number of ordinary shares in issue	FS	Dichev and Tang (2009)	Negative
Earnings Volatility	Standard deviation of earnings for the most recent preceding three years for each year.	EV	Baskin, (1989), Dichev and Tang (2009)	Positive
Long-term debt	Ratio of long-term debt to total assets	DR	Baskin, (1989), Dichev and Tang (2009)	Positive
Growth in assets	Ratio of the change in total assets at the end of the year to the level of total assets at the beginning of the year	AG	Baskin, (1989), Dichev and Tang (2009)	Positive

4. Methodology for Stock Price Volatility

The relationship between ordinary stock price volatility and dividend policy has been analysed utilising multiple pool and panel data analysis. The regression model developed basically relates price volatility with the two main measures of dividend policy –dividend yield and dividend payout ratio. In line with the recommendations by Baskin (1989), a number of control variables were included to account for certain factors that affect both dividend policy and stock price volatility – asset growth, earnings volatility and firm size. The model was evaluated annually over the ten-year period to measure the periodic effect of dividend policy on stock price volatility. Multiple regression analysis was used to describe these relationships and a correlation analysis was done amongst the variables.

First, the dependent variable price – volatility is regressed against the two main independent variables, dividend yield and payout ratio. This provides a crude test of the relationship between share price volatility and dividend policy with the regression equation:

$$PV = \alpha_1 + \alpha_2 DIVY_t + \alpha_3 PAYR_t + \mu_t$$

Baskin's (1989) analysis showed a significant negative relationship between dividend yield and dividend payout and share price volatility. Allen and Rachim (1996) reported a positive relationship between share price volatility and dividend yield, but a negative relationship between share price volatility and dividend payout. The close relationship between dividend yield and dividend payout ratio may pose a small problem as there are a number of factors that influence both dividend policy and price volatility. To limit these problems, the control variables mentioned earlier were included in the analysis. The dependent variable was regressed against the two independent variables and the control variables with the following regression equation:

$$EV = \alpha_1 + \alpha_2 DIVY_t + \alpha_3 PAYR_t + \alpha_4 FS_t + \alpha_5 DR_t + \mu_t$$

5. Stock Price Volatility

Table 2 shows a broad description of the summary statistics of the variables used in the study. It shows the statistical mean, standard deviation, median, skewness, Kurtosis and standard error. According to Allen and Rachim (1996), assuming that stock prices follow a normal distribution pattern and ignoring the effect of a firm's going ex-dividend, the standard deviation of stock market returns is equivalent to the measured volatility of the study. This can be done using the formula derived by Parkinson (1980), in line with Baskin (1989). Here, the mean price volatility, 0.3329, is multiplied by the constant, 0.6008, giving a result of 20.00 per cent. This is in line with Allen and Rachim's (1996) result regarding Australian firms, which was 29.42 per cent, and Baskin's (1989) result regarding US firms, which was 36.9 per cent.

Table 2. Descriptive Statistics

	PV	EV	FS	EPS	DPS	DE	AG
Mean	0.3329	0.3124	633784	11.70912	0.088285	2.173845	0.259615
Med	0.0072	0.1040	167957	7.08	0.04765	0.884948	0.121332
Max	2.5734	804.6923	287789	781.91	3.61564	278.4518	27.22064
Min	-2.6206	-130.9	-104195	-369	0.01	4.29E-06	-3.75122
Std. Dev.	0.26574	9.948433	2009208	33.86192	0.212504	8.312491	0.785049
Skewness	-11.1736	76.76464	8.233382	5.183905	10.48049	19.76752	16.31316
Kurtosis	308.2953	6233.968	85.11295	90.56628	138.1941	506.9804	461.1087

Table 3 presents the correlation amongst the variables utilized for the study. From the table, it can be seen that the correlation between price volatility and dividend yield is negative (24.74). As expected, this is in line with that of Baskin (1989), which was 20.643, but it is in contrast with that of Allen and Rachim (1996), which was positive (0.006). Also, the correlation between price volatility and dividend payout is negative (11.8), as expected and in line with the correlation in both Baskin (1989), which was 20.542, and Allen and Rachim (1996), which were 20.21. The correlation table also shows a high correlation between dividend yield and payout, with value 0.6501 (approximately 70 per cent). This raises questions as there is the possibility of multicollinearity, which could be a potential problem. Multicollinearity persist when the correlation between two independent variables is equal to or greater than 70 per cent (Drury, 2008). There is therefore the need to include the control variables in the regression equation to see if there would be changes. This is consistent with Allen and Rachim (1996). Earnings volatility has a negative correlation with both dividend yield and payout ratio. This is in line with expectation, as firms with volatile earnings are perceived to be more risky and management tends to pay lower dividends to have enough retained earnings for years when earnings are bad; this in turn affects dividend yield.

Table 3. Correlation Matrix

	Price volatility	Earning volatility	Firm size	Dividend yield	Dividend payout	Debt ratio	Firm's age
Price volatility	1						
Earning volatility	0.2342	1					
Firm size	-0.431	-1.76E-03	1				
Dividend yield	0.2474	2.9E-02	0.1703	1			

Dividend payout	-0.1186	-0.003912	-0.026	0.6501	1		
Debt ratio	-0.022	2.52E-03	0.1077	0.054	0.0167	1	
Firm's age	0.0242	-0.0070	0.2505	0.0605	-0.037	-0.02	1

6. Regression Results

Table 4 shows the results obtained from first model. The results of the random effect models show that dividend payout is negatively significant at 1% level. The result is in line with prediction showing that any increase in dividend payout will minimize the stock price volatility. As there is high correlation between dividend yield and dividend payout, the results showed positive and insignificant association between dividend yield and price volatility. The results reported by Hussainey et al. (2011) also showed positive and insignificant association between dividend yield and stock price volatility. As there was high correlation between dividend yield and dividend payout in the results reported by Hussainey et al. (2011), this positive association may be a factors which caused the contrary results. In the study, the correlation between them is also on the higher side, which creates the threats of multicollinearity and the results are as contradictory.

Table 4. Relation between Price Volatility, Dividend Yield and Dividend Payout

	Pool model			**Random effect model**			**Fixed effect model**		
Variable	Coeff	t-Stat	Prob.	Coeff	t-Stat	Prob.	Coeff	t-Stat	Prob.
Dividend yield	0.273	1.43	0.511	0.322	1.22	0.221	0.00212	1.17	0.321
Dividend payout	-0.12***	-1.64	0.091	-0.11***	-4.40	0.000	-0.11***	-4.00	0.001
C	0.229***	7.93	0.001	0.230***	3.83	0.000	0.240***	11.6	0.001
R-squared	0.412			0.432			0.484		
Adj R-squared	0.401			0.413			0.432		
F-statistic	4.31			2.781			9.36		
D-Watson stat	1.58			1.53			1.54		
Lagrange multiplier test	0.59***		0.004						
Hausman test				0.829**		0.0246			

*, **, and *** represents significance at the 10, 5, 1 percent levels, respectively

In the second model, the control variables are used in order to address the issue of problem of multicollinearity and to observe if there would be any change in the coefficient of dividend yield. The model is applied and results are presented in table 4. As the results show that there is a significant change in dividend yield and the coefficient value changed in negative. Similarly, the results of other variables are also as per expectation. In table 4, it is observed that the coefficient of dividend yield became

negative, and all other variables were exactly as expected. This explains the fact that dividend policy on its own is not the determining factor of price volatility. There are certain other factors that also contribute in measuring stock price volatility. As per results, firm's size is also negatively associated with stock price volatility at a significant level of 1%. The firms with high level are market capitalizations are better managing their stock price volatility as compared to their counterpart. Moreover, the mature firms are also efficient in managing their stock prices and firm's age is negatively associated with stock price volatility. In contrast, the debt ratio is negatively significant at 1% which shows that high levered firms has high volatile stock operating in market. Lastly, the earnings volatility shows insignificant effects on stock price volatility. These results are consistent with Allen and Rachim (1996).

Table 5. Relationship with Control Variables

Pool model			
Variable	Coefficient	t-Stat	Prob.
Dividend yield	-0.02654***	-3.410	0.00
Dividend payout	-0.3141***	-3.338	0.00
Earning volatility	6.1E-05	1.008	0.31
Firm's size	-1.7E09***	-3.186	0.00
Debt ratio	0.0374***	5.876	0.00
Firm's growth	-0.0190**	-2.156	0.02
C	-0.0261***	-3.065	0.00
R-squared	0.4440		
Adj R-squared	0.4239		
F-statistic	4.6273		
D-Watson stat	1.9914		

*, **, and *** represents significance at the 10, 5, 1 percent levels, respectively

7. Conclusion

This chapter aims to highlight the impacts of dividend policy on firm's stock price volatility. For the purpose of analysis, only those firms are included that distribute dividend during 2002 to 2013. In order to present true picture, the control variables are also included to justify the statement that dividend policy determines the stock price volatility. The control variables include firm's size, firm's age, and debt ratio and earnings volatility. Dividend yield and dividend payout ratio are used as two measures of dividend policy. Due to high correlation between dividend yield and dividend payout ratio, the results of dividend yield are controversial (opposite and insignificant). In order to address the issue, control variables were included and the results are in vein with expected sign and significant level. The empirical findings suggest that there is a significant negative

relationship between dividend yield and payout ratio of a firm, and the volatility of its stock price. This is consistent with the findings of Allen and Rachim (1996).

The overall findings suggest that the higher the payout ratio, the less volatile a stock price will be. They also suggest that payout ratio is the main determinant of the volatility of stock price. Among the control variables, it is discovered that size and age have significant negative relationship with price volatility, suggesting that the larger and mature the firm, the less volatile the stock price is, debt, on the other hand, showed a significant positive relationship with price volatility, suggesting that the more leveraged a firm is, the more volatile the stock price will be. Since both management and investors are concerned about the volatility of stock price, this research has provided a light on the pathway to discovering what moves stock price, as well as important factors to be considered by investors before making investment decisions and by management in formulating dividend policies for their firms. This research also discussed some theories and determinants of dividend policy, as well as theories of risk and dividends.

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Appendix Summary of Results of Stock Price Volatility

HYPOTHESIS	**RESULTS**	**REFERENCES**
Ha: dividend yield has negative significant impacts on stock price volatility of the Malaysian firms.	**Accepted*** **	*Chen, L., Da, Z. and Zhao (2013)*
Hb: dividend payout has negative significant impacts on stock price volatility of the Malaysian firms.	**Accepted*** **	*Hussainey et. al (2011)*
Control variables		
HYPOTHESIS	**RESULTS**	***REFERENCES***
Hc: firm's size positively affects stock price volatility of the Malaysian firms.	**Rejected*** **	*Hussainey, and Walker (2009).*
Hd: Earning volatility positively affects price volatility of Malaysian firms.	**Rejected**	*Kenyoru, Kundu, and Kibiwott (2013).*
He: long term debt positively affects price volatility of Malaysian firms.	**Accepted*** **	*Laopodis (2008)*
Hf: Firm's growth negatively affects price volatility of Malaysian firms.	**Accepted****	*Kenyoru, Kundu, and Kibiwott, (2013).*
Significant at 1%=***, 5%=** and 10%=*		

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PAPER

Education and Its Impact in Economic Growth in Lower Middle Income Countries

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Abstract The objective of this paper is to link and assess the relationship between investment in education and economic growth in the of low middle income countries in Europe including Russia and Turkey for e period between 2000 – 2017 , and the effect of some of the main variables associated with this investment, such as government expenditure on education as percentage of total government expenditure; government expenditure per student on tertiary education as percentage of GDP and school enrollment on tertiary education. As a technique is employed a Hausman Taylor model with instrumental variables (IV) , to show the regression results of relationship between investment in education and GDP growth in surveyed countries. Also, for comparison reasons the paper shows the results from pooled OLS, fixed effects and random effects. Results from this empirical research shows a positive impact on government's investment in tertiary education, while school enrollment in tertiary education has a negativ effects in GDP growth in low middle income countries in Europe.

The study is original in nature and makes effort to promote investment in education in low middle income European countries, including Russian Federation and Turkey. The findings of this study will be of value to governments of above mentioned countries.

Keywords: Education; GDP growth; Low middle income countries; Investment**.**

1. Introduction

The link between education and economic growth of a country has always been a challenge for researchers in this field. Particularly challenging was the choice of an appropriate econometric model to produce accurate results about the extent of education's impact on a country's economic growth. The contribution of this study is twofold.

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The main contribution of this research paper is the fact that it shows that "common" models are not suitable for extracting such research results due to endogenous problems. The results of this paper show that the link between investment in education and GDP growth is a complex empirical problem. Therefore, sophisticated methods should be used when trying to investigate this link. . For a long time there are debates about the importance and impact of a society's education in a country's economic development. Many authors have provided various arguments about the impact that education can have on developing a country's economy. Today there are contradictory thoughts about this impact. The role of improved schooling, a central part of most development strategies, has become controversial because expansion of school achievement has not guaranteed improved economic conditions. The objective of this study is to link and assess the relationship between investment in education and economic growth in some of low middle income countries in Europe including Russia and Turkey, which are seen in appendix 1, i.e., for a group of countries for which there are very few studies of this nature, based on hypothesis statement of the positive impact of education on a country's economic growth. Well-known classic and neoclassical economists, like Romer (1990), Lucas (1988) and Solow (1956), have emphasized the contribution of education to the development of their economic growth theories and have built models.

The theoretical approaches to modeling the relationship between education and economic performance are the models of neoclassical growth of Solow (1957) and the model of Romer (1990). In addition to the theoretical aspects, there are many empirical studies that have analyzed the impact of higher education on economic growth and development. Also, some authors have noted that economic growth rates also vary from developed to developing countries. Industrialized economies develop economically faster than less industrialized ones (Goodwin, Nelson, & Harris, 2007).

Higher education has been a motor of economic growth (Milne, 1999). For this reason, many higher education institutes have been set up to respond to the needs of industry and commerce (Gray, 1999). On the other side, development strategies and economic policies in many countries are dominated by the vision that education investment is an important factor of development and competitively of their economies (Lisbon Strategy, 2000), and creation of new opportunities for the unemployed and the poor. Budgets allocated to education in the countries of OECD (Organization for Economic Cooperation and Development - OECD Member States) have increased in the last decade, thereby reaching the rate of almost 6% of the GDP (Education at a Glance. OECD. 2007). Being a heavy burden on the state budget, education investments have turned into permanent debates of governments in these countries, due to dilemmas on their effects and their rates of return. If one refers to De la fuente &Ciccone, (2002) and European Competitiveness report, 2015, investments in education have a manifold return rate for the individual and society, in terms of increased productivity and strengthening of their economies. This paper is structured as follows: Literature Review; Research Methodology; Empirical Results; Conclusions.

2. Literature review

2.1 Impact of education on economic growth - general approach

Traditionally, education is understood as a process for achieving and advancing people's knowledge, skills and abilities, and improving tire behavior and communication. But beyond that, different authors like Zugaj (1991) think that the effects of education should also be reflected in work in the organization and in general in the organization where they work. Whereas, according to Barro (2013), education has the power to make the world a better place.

Before the 1960s, there have been many studies that have tried to find the most accurate ways and models to measure the impact of education on a country's economic development, either directly or indirectly. But these economies are focused only on exogenous factors (land, labor, capital) as factors to analyze growth. After this period, these theoretical economics began to advance studies by analyzing the endogenous factors that may affect this growth, which specifically include human capital and its education. Contribution to these theories was given by Becker (1964), Barro (2001), Lucas (2002) and Barro and Sala – i - Martin (2004).

Education has a positive and significant impact on GDP growth. This is also confirmed by the studies of Mankiw et al (1992) and Barro (1991) who analyzed the relationship between education and economic growth. This was done by examining variations in school enrollment rates, using a single cross section, one for developed countries and one for less developed ones. This is thought to be achieved through a more qualitative engagement of educated people and greater productivity at the workplace. Whether it is in their engagement in the enterprise and in the governing institutions. However, although there are numerous arguments in the economic literature that show the contribution of education to economic and social development, it is still not clear enough and is difficult to measure how and how much education actually makes individual more productive. Indeed, the relationship between science, education, population growth and economic growth is complex, especially those that are directed at socio-psychological research that try to transform their values and attitudes directly into their growth, and development. The contribution of education to a country's economic development consists in developing individuals' skills to translate their values and ideas from "traditional" to "contemporary" and thereby increasing the level of structural modernization in society can be reached the growth of the rate of economic and social development (Karavidic, 2012).

2.2 Human capital and endogenous growth

Different theories of economic growth, the role of human capital are valuating in different ways. The same thing is done for the education of human capital. In fact, there are two theoretical approaches that model the connection between economic growth and human capital. They are the neoclassical model of Solow (1957) and the Romer (1990) model. Analyzing endogenous growth models Aghiton and Howitt (1998) note that the role of human capital is divided into two categories. According to them, the

first category is based on the concepts of Solow and the concept of capital expansion, including human capital, where the growth of human capital over time influences sustainable growth. While the second category model of generating innovations and improving a country's capability to adapt to new technology, is attributable to stepping into the existing stock of human capital. And, as Romer says (1990), this leads to sustained growth and technological progress

To empirically test the theory of neoclassical growth and to measure the effect of accumulation of physical capital on productivity growth, different researchers use market analysis. Cortright (2001) points out Solow's lack of growth (1956), noting the lack of a precise definition of technological change. The most important influence of the Solow model is the convergence of income theory (Barro, 2001). This convergence was initially studied by Malthus and Ricardo and which is based on declining returns from equity. According to Mankiw (1995), another problem with the neoclassical model is that it fails to explain the changes in real rates of return from equity. Mankiw also finds that including physical and human capital, then the results resemble the predicted theories of the neoclassical model.

2.3 Communication and effective know-how transfer

Communication is a specific competence in developing the personality of an employee in the organization. Education plays a special role here too. A factor in a larger development of a country is the way and rationality of communication. This is to achieve a better flow of information and a more effective Know-How and it is concluded that this leads to greater and faster development. A better level of communication (thought to be achieved by higher education) reduces the costs in the process of transforming knowledge and other useful information in this process.

According to Mankiw, Romer, Weil (1992), workforce education increases human capital and labor productivity in an enterprise and leads to a higher level of output equilibrium. It can also increase the innovative capacities of the economy, products, and knowledge-based processes and thus stimulate growth (Lucas, Aghion, Howitt, 1998). Communication promotes growth by facilitating the dissemination and transmission of the knowledge needed to understand and process new information and to implement new technologies designed by others that also promote growth (Nelson, Phelps, 1996, Benhabib and Spiegel, 1994

2.4 Complementarities between the level of education and economic growth

For most people, the relationship between the value of schooling and its economic returns is important, also based on the different levels of achievement of education for individuals. All this makes sense if it leads to economic growth, whether through private or public roads. It is thought that private benefits to individuals are acceptable if prospects for better jobs, higher wages and more investment opportunities are achieved. A better life out of these benefits makes individuals work with higher productivity for a longer period of time. Even Jacob Mincer (1970, 1974) finds that investment in

different amounts affects individual earnings. A large number of such studies have been developed in the last decades in all over the world. Harmon, Oosterbeek and Walker (2003) have also done so, concluding that while assessment approaches may affect the correct accuracy of the return rate, it is clear that there is a strong causal impact on school achievement in incomes.

Many other authors with a large number and variety of studies on this topic, such as Psacharopoulos (1994), Card (1999), Harmon, Oosterbeek and Walker (2003), Psacharopoulos and Patrinos (2004)), and Heckman, Lochner and Todd (2006) estimated return rates.

Another approach is for government spending on education. Public benefits from these investments are less well-known. Therefore, this is considered as a reason for neglecting governments to invest in higher education. However, in their studies Barro and Sala-i-Martin (1995) accounted for a strong positive impact of these investments. Other studies conclude the discrepancy between expected learning outcomes in education and investment that a country makes in education. In connection with this Hanushek, Wößmann (2007) say that simply increasing educational spending does not provide improved student outcomes. For example, there are four countries in Europe that spend less than Greece, and have better results, such as Poland, Hungary, the Czech Republic and the Slovak Republic. (Source: OECD (2004, pp. 102 and 358). Individual benefits from a proper education can be translated into social benefits when higher-income individuals increase their consumption by allowing the producer to benefit , increase tax revenue for governments and facilitates the distribution of state finances.

In a knowledge economy, higher education can help economies develop and reach technologically advanced societies. Graduates in higher education are likely to be more aware and better able to use new technologies. They are also more likely to develop new tools and skills themselves. Their knowledge can improve skills, while the greatest confidence and know-how develops from higher education, which can generate entrepreneurship, and with positive job creation effects (Kule, 2015).

2.5 Impact of education quality on economic growth

Effects on economic growth may also have the level of individual education and the quality of its education. Many theories have tried to make this connection. Hanushek and Wößmann (2007) have also done so, giving results that show the impact of the quality of education on individuals' income, both for people of developed and low middle-income countries. Through standardized tests, different authors have been able to document how substantial the revenue priority is in achieving the highest achievement. The approach that links the profit log with years of schooling, work experience and other factors has been found by the United States analysis (analyzed in Hanushek (2002b)). See also Psacharopoulos and Patrinos (2004), Hanushek, Lavy, and Hitomi (2006), Nickell (2004), Dee (2004); Milligan, Moretti, and Oreopoulos (2004)

3. Research Methodology

There are different econometric models that researchers used to measure the ratio between investment in education and economic growth in a country. This study tends to link and assess the relationship between investment in education and economic growth in some of low middle income countries in Europe including Russia and Turkey. There are 13 countries (Appendix A1) that have full data on investments in higher education during the period 2000 - 2017, in order to make possible the results of this research by using an econometric model. This research will use data from OLS, fixed and random effects and estimation from Hausman –Taylor instrumental variables - IV (Baltagi, 2013). For the processing of datatest shows that the Hausman-Taylor model is more appropriate than fixed and random effects and this conclusion came during the the Hausman test which is used to decide between fixed effects, random effects and Hausman –Taylor model.

3.1 Econometrics modeling

OLS Model

First, we ignore the panel structure of the data. And estimate an OLS model which can be written as:

$$Y_i=\beta_0+\beta_1 GEG_i+\beta_2 GEE+\beta_3 ETE_i+\beta_4 GES_i+\beta_5 SE_i+\beta_6 ER_i+\beta_7 UR_i+\varepsilon_i \quad (1)$$

where real GDP is represented from dependent variable yit for each country *i* and the time index *t* represents years. The explanatory variables include yit-1 is the first lagged of dependent variable, *GEGit* government expenditure on education, total (% of GDP), *GEEit* government expenditure on education, total (% of government expenditure), *ETEit* expenditure on tertiary education (% of government expenditure on education), *GESit* government expenditure per student, tertiary (% of GDP per capita), *SEit* school enrollment, tertiary (% gross), *ERit* employment to population ratio, 15+, total (%), *URit* unemployment, total (% of total labor force). uit is exogenous disturbance

This model assumes that for any given X, there is no serial correlation between observations and, furthermore, errors are not heteroskedastic. In other words this assumption means that an individual's observations over time are observations from different countries. This approach might be reasonable, for example, in cases when the size of cross-sectional samples is too small. However, ignoring the panel structure of the dataleads to results that are not appropriate in many cases. Despite itspotential biases,OLS model will be used in this paper, because it offers a good starting point. Its results will be compared to results from other models that are better sophisticated for the analysis of panel data. Other models considered here are the random effects estimator, the fixed effects estimator as well as the Hausman-Taylor estimator.

Fixed and Random Effects Models

As mentioned above we mainly use more suitable models for analyzing panel data,

namely fixed effects, random effects model and the Hausman-Taylor model in order to eliminate the problem of heterogeneity in the OLS. We here start with the specification of the model:

We consider once more the above specified model now just accounting for panel structure of the data:

$$Y_{it}=\beta_0+\beta_{1t}GEG_{it}+\beta_2 GEE_{it}+\beta_3 ETE_{it}+\beta_4 GES_{it}+\beta_5 SE_{it}+\beta_6 ER_{it}+\beta_7 UR_{it}+\varepsilon_{ti} \quad (2)$$

Now, we should consider that in the case of these models the error term has the following structure

$$\varepsilon_i=\mu_i+\eta_{it} \quad (3)$$

where it is assumed that η_{it} is uncorrelated with explanatory variables. The first term of the decomposition, μ_i, is called an individual-specific effect; and the second part, corresponds to the common stochastic error term in, for example. In this formulation, the first part of the error term varies across countries but is constant across time; this part may or may not be correlated with explanatory variables. The second part, on the other hand, varies arbitrarily across time and countries.

Fixed effects model and random effects model differ on a crucial assumption about whether μ_i is or is not correlated with the set of explanatoryvariables. Random effects assume that μ_i is uncorrelated explanatory variables. While, Fixed effects model assumes that μ_i is correlated with explanatory variables cov($\mathbf{X}_{it}$, μ_i)[1] 0.

Random effects model and the fixed effects model, are used in this paper because of their nature, they are both are models designed to handle the specific structure of longitudinal or panel data. These models help us account for unobservable country heterogeneity.

Furthermore, fixed effects estimator produces consistent estimates even when random effects model is valid, therefore it is appealing to prefer fixed effects model over random effects model, another reason for this is that the assumption that individual-specific effects are uncorrelated with the relevant covariates is to strong to be believable.

However, we should note that in our study there are also downsides of relying on the fixed effects model only. The biggest one is that time-invariant variables cannot be used and measurement error in explanatory variables might lead to biased results.

As a result of what we argued, neither of them (random effects or fixed effects models) might be appropriate in our case but despite that we present the results of those models.

Therefore, the final model that we use is Hausman-Taylor estimation.

The Hausman-Taylor Model

Hausman and Taylor model combines the aspects of both the random-effects and fixed-effects estimators. It is an instrumental- variable technique that uses only information already contained in the model to eliminate the correlation between country specific effects and the error term.

Moreover, it does not elimination of time-invariant explanatory variables.

Hausman tailor takes this model of the form:

$$Y_{it}=X_{it}\beta+ Z_i\gamma+GEG_{it} + \mu_i+ \eta_{it} \quad (4)$$

Where the Zi are time-invariant covariates. In this formulation, all individual effects that are denoted as Zi are observed. As in the previous panel models, unobservable individual effects are contained in the person-specific random term, μ_i. Therefore, the Hausman and Taylor model offers is more appropriate method because it is always consistent and efficient. Consequently, results of this method should be taken more seriously compared to other methods.

Furthermore, the reason of applying the Hausman – Taylor IV model is endogeneity of variables. Determinates of growth could be determined by growth itself and that is because some of variables can be presumed as a endogenous variable.

Based on Hausman test we can consider that the Hausman - Taylor instrumental variable IV model is more efficient model than fixed effects or random effects to assess the relationship and to identify the causal link between the investment in education and economic growth for each of 13 low middle income European countries. Each countries data are used for period from 2000 -2017. For comparison purposes, this research will show also the results from pooled OLS, fixed effects and random effects.

3.2 Empirical Results

Table nr. 1. presents the results from several models such as OLS, fixed effects, random effects estimations and Hausman Taylor estimator. It is generally accepted that in papers like this one OLS produces biased estimators therefore we provide OLS results just for comparison with other models. Moreover, we applied the Hausman test in order to test which one between fixed and random effects is more appropriate. The Hausman test tests the null hypothesis that the coefficients estimated by the efficient random effects estimator are the same as the ones estimated by the consistent fixed effects estimator if they are (insignificant P-value, Prob>chi2 larger than .05) then it is safe to use random effects. Hausman test performed in this paper is 13.05*** which is an indication that that fixed effects estimator is better than random effects estimator. Because arguably the random effects estimator is inconsistent and less efficient. In addition to that this shows that the assumption that there is no correlation between unobservable individual-specific effect and explanatory variables does not hold.This same logic applies when deciding between using fixed effects model and the Hausman-Taylor estimator, the Hausman test to indicates that Hausman-Taylor estimator is a better and more efficient estimator. Therefore, the Hausman-Taylor instrumental variables estimator is used in this paper to assess the impact of a set of education determinants on the GDP growth another reason for this is that some of the variables are endogenously determined and this method is the best way to deal with that issue.

The regression tries to quantify how much the explanatory variables impact the growth rate of GDP for the thirteen countries studied. This paper investigates, for instance, if an increase in the percentage of government spending on education causes

an increase in the growth rate, or a decrease, or even if spending on education has no significant impact on economic growth at all.

The results from the OLS estimator are presented in Table 1. indicate that the impact of the explanatory variables in GDP growth is pretty huge for instance according to OLS a 1 percentage point increase in government spending in education increases GDP by around 0.55 percent, which is a huge impact but due to the presence of unobservable individual heterogeneity, the OLS estimator is biased.

Table 1. Regressions results

Variables	OLS gdp	Fixed effects gdp	Random effect gdp	Hausman – Taylor IV gdp
gdp				0.29544***
s.e				(0.000)
govexpedugdp	0.61291	-0.55639	0.60242	-0.56119
s.e.	(0418)	(0.577)	(0.427)	(0.521)
govexpedugov	0.54799***	0.72960***	0.54912***	0.65725***
s.e.	(0.006)	(0.005)	(0.006)	(0.005)
expteredu	0.33189***	0.26690	0.33072***	0.17423
s.e.	(0.003)	(0.127)	(0.003)	(0.250)
govexpstu	-0.38967***	-0.47700***	-0.38924***	-0.26060**
s.e.	(0.000)	(0.001)	(0.000)	(0.049)
schoolenroll	-0.1911***	-0.22821***	-0.19104***	-0.13865***
s.e.	(0.000)	(0.000)	(0.000)	(0.004)
emplpoprat	0.14685*	0.04077	0.14593*	0.04274
s.e.	(0.090)	(0.830)	(0.092)	(0.749)
unempl	-0.0787	-0.20752	-0.07986	-0.12272
s.e.	(0.472)	(0.241)	(0.467)	(0.427)
Nr. obs	195	195	195	195
R-squared	0.306	0.274		
F	11.80	6.54		
Chi^2			81.70	77.99

Notes: *Statistically significant at 10% level; ** statistically significant at 5% level; ***statistically significant at 1% level.
Source: Authors calculation

Almost the same results as those of the OLS are obtained using random effects model, which is another argument that random effects model is not consistent nor efficient and in this case is producing biased estimates. The fixed effects estimator on the other hand shows completely different results, it shows that only some of the variables have positive impact on growth, others have a small negative but usually insignificant impact

or even no effect at all. Fixed effects estimator provides results that are pretty similar to Hausman Tailor estimator, which is an indication that it is much more accurate than random effects model.

Despite the fact that fixed effects provided more accurate results, because of the nature of the data and endogeneity problems that are present in the data, a Hausman-Taylor estimator is calculated. In using Hausman-Taylor instrumental estimator, some of the variables that are considered as exogenously determined, therefore, are used as their own instruments are:

GDP growth first lag (gdpgrowth), government expenditure on education as a percentage of GDP (govexpedugdp), expenditure on tertiary education as percentage of government expenditure on education (expteredu), government expenditure per student on tertiary education as percentage of GDP (govexpstu) and school enrollment on tertiary education (schoenroll). On the other hand, the variables that we consider to be endogenously determined are instrumented by the deviation from their individual means. These variables are: Government expenditure on education as percentage of total government expenditure (govexpedugov), unemployment rate ILO definition (unempl), employment rate ILO definition (empl).

GDP growth first lag, this variable (Yit-1) is the first lag of the level of real GDP, and it is instrumented by the deviation from individual means. The estimated coefficient on (Yit-1), 0.29***, which shows that the growth of GDP has a positive significant impact on growth the following year for European emerging countries. Government expenditure on education as a percentage of GDP (govexpedugdp), this variable is endogenous and is instrumented by the deviation from their individual means, the estimated coefficient on (govexpedugdp), 0.65***, which means that one percentage point increase in government spending as a ratio of GDP across European emerging countries increases GDP by 0.65%, which is a pretty huge impact. Expenditure on tertiary education as percentage of government expenditure on education (expteredu), also has a positive impact, its coefficient is 0.17 but it is statistically insignificant, which means that no statistically traceable impact between an increase of government spending on tertiary education can be found. Moreover, both variables government expenditure per student on tertiary education as percentage of GDP (govexpstu) and school enrollment on tertiary education (schoenroll) have negative coefficients -0.26** and -0.13*** respectively, which means that an increase in expenditure per student as share of GDP by one percent decreases GDP growth by 0.26%, the same logic applies with the school enrollment. Finally, unemployment and employment variables are used as control variables, coefficients of both of them are as expected, for unemployment negative, while for employment positive.

4. Conclusions

The Hausman - Taylor instrumental variable IV model is more efficient model than fixed effects or random effects to assess the relationship and to identify the causal link between the investment in education and economic growth for each of 13 low middle income European countries. The reason of applying the Hausman – Taylor IV model is

endogeneity of variables. Determinates of growth could be determined by growth itself and that is because some of variables can be presumed as a endogenous variable.

The results of this paper show that the growth of GDP has a positive significant impact on growth the following year for European emerging countries. Government expenditure on education as a percentage of GDP is endogenous variable and is instrumented by the deviation from their individual means, the estimated coefficient shows a pretty huge impact. In another hand, expenditure on tertiary education as percentage of government expenditure on education also has a positive impact, but it is statistically insignificant, which means that no statistically traceable impact between an increase of government spending on tertiary education can be found. Moreover, both variables government expenditure per student on tertiary education as percentage of and school enrollment on tertiary education have negative coefficients, the same situation is with the school enrollment. An increase in the percentage of government spending on education causes an increase in the growth rate, or a decrease, or even if spending on education has no significant impact on economic growth at all.

In general, the impact of investment in education results to have a relatively high positive impact on the real GDP growth in the countries of the data set. The other two variables that measure investment in education ("govexpstu" and "schoolenroll") have negative impact. This may be due to the different situations (circumstances) in the countries included in this study, which are not accounted for the model. The results of this study are in line with the results of the authors' research like Harmon, Oosterbeek and Walker (2003), Psacharopoulos and Patrinos (2004)), and Heckman, Lochner and Todd (2006).

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Appendix A1

Nr.	Low middle income countries
1.	Slovenia
2.	Croatia
3.	Bulgaria
4.	Romania
5.	Moldova
6.	Ukraine
7.	Belarus
8.	Poland
9.	Czech Republic
10.	Slovakia
11.	Azerbaijan
12.	Russia
13.	Turkey

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PAPER

Micro-aspects of mega-regional integration: value networks in global economic governance and clustering space

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Abstract. The paper deals with a new approach to the clustering of world economies with respect of their inclusion to global value networks. The goal of the paper is to study micro-aspects of global economic integration and to question on whether GVCs foster mega-regionalization. World bank enterprises survey data covering 2005-2017 on specific indicators describing reporting countries' enterprises openness to global economy and OECD-EORA GVC-related indicators were used for research purposes. Methodologically paper is split into several parts: first part is devoted to the analysis of the evolution of country's involvement into global economy from micro-aspects; the second part represents the first attempt to group countries with respect to openness to trade as a key in PTAs signing; the third part represents clustering of economies for 2011 and 2017 separately as well as analyses how similar they are in their respective progress in chosen indicators between these two time-periods. It was found that the higher the use of foreign inputs by firms- the more frequent is the reporting on customs and trade procedures, as well as access to finance, being the main obstacles, supporting the fact that countries try to set up international partnerships and enter foreign markets via starting local production. Using Kendall rang correlation as a base for cluster analysis and performing clustering on the base of growth terms of indicators chosen, it was shown that regional character of clustering persists (pool of Latin American countries, African countries, CEE, Asia countries are clearly observed) with minor exclusions, and non-trivial links between regions are in place.

It could be concluded that there is a high possibility of empirically tested relation between micro-motivation behind global value chains functioning and neo-regionalism in the form of mega-regions set-up.

Keywords: global value networks; global economy; mega-regionalization; cluster analysis.

JEL Classification: F02; F55; F15.

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Introduction

Nowadays, the phenomena of global values networking is accompanied by process of mega-regionalization. Both these processes link countries not only of different regions but of different continents shifting global economic power from world-centrist landscape to dissipative global structures. In case of global value networks business became global being able to influence situation not only within specific country, but outside national borders. Thus, it raises the question on whether we could be claim that global business means global economic governance. At the same time, mega-regional unions, created to fill in the gap of current multilateralism, represent another opposite of one/two-centric world and inherent to it global rules and ordering, e.g. global economic governance. The goal of the paper is to test empirically what goes first- global value chains or mega-regional unions in order to evolve in the essence and meaning of global economic governance as dissipative world structure which corresponds better to current global economic landscape.

Literature review

The broad literature is devoted to various issues of functioning of both global value chains and networks functioning and mega-regionals. At the same time, only few researches try to investigate interrelations between these both modern phenomena.

Ricardo-Melendez-Ortiz mentions that mega-regionals are those partnerships where its counterparties may serve as GVCs' hubs (Baldwin R., 2014). Peter Draper and Salim Ismail in their turn believe that TPP and TTIP integration could make African economies more integrated into global value chains.

Deborah Kay Elms (2014) considering Asia discusses how mega-regionals in the region would foster global value chains functioning. The researcher concludes that bigger agreements (e.g. mega-regional ones) need to include more members for firms entering GVCs getting benefits from this in terms of lower costs and bigger returns to scale. Another objection is a high degree of PTAs overlapping making whole multilateral system confusing and complicating firms' operation. Thus, the influence of mega-regionals over GVCs is ambiguous at this point of time.

Investigating general PTAs it was found that indeed there is a positive correlation between GVC trade and the depth of trade agreements (World bank, OECD and WTO, 2017).

Taking into account that it was shown that preferential trade agreements positively influenced GVCs expansion (Blanchard, E. and X., Matschke, 2015) and the lag between number of PTAs and GVCs scope we can assume that global integration proceeds in several steps "PTAs-GVC/GVN-mega-regionals" reflecting increasing sophistication of global economic system and deepening of degree of economic integration.

It is claimed that negotiations on mega-regional agreements are associated with governance of value chains at systemic level (Stephenson Sh. and A. Pfister, (2016), suggesting that they are the response to the value chains expansion. The goal of the paper is to test how current global economy segregation at mega-level could be

explained in micro-terms and which landscape it takes if we consider firms openness to global economy. The results of the paper would fill in the lack of research on the respective relation between GVCs as a proxy to global value networks and mega-regionals as a type of global economic governance, as well as to consider how global value networks themselves represent one of the forms of global economic governance.

Data

To meet the goal of the paper, the research is primarily based on World bank indicators and researches, namely: the data on enterprises survey is used in order to proxy the intention of the country to enter global value networks. This data covers period from 2005 to 2017 and the whole set of emerging markets and developing economies including global cities. Such indicators were used for research purposes:

Table 1. Indicators of country inclusion into global value networks

Name of indicator	Argumentation of inclustion into consideration	Variables
Percent of firms having their own Web site	The guarantee of access to the company information from the side of international counterparties	web2011 web2017
Percent of firms identifying access to finance as a major constraint	In conditions of financial globalization, positive response witnesses the low level of inclusion into GVN	accfin2011 accfin2017
Percent of firms identifying customs and trade regulations as a major constraint	The indicator reflects the inclusion of local business into international trade flows	custtrade2011 custrade2017
Percent of firms using material inputs and/or supplies of foreign origin	The direct indicator of inclusion in GVN	forinp2011 forin2017
Percent of firms using technology licensed from foreign companies	The direct indicator of inclusion in GVN	forlict2011 forlict2017
Percent of firms with an internationally-recognized quality certification	The indirect indicator of inclusion in GVN	intqcert2011 inqcert2017
Percent of firms with an annual financial statement reviewed by external auditors	The indirect indicator of inclusion in GVN/ The guarantee of access to the company information from the side of international counterparties	extaud2011 extaud2017
Proportion of total inputs that are of foreign origin (%)	The direct indicator of inclusion in GVN	percfirinp2011 perfirinp2017

Proportion of total sales that are exported directly (%)	The direct indicator of inclusion in GVN / The indicator reflects the inclusion of local business into international trade flows	expdir2017 (the indicator is available for period after 2011)

Source: developed by author based upon World Bank. Enterprise survey (World Bank (b))

As the data is gathered by World bank based upon interviews conducted once in 5-6 years on a random base (e.g. Nigeria responded in 2006 and 2012, while Poland – in 2010 and 2015 respectively), the additional operations were taken, and for each indicator chosen supplementing proxies were constructed - one covering respective interview results up to 2011, another one- from 2012 up to 2017.

On the other side the GVC indicator of UNCTAD-EORA database (UNCTAD-EORA) is used to measure the inclusion of a country into global value networks.

The data was cleared to avoid missed values, so that we ended with the sample of 92 countries.

Methodology

The research is conducted in several stages.

At first stage the summary statistics is represented, and correlation analysis of chosen indicators is conducted, the correlation matrix is constructed.

Secondly, the change in respective indicators between 2011 and 2017 are to be analyzed to assess the progress of specific countries in entering global value chains.

At third stage, preliminary grouping of countries with respect to growth rates of chosen indicators will be done.

At forth stage, cluster analysis based on growth rates will be performed.

Results

Summary statistics and correlation analysis

The next table represents the summary statistics on chosen indicators allowing making preliminary conclusions.

Table 2. Summary statistics of chosen indicators

Variable	Obs	Mean	St:Dev.	Min	Max
web2011	92	31,65	22,02	0	80,50
web2017	92	32,63	27,20	0	91,00
expdir2017	92	4,09	4,80	0	18,40
forinp2011	92	33,23	20,24	0	93,20
forin2017	92	24,36	20,46	0	70,10
extaud2011	92	41,66	25,68	0	96,60

extaud2017	92	32,29	26,72	0	88,70
inqcert2011	92	14,65	10,43	0	43,50
inqcert2017	92	11,49	12,56	0	53,40
forlict2011	92	12,70	9,90	0	41,00
forlict2017	92	11,08	9,75	0	36,90
percfir~2011	92	54,32	28,00	0	100,00
perfiri~2017	92	40,28	30,74	0	90,70
custtra~2011	92	14,72	11,97	0	58,40
custrade2017	92	10,88	12,38	0	50,80
accfin2011	92	25,92	17,83	0	75,00
accfin2017	92	16,95	17,15	0	69,10
gvc2011	92	32000000	99500000	0	866000000
gvc2017	92	32900000	106000000	0	931000000

Source: calculated by author with the aid of Stata10

We could observe an increase in average share of firms reporting having personal Web-site or having internationally recognized certification during 2011 and 2017. For other indicators- share of foreign inputs in total inputs used by firms, percent of firms having external audit, foreign licenses, firms using foreign inputs, mentioning customs and trade procedures and access to finance as main obstacles in their activity,- their values decreased alongside with increase in inclusion into global value chains proxied by GVC indicator.

This testifies for both deeper macro-integration in form of regional trade agreements and financial globalization as well as for deeper micro-integration in form of inclusion into global value networks, which made new use of foreign inputs, licenses and external audits not necessary.

Interestingly, the standard deviation increased for most of indicators testifying for raising divergence between countries, which is in line with general consideration regarding world of different speeds.

Continuing considering the argument on relation between changes in different indicators describing country's inclusion into global economy, we proceed with correlation analysis (Table 3).

Table 3. Correlation matrix on indicators representing inclusion of countries into global economy

	expdir2017	forin2017	extaud2011	extaud 2017	inqcert2011	inqcert2017	forlict2011	forlict2017	percfirinp2011	perfirinp2017	custrade2017	accfin2011	accfin2017	GVC2017
web2011			0,54		0,68		0,51		0,60					
web2017	0,71	0,65		0,61		0,79		0,64		0,75				
expdir2017		0,60				0,64				0,61				
forinp2011			0,57						0,91					
forin2017				0,56				0,54		0,96	0,58		0,61	
extaud2017					0,51				0,70					
inqcert2011								0,57		0,64	0,55		0,53	
inqcert2017							0,56			0,51				
forlict2017								0,55		0,51				
forlict2011										0,62				
perfirinp2017											0,61		0,64	
custrade2011												0,68		
custrade2017													0,84	
GVC2011														0,99

Source: estimated by author with the use of Stata10

The table represents only those coefficients that take value higher than 0.5, empty rows and columns are deleted from table. The results obtained are consistent: the fact of country's firm having personal web-site in respective years positively correlates with all indicators describing country's openness to global economy (share of sales exported directly, firms having external audit, internationally recognized certification,

using foreign inputs etc.) The specific attention should be paid to quite high positive correlation coefficients between share of total sales exported directly and percent of foreign inputs in total inputs and percent of firms having international recognized certification- 0.6 and 0.64, respectively. This allows us guessing on the existence of relationship of fact of being included into GVC influencing the fact of trade facilitation and even entrance into trade blocks.

The fact of having significant share of foreign inputs in total inputs prior to 2011 is positively related to external audits after 2011 (0,57)- either international counterparties asks for reporting or deeper inclusion into production networks results in set-up of officially registered international companies.

Another interesting observation- the higher the use of foreign inputs-the more frequent reporting on customs and trade procedures as well as access to finance being the main obstacles. This observation is in line with general consideration that in conditions of trade or fiancé limitations, countries try to set up international partnerships and enter foreign markets via starting local production.

The same reasoning could be used for explaining positive relation between the share of companies having foreign licenses and customs/trade and finance obstacles (0.57, 0.55 and 0.53, respectively). It should be noted that customs and trade obstacles are highly associated with challenges of access to finance (0,84). At this stage no specific direct relation between the degree of country's inclusion into GVCs (gvc2011 or gvc 2017) and other indicators was found, while indirectly the results obtained testify for this.

Testing for progress in country's inclusion into global value networks. To proceed with our analysis lets' compute the growth rates of each indicator under consideration and form several country groups. This would allow us to test whether the progress in entering GVN relates somehow to the changes in indicators signifying inclusion into global economy.

Assuming that the main reason of countries entering global value networks is to avoid barriers to trade, lets' sort the group of countries with respect to this indicator's growth rate and split the whole set of countries into several groups comparable in size.

Table 4. Average in-group growth rates

	countries	custrade2017/2011	Web 2017/2011	expdir2017/2011	forlict2017/2011	extaud2017/2011	intqcert2017/2011	forin2017/2011	perfirinp2017/2011	accfin2011/2011	Gvc 2017/2011
Group1	Pakistan Tanzania Mali Honduras Nigeria Ghana Afghanistan Malawi Indonesia Cote d'Ivoire	2,79	2,31	2,20	2,16	1,60	1,48	1,45	1,37	1,04	0,99

Group2	Uganda Nepal Mauritania Lithuania Lesotho Bolivia Ecuador Dominican Republic Croatia Paraguay	1,35	1,46	1,49	1,45	1,15	1,09	0,89	0,92	1,45	1,01
Group3	Kenya Philippines Bhutan Namibia Slovak Republic Kyrgyz Republic Zambia Senegal Russian Federation Mongolia Vietnam	0,87	1,44	1,04	0,98	0,89	1,00	0,92	0,90	0,96	1,02
Group4	Cameroon Nicaragua Bulgaria Armenia Hungary Poland Romania Madagascar Swaziland El Salvador Estonia Niger Montenegro Bangladesh	0,65	1,44	1,25	1,54	0,93	1,36	0,97	1,02	0,65	1,01
Group5	Congo Albania Bosnia and Herzegovina Macedonia, FYR Czech Republic Turkey Tajikistan Latvia Ukraine Kazakhstan Georgia Slovenia Azerbaijan Uzbekistan	0,27	1,57	0,98	0,88	0,95	1,17	0,94	0,94	0,59	1,00
	St.dev.	*0,45*	*0,06*	*0,23*	*0,33*	*0,12*	*0,15*	*0,03*	*0,05*	*0,39*	*0,01*
Note	*Set.dev for groups constructed on base of forlict2017/2011*	*0,14*	*0,08*	*0,07*	*0,20*	*0,12*	*1,24*	*0,07*	*0,34*	*0,32*	*0,01*
Note.	*Set.dev for groups constructed on regional base*	*0,43*	*0,32*	*0,07*	*0,22*	*0,43*	*0,40*	*0,06*	*0,40*	*0,18*	*0,03*

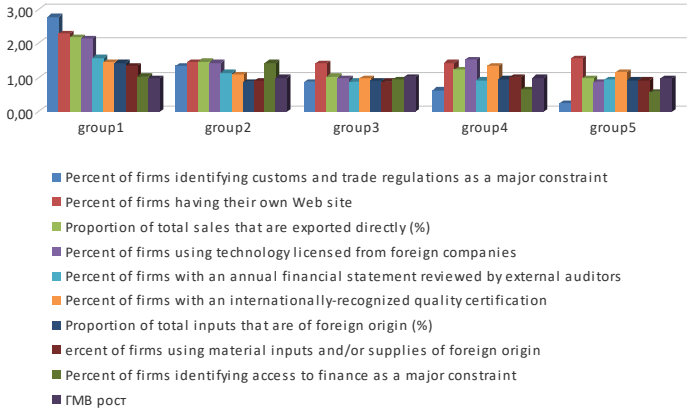
Source: developed and calculated by author

As it could be seen from the table, the grouping performed on the base of changes in percent of firms reporting customs and trade challenges as main obstacle gives results representative for other indicators as well, e.g. the sorting performed on other indicators would give the sane groups, several exclusions are: access to finance (groups 1 and 2), percent of sales exported directly and percent of firms using foreign licensed technologies (groups 3 and 4 and 2 and 4 respectively).

Average standard deviations calculated on the base of other groupings showed to be

higher than the base one allowing us concluding that this criterion is more consistent.

Figure 1. Grouping of countries with respect to growth rates of countries' firms' inclusion into global economy



Source: constructed by author

As it is clearly seen, the second group of countries is rather homogeneous in terms of growth rates of different indicators – standard deviation between indicators' growth rates constituted 0.24, in-group deviation for other group of countries is 0.6. This group is represented almost exclusively by Latin America countries reporting positively on chosen indicators on average in 23% cases more often in 2017 than in 2011.

Interestingly, in first group the highest progress was observed in firms reporting customs and trade limitations as main obstacle, which is a bad sign; for second and the fivth group this is percent of firms having personal web-site that increased the most, for second group- the proportion of total sales exported directly, and for the forth- percent of firms using technology licensed from foreign companies.

In order to better understand how different countries behave in conditions of deepening globalization including globalization of production, let's conduct cluster analysis, which would be based on a balanced weighted estimation of comprehensive linkages between countries including all indicators under study.

Elaborating on countries' grouping with the aid of cluster analysis

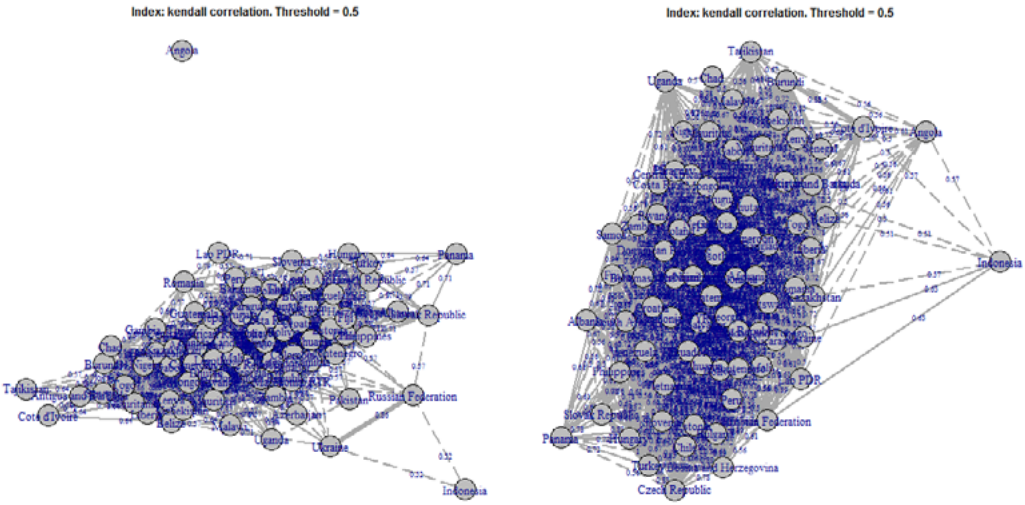
For research purposes we suggest using Kendall rang correlation. Based upon this criterion we perform clustering in several steps. First, we consider clustering of countries with respect to the degree of their inclusion into global economy as on the end of 2011 both taking into account the degree of their inclusion into global value networks and without taking it into account. This gives us an insight on how countries could be grouped with respect to after-crisis conditions.

Second, we perform the same types of clustering using indicators' values as on the end of 2017. This is to be done in order to assess whether economic disposition of countries under consideration have changed between 2011 and 2017.

Finally, we conduct clustering based on the extent of the progress in countries' inclusion into global economy, dividing respective indicators' values as of 2017 by those of 2011.

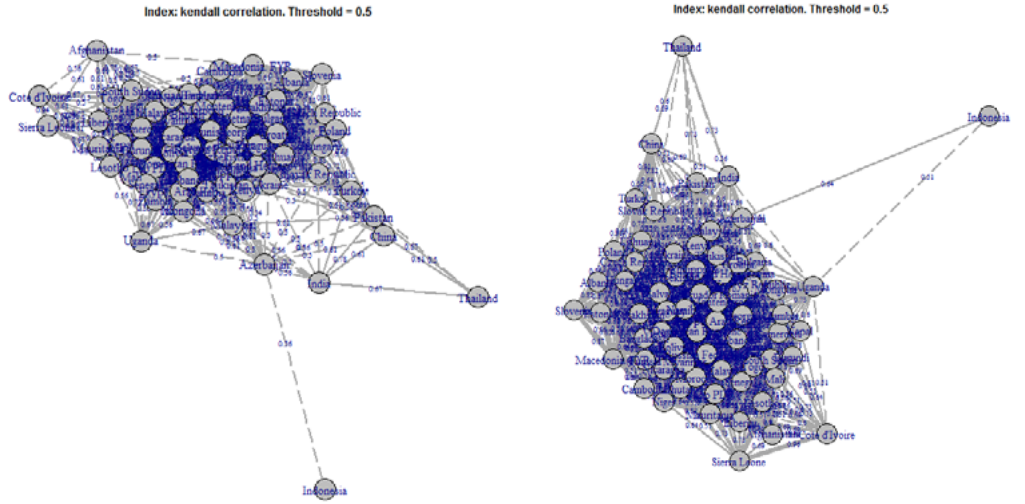
This would allow us concluding on convergence trends in global economy.

Figure 2. Clustering of countries with respect to the degree of their inclusion into global economy, as on the end of 2011



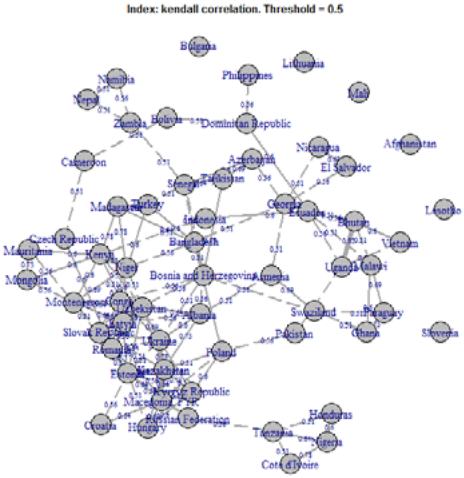
Using the above mentioned method of clustering, at figure 2 we could see the clustering of chosen countries as on the end of 2011, using separately list of ten indicators representing firm responses related to their inclusion into global economy (left side of figure) and this list of indicators plus GVC value (right side of figure 2). In both cases Indonesia is set aside from the whole group of world economies. West European countries form the specific hub of countries, the same is true for Latin America, Africa and Asia, Russian Federation is more integrated into economic ties on the right part of figure. At that point of time, we could claim that global economy was being in process of clusters formation, with no evident separate sub-groups being detected.

Figure 3. Clustering of countries with respect to the degree of their inclusion into global economy, as on the end of 2017



Performing the same analysis on the respective values of indicators chosen for the period after 2011, we observe some changes- Thailand with India, China and Pakistan forms new cluster of economies in Asia, as well as Sierra Leone- in Africa (additional cluster of Afghanistan is evidently observed at the left part of the fig.3. It could be concluded, that as on the end of 2017 clustering of global economy, with respect to formation of global value networks, is at the stage of active formation.

Figure 4. Clustering of countries with respect to the progress of their inclusion into global economy, 2017 to 2011



To assess how similar the countries are in terms of their progress in inclusion into global value networks, clustering on the base of growth in chosen indicators was performed. Regional character of clustering persists (pool of Latin American countries, African countries, CEE, Asia countries are clearly observed) with minor exclusions, and non-trivial links between regions were shown. This allows us assuming mega-regional character of global value networks, which could be hypnotized as a precondition for the formation of mega-regionals.

Conclusion

Unprecedent expansion of global value networks, preferential trade agreements and broader and deeper mega-regionalization made us look for the relation between micro-aspects of potential GVCs' members functioning neo-clustering of global economy. Basing on World Bank and UNCTAD-Eora databases it was shown that covering 92 world economies it was shown that between 2011 and 2017 changes in global economy structure took place. First of all, it was found that the higher the use of foreign inputs by firms-the more frequent is the reporting on customs and trade procedures, as well as access to finance, being the main obstacles. This observation is in line with general consideration that in conditions of trade or finance limitations, countries try to set up international partnerships and enter foreign markets via starting local production. Second, grouping of countries with respect to progress in reporting difficulties with

trade and customs procedures showed that countries entering specific blocks are almost all from the same geographic region, testing for high importance of regional factor in firms' external openness. Finally, using Kendall rang correlation as a base for cluster analysis and performing clustering on the base of growth terms of indicators chosen, it was shown that regional character of clustering persists (pool of Latin American countries, African countries, CEE, Asia countries are clearly observed) with minor exclusions, and non-trivial links between regions are in place.

Thus, it could be concluded that there is a high degree of possibility of empirically tested relation between micro-motivation behind global value chains functioning and neo-regionalism in the form of mega-regions set-up.

The research results are limited to countries included into consideration which is associated with data availability. Further research in the are could be directed on testing whether GVCs leads to the creating of mega-regional unions or mega-regional unions lead to expansion of global value networks.

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PAPER

Relations of India and Pakistan with Central Asian Countries from the Perspective of Shanghai Cooperation Organization

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Abstract After the first expansion of the Shanghai Cooperation Organization, the India's and Pakistan's relationship with Central Asian countries has become an issue that needs urgent research. This article analyzed their relationship, focusing on five aspects, i.e. the historical and cultural relations, political and military relations, the economic and energy cooperation, religious conditions and activities of religious organizations, and cooperation in science, technology and education. The author has found that neither India nor Pakistan doesn't have major investment or particularly close partners in Central Asia. It is not yet possible to say that Central Asia is an area where India and Pakistan are strategically competing. India and Pakistan will not have serious disputes on the SCO's issues involving Central Asia. For Joining India and Pakistan, we should consider more positive aspects, promote advantages and suppress disadvantages, and make staff expansion a positive factor for SCO to play a greater role.

Keywords: India; Pakistan; Central Asia; Shanghai Cooperation Organization.

JEL Classification: F50; F55; P33

In June 2017, the Shanghai Cooperation Organization (SCO) expanded its membership for the first time, and India and Pakistan became its member states. From the perspective of the relationship between the new and old member states, it is basically clear that Russia and India have better relations, China and Pakistan are all-weather strategic partners, India is often hostile to Pakistan, but the India's and Pakistan's relationship with four SCO member states in Central Asia is difficult to draw conclusions, which may affect the development of the SCO, especially on certain issues. During the SCO Qingdao Summit in June 2018 and the SCO Bishkek Summit in June 2019, the interaction of India and Pakistan with other members attracted a lot of attention, especially with the four member states of Central Asia. From February to March 2019, tensions between India and Pakistan once again

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increased and the Kashmir conflict almost escalated into a full-scale war. This situation undoubtedly is challenging the SCO's ability to handle conflicts between member states. It is also testing the relationship between the SCO member states, especially the India's and Pakistan's relationship with other member states. Now it is necessary to make a basic analysis of the India's and Pakistan's relationship with four countries of Central Asia.

1. Historical connections and their heritage

Historically, the Indian subcontinent has a close relationship with Central Asia. According to research, the interaction and communication between ancient India and Central Asia date back to the third millennium BC, when the nomadic Aryans appeared in Central Asian and Harappa culture in India [1]. Before Islam entered Central Asia, Central Asia had established religious ties with the Indian subcontinent. Buddhism flowed from India to Central Asia and formed its own characteristics there, which deeply affected the spread of Buddhism in China and later the development of Islam in Central Asia. The Mughal dynasty (1526-1858), which once flourished in the Indian subcontinent, originated in present-day Uzbekistan. At that time, due to various factors such as religion and politics, many Central Asian residents followed Babur (1483-1530) moved to the Indian subcontinent and established the Mughal dynasty in 1526. These people opened frequent personnel exchanges between these two regions and made a profound impact on literature, art, music, astronomy, architecture, etc. of both sides. Since Babur many of the rulers of the Mughal dynasty had been believers of the Naqshbandi sect. They kept in touch with the Muslim regime in Central Asia, especially in Uzbekistan and also promoted the development of Sufism in the Indian subcontinent. Religious and cultural ties in the Indian subcontinent and Central Asia was not interrupted even after the decline of the three Khanates of Khiva, Khanate of Kokand and Bukhara in Central Asia and the subsequent Russian conquest of Central Asia.

During the Soviet Union, especially after the Indian-Pakistani divide in 1947, the relationship between the Indian subcontinent and Central Asia changed. On the one hand, due to the Cold War and the deterioration of Sino-Soviet relations, the Soviet Union, adopting strategy "Draw India to counterbalance US and contain China"[2], established a very close relationship with India, which provided conditions for India and Central Asia to maintain cultural and religious ties. On the other hand, Pakistan mainly developed relations with the United States in the 1950s, and relations with China in the 1960s [3]. As a result, Pakistan did not establish friendly relations with the Soviet Union and was isolated from Central Asia.

After the disintegration of the Soviet Union, India and Pakistan actively developed relations with Central Asian countries, emphasizing historical and cultural ties as an important part of them. However, due to differences in territorial area, population, comprehensive national strength, and foreign policies, India has succeed in establishing the identity of the successor state of the Mughal dynasty for himself, thus logically drawing closer relations with Central Asian countries, especially with Uzbekistan, while Pakistan is clearly at a disadvantage in historical and cultural

ties with Central Asia. India tries to use this history and culture to strengthen its competitiveness and influence in Central Asia and widen the land passage (the north-south traffic corridor) to the north. These measures are conducive for India to building a favorable circumstance for itself behind Pakistan and striving for greater space for its development. Pakistan also tries to develop relations with Central Asian countries based on historical and cultural ties, thereby alleviating security pressure from India and promoting economic development, but due to limited interpretation of the Mughal dynasty, the historical and cultural ties that Pakistan says when interacting with Central Asian countries often lack realism. Central Asian countries are very clear about this. Therefore, Central Asian countries has more attention to the historical and cultural links with India, hoping to find materials constructing their own history and expand links with India. Above shown is very clearly in India's and Pakistan's relationship with Uzbekistan.

2. Relations in Politics, military and international organizations

India and Pakistan are among the first countries to recognize the independence of Central Asian countries. Both of them established diplomatic relations with Central Asian countries in 1992. In the 1990s, there were several issues worthy of attention in India's political relations with Central Asian countries. First, India established friendship associations with Uzbekistan, Kyrgyzstan and Tajikistan. Second, Uzbekistan joined the Non-Aligned Movement in September 1992 under Indian lobbying, and Kazakhstan, Kyrgyzstan and Tajikistan later became observers of this movement. Third, India and Uzbekistan's Intergovernmental Committee on Economic, Trade, and Science and Technology Cooperation has played an important role in promoting relations between the two countries since 1993. Fourth, India has provided loans and assistance to Kyrgyzstan and Tajikistan since 1995. Fifth, India made a "New Silk Road Initiative" for Central Asia aimed at establishing transport corridors and connecting with Central Asian markets. For this purpose, in February 1997, India signed a tripartite agreement with Iran and Turkmenistan on international transport and transit corridors (highway and Railway). During this period, India 's Central Asian foreign policy had three main tasks: 1) to get rid of the "strategic environment" from Pakistan. India was always viewing relations with Central Asian countries through the prism of the Indo-Pakistani conflict and the Kashmir problem; 2) to develop cooperation with the countries of Central Asia in countering terrorism and extremism, protecting national interests, ensuring regional security and maintaining stability; 3) to take part in the development of Central Asian resources [4]. But in general, India has not had much positive action inn Central Asia before entering the 21st century.

In the 1990s, although Pakistan actively established friendly associations with Kyrgyzstan, Tajikistan and Uzbekistan, and promoted Central Asian countries to become members of the Economic Cooperation Organization and the Islamic Cooperation Organization, but the development of political relations between them was not as expected. This is not only the objective reason for the instability of the situation in Afghanistan and the lack of a "bridge" between the links, but also the subjective

factors of different Afghanistan policies. Take the relationship between Pakistan and Uzbekistan in the 1990s as an example. At that time, Pakistan and Uzbekistan were often in conflict, because Pakistan supported Afghanistan's government opposition, but Uzbekistan – its government forces.

Since the beginning of the 21st century, the India's and Pakistan's political relations with Central Asian countries have begun to develop rapidly, high-level mutual visits have become frequent, and pragmatic agreements signed between governments have also increased significantly. In addition to creating conditions for economic cooperation, the anti-terrorist war in Afghanistan, that began after 11th September 2001, made security cooperation one of the important elements for developing political relations between India, Pakistan and Central Asian countries. However, the terrorism, extremism and the stability of Afghanistan are also the biggest obstacles for India and Pakistan to trade with Central Asian countries. In response to these security issues, India and Pakistan have begun cooperation with Central Asian countries in the field of military security. The main contents are as follows: 1) India and the four Central Asian countries have signed counter-terrorism agreements in 2003-2005. In 2009, India and Kazakhstan established a strategic partnership. In October 2011, the India -Kazakhstan friendship council group was established. That means they are beginning to cooperate actively at the legislative level; 2) India attaches great importance to security cooperation with Tajikistan. After the governments of India and Tajikistan signed the contract to modernize Ayni Airport in 2002, the Indian government has worked hard to obtain the lease right of this airport, paid 70 million U.S. dollars, but it has always been fruitless. However, it is reported that India established a Farkhor military base in Tajikistan in 2002 to take charge of Afghanistan's counter-terrorism operations; 3) Kazakhstan is a country in Central Asia, which has carried out the most military cooperation with India, especially with Pakistan. The main contents of cooperation include joint military exercises, military education, special forces training and military technical cooperation; 4) Uzbek terrorists (for example, IMU) also operate in Pakistan, becoming a common problem for Uzbekistan and Pakistan.

Promoting Central Asian countries to participate in international organizations that India and Pakistan dominate or have a greater say in speech is also an important aspect for them to develop the political relations with Central Asian countries. In this regard, Table 1 shows that Pakistan has achieved better results than India.

Table 1. Major international organizations with India, Pakistan and four Central Asian countries

	India	Pakistan	Kazakhstan	Kyrgyzstan	Tajikistan	Uzbekistan
United Nations	√	√	√	√	√	√
World Trade Organization	√	√	√	√	√	×

Organization of Islamic Cooperation	×	√	√	√	√	√
Shanghai Cooperation Organization	√	√	√	√	√	√
Economic Cooperation Organization	×	√	√	√	√	√
Non-Aligned movement	√	√	Observer	Observer	Observer	√

3. Cooperation in the economic field

Economic, trade and investment are one of the important areas of the India's and Pakistan's cooperation with Central Asian countries. In the 1990s, due to insufficient political ties and restrictions on the level of economic development, although India, Pakistan and Central Asian countries signed some economic cooperation agreements, memoranda, etc., but they did not achieve the expected results. Overall, the India's and Pakistan's economic relations with Central Asian countries in the 1990s showed the following characteristics:1) many economic cooperation projects were stranded for various reasons; 2) the unidirectivity of economic cooperation was obvious. Some Indian and Pakistani companies and investors had entered Central Asian countries, but the activities in the opposite direction had basically not been. At the same time, India's and Pakistan's trade in Central Asia accounted for a small proportion of their total foreign trade, less than 1% [5]; 3) in order to solve the obstacles to economic and trade exchanges caused by geographical environment and traffic conditions, India and Pakistan had proposed a road interconnection plan with Central Asian countries. India advocated road interconnection in the direction of Iran and Turkmenistan, while Pakistan preferred to choose Kyrgyzstan and Kazakhstan, but neither of them had not been implemented.

After entering the 21st century, India's and Pakistan's economic cooperation with Central Asian countries has developed, but the overall level is still low. Kazakhstan and Tajikistan are India and Pakistan's respectively largest trading partners in Central Asia, but in both sides the proportion of total foreign trade is very low. For example, the trade volume between Kazakhstan and India in 2016 was US $ 618 million, which was more than the total trade volume between India and other countries in Central Asia in the same period [6]. Kazakhstan's foreign trade totaled 62 billion U.S. dollars that year [7, p.3], while India's foreign trade totaled $ 623.59 billion [4]. This shows that Kazakhstan's trade with India accounted for only 1% of Kazakhstan's total foreign trade, and its share in India's total foreign trade was only one thousandth. The situation in other countries is roughly the same. But in general look, India's economic influence in Central Asia is higher than Pakistan, and this situation will become more apparent as

India and the Eurasian Economic Union start the construction of a free trade zone.

Energy cooperation is an important part of economic and trade exchanges between India, Pakistan and Central Asian countries. In this regard, India is even more keen to obtain oil and gas resources from Central Asia, and Kazakhstan, Uzbekistan and Turkmenistan have naturally become India's main targets for cooperation. Keeping the average annual growth rate of the economy at 7-8%, India's energy demand needs to increase by about 5% each year [8]. This means that ensuring an uninterrupted energy supply is vital to India's economic vitality. However, about 70% of India's oil and gas are imported from the Persian Gulf [4]. As the situation in the Middle East has been in turmoil in recent years, reducing energy dependence on the Middle East and finding alternative energy sources has become an important part of India's national security and foreign policy. In view of the large amount of oil and gas resources stored in the Caspian Sea coast and offshore areas, where accounts for about the world 4% of natural gas reserves and 3% of oil reserves [9, p.3], Kazakhstan, Turkmenistan and Uzbekistan on the Caspian Sea have become India's main targets for energy cooperation. However, India and Central Asian countries face the problem of lack of transportation channels, so India has been working hard in recent years to promote the Turkmenistan-Afghanistan-Pakistan-India (TAPI) pipeline project, but has had little success. Pakistan has paid more attention to hydropower in Tajikistan and Kyrgyzstan. In recent years, Pakistan has been working hard to build a Central-South Asia electricity market (CASAREM), promoting the implementation of the CASA-1000 project [10]. Since the negotiations on CASA-1000 project began in 2006, due to various reasons such as Uzbekistan's opposition, the unstable situation in Afghanistan, and insufficient funds, no substantial progress has been made, which has caused at least US $ 500 million in losses to the participating countries [11].Today, the CASA-1000 project is still progressing slowly.

Table 2. Foreign trade situation of India, Pakistan and Central Asia in 2016

Total foreign trade $ 62 billion		Kazakhstan	Kyrgyzstan	Tajikistan	Uzbekistan
		$ 5.4 billion	3.93 billion	$ 24.3 billion	
India	$ 623.59 billion	$ 618 million	Less than $ 300 million		$ 366 million
Pakistan	$ 65.57 billion	$ 25.5 million	$ 800,000 (2011)	$ 55 million	$ 3.9 million

In terms of investment, Pakistan's investment in the four Central Asian countries is very limited due to its national strength restrictions. Although India's national strength has grown rapidly in recent years, India has not invested much in Central Asia. Its investment has been concentrated mainly in Uzbekistan and Kazakhstan, but the unidirectivity is obvious. For example, from 2005 to 2017, India's direct investment in Kazakhstan was $ 245 million, and Kazakhstan's direct investment in India was $ 83 million [12]. Another feature of India's investment in Central Asia is to promote investment with key regional

projects. Since 2000, the Indian government has decided to propose a key regional project every year. For example, in the six years from 2007 to 2012, India proposed in Uzbekistan 6 key projects with a total investment of $ 177.2 million.

4. The influence of religion and religious organizations

Islam (mainly Sunni) is the largest religion in Pakistan, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan, and the second largest religion in India. The influence of religions, especially religious organizations on India's and Pakistan's relations with CentralAsian countries cannot be ignored.

Table 3. Number of Muslims in India, Pakistan and Central Asia

		India	Pakistan	Kazakhstan	Kyrgyzstan	Tajikistan	Uzbekistan
Total population (million)		1300	200	18	6.2	9.01	31.15
Muslim	People (million)	180	190	11.983	4.998	7.952	28.2
	Proportion	14%	96.4%	66.6%	79.2%	88.3%	90.5%

Note: The total population of the four Central Asian countries in the table is the official data released by the four countries in January 2018, but the number of Muslims is data since 2013, so the proportion of Muslims in the total number is approximate.

In recent years, Islamic religious organizations in India have begun to strengthen their activities in Central Asia and have achieved success in Kyrgyzstan. One is "Ahmadiyya" (Ахмадийа), which was established in 1889 by Mirza Guriam Ahmed (1838-1908). Under the influence of Protestantism, he advocated the replacement of armed jihad with language jihad, that is, the peaceful way of spreading Islam through evangelism, and incorporating the elements of Hinduism, especially the image of Krsna, into it. After Ahmed's death, "Ahmadiyya" split into Qadian (named after the town in northern India) and Lahore ((named after the city in Pakistan) directions, of which Qadian is in a dominant position. The followers of "Ahmadiyya" managed to spread the movement around the world, but in Central Asia, "Ahmadiyya" is successful only in Kyrgyzstan. The second is "Tablighi Jama'at" (Джама'ат ат-Таблиг), which was founded in Mewat of India in the late 1920s by the Indian Sufis Mohammad Iliyaskandhalvi (1885-1944, Мухаммад Ильяс Кандехлеви). It advocates strict adherence to the provisions of Islamic law and pursues the awakening of Muslims worldwide with defining itself as a non-political organization, but its activities are limited to Muslim communities. In the 1960s and 1970s "Tablighi Jama'at" was introduced into Central Asia by India's students, where it has been developed after September 11, 2001, but mainly in Kyrgyzstan [13, pp. 5-17].

Sheikh Zulfiqar Ahmad Naqshbandi Mujaddi (шейх Мухаммад Зулфикар

Накшбанди Муджаддиди, born in 1953 in Punjab, Pakistan), a supporter of the Naqshbandi sect from Lahore of Pakistan, has won a lot of popular support in Central Asia, especially in Tajikistan and Uzbekistan. Among his students, Salim Buhari (Салим Бухари), who has received modern secular higher education and obtained a degree in Germany, has had a certain impact on the development of the religious situation in Uzbekistan and Tajikistan [13, p.50].

5. Cooperation in Science, Technology and Education

Table 4. Status of QS Asian University Rankings for India's and Pakistan's universities in 2019

Ranking number	1-100th	101-200th	201-300th	301-400th	401-500th
India	8	11	20	21	16
Pakistan	2	6	2	5	8

Source: This table was compiled by the author based on QS official website: https://www.topuniversities.com/university-rankings/asian-universityrankings/2019.

India is the fourth largest information technology and communications powerhouse in the world after the United States, Japan and China. Its scientific research papers account for 3% of the world's publications, while chemistry (5.7%), pharmacology (4.3%) and physics (3.7%) has a proportion of more than 3%. In the QS Asia University Rankings 2019, a total of 76 colleges and universities in India entered the ranking with the highest ranking at 33rd place; a total of 33 colleges and universities in Pakistan entered the ranking with the highest ranking at 87th place. In other words, India's level of technological and educational development is significantly higher than that of Pakistan and Central Asian countries. Therefore, Central Asian countries are more inclined to carry out scientific, technological and educational cooperation with India based on their own needs. The following situations illustrate this point:

1) Since 1993, more than 1,000 Uzbekistan personnel in information technology, English, banking, small economy, management, agriculture and other fields have been trained in India, funded by the Indian Technical and Economic Assistance Project [14]. In 2004, according to the bilateral agreement between India and Uzbekistan, Tashkent University of Information Technology opened the Uzbekistan-India Information Technology Center.
2) On March 1, 2005, the "India-Central Asia" Foundation was established in New Delhi. Its purpose is to develop political, economic, national defense, and scientific cooperation between India and Central Asian countries, and to conduct research on new technological and cultural ties. Databases are created in India for scholars, entrepreneurs, technical experts and experts in other areas of knowledge from both sides.
3) The International School of Education of International University of Kyrgyzstan

has Central Asia-India Distance Education College, Kyrgyz-Pakistan Distance Education College, Kyrgyz-U.S. Distance Education Center. In 2017, Indian investors invested in Bishkek Academy of Finance and Economics and Kyrgyz-Russian Slavic University have opened medical departments, medical laboratories and hemodialysis medical centers. In addition, there are about 3,000 Indian citizens in Kyrgyzstan, most of them are medical students (the tuition and living expenses in Kyrgyzstan are lower), while in India there are about 4000 Kyrgyz citizens [15].

4) The areas of scientific and technological cooperation jointly identified by India and Kazakhstan include new technology materials, biotechnology, catalytic technology, earth science, energy (bioenergy, solar energy, wind energy), informatics, mineral processing, petroleum refining, remote sensing, electronic communications and computer Science. Al-Farabi Kazakh National University and Jawaharlal Nehru University are the main partner universities for educational cooperation between these two countries. Ali Farabi University has the Indian section (belonging to the Faculty of Oriental Studies), Kazakhstan-India Information Technology Center, where has trained more than 50 experts who understand Hindi and Urdu and have experience of studying in Indian universities. The two countries subsidize more than 20 places for Kazakhstan university students to study in India every year. In addition, there is a large number of exchanges between the Military teaching section of Abai Kazakh National Pedagogical University and India's National Cadet Crops.

In order to cope with the above situation and strengthen its own attractiveness and influence to the people of Central Asia, Pakistan has started to take action. The most important thing is that the Higher Education Commission of Pakistan has established a University of Central Asia and Pakistan (UCAP) in Islamabad to recruit students from Central Asian countries. The university costs Rs 2.84 billion (about US $ 26 million), for which Pakistan has allocated Rs 600 million from the 2016-2017 fiscal year budget and Rs 500 million from the 2017-2018 financial year [16]. The Pakistani government's move aims to promote cultural exchanges, economic and social development, international peace and stability by providing high-quality education for students from Central Asia and turning Pakistan into an education center.

6. Conclusion

Through the analysis above, we believe that India and Pakistan have different interests and influence in in various fields and different countries of Central Asia. This is reflected in the following aspects:

1) In terms of historical and cultural relations with Central Asia, India's inheritance is significantly higher than Pakistan. As far as specific countries are concerned, India has more historical and cultural links with Uzbekistan.
2) The current situation in maintaining regional stability is that India has more cooperation with Tajikistan, Pakistan and Kazakhstan are expanding military cooperation, and Pakistan has influence on Central Asian countries through

international organizations such as the Islamic Cooperation Organization and the Economic Cooperation Organization.

3) The India's and Pakistan's connections with four Central Asian countries in the economic field are weaker than in political and the level of economic and trade exchanges and investment between them is very low. India mainly trades with Kazakhstan and Uzbekistan, and its investment is mainly concentrated in Kazakhstan. Pakistan mainly trades with Tajikistan and Kazakhstan. The India's and Pakistan's economic and trade cooperation with four Central Asian countries does not occupy an important position in each other's foreign trade. This means India and Pakistan have limited ability to influence Central Asian countries from an economic perspective.
4) Islam provides a certain basis for India and Pakistan to establish linkages with Central Asian countries, and the role of religions and religious organizations in the private contacts between India and Kyrgyzstan, Pakistan and Tajikistan and Uzbekistan is obvious.
5) Due to India's obvious advantages in the field of science, technology and education, India has significantly more exchanges with Central Asian countries than Pakistan, while Pakistan is still difficult to conduct scientific and technological exchanges and cooperation with Central Asian countries.
6) India, Pakistan and the four Central Asian countries face three common problems in their exchanges, namely road connectivity, anti-terrorism and extremism, and security and reconstruction in Afghanistan. However, there is a big difference between India and Pakistan in the choice of objects, ways and methods to solve these problems.
7) India and Pakistan's intentions to develop relations with Central Asian countries are not exactly the same, but they have a certain connection. As far as Central Asia is concerned, India uses the concept of "extended neighbour" and considers itself as a neighbor, even though it has no common borders with Central Asian countries. From a geographical point of view, this also makes sense, because Central Asia and Kashmir are only 20 kilometers away. India's intention is to obtain security, resources and geopolitics from Central Asia. This view is also confirmed in the Annual Report (2016-2017) of Ministry of Defence of India, which states that "India's interests in Central Asia are based on its geostrategic location, presence of abundant energy and natural resources as well as age-old historical and cultural ties. The region continues to be targeted by radical terrorist groups that seek to undermine the secular regimes. The International North South Trade Corridor which India, Iran and Russia are working to develop could enable viable trade and economic linkages with the region. India is also a stake holder in the TAPI pipeline as well as other initiatives such as digital links to foster connectivity" [17, p.5]. But to date, India and Central Asia are most closely linked on security issues. The development of Pakistan's relations with Central Asian countries is mainly based on two considerations: first, economic reasons, and second, strategic competition with India [18].

In general, neither India nor Pakistan has not invested heavily in Central Asia and has no particularly close partners. Although India has considered the impact of Central Asia as a back region of Pakistan in its strategy, it has not formed policies and its investments are far from sufficient to support this purpose. Therefore, it is not yet possible to say that Central Asia is an area where India and Pakistan strategically compete. India and Pakistan will not have serious disputes over the SCO's issues involving Central Asia. On the issue of Afghanistan's security and reconstruction, there can be a certain degree of cooperation between India and Pakistan with some disagreements. On other issues of the SCO, India and Pakistan will have different impacts on different countries in Central Asia, but this impact will not be very significant.

We believe that it should not be preconceived that India will stand on Russia's side on all SCO's issues and Pakistan will stand on China's side. This view presupposes that China-Russia relations are competitive within the SCO and ignores the comprehensive strategic partnership between China and Russia. It is wrong to presuppose a "sub-alliance", similar to Russia-India or China-Pakistan, within the SCO, which is not conducive to the development of the SCO. The China-Russia comprehensive strategic partnership is the cornerstone of SCO, which should not be shaken. Joining of India and Pakistan in the SCO should be considered more from a positive perspective and the expansion of the members should become an active factor for SCO to play a greater role in the international community.

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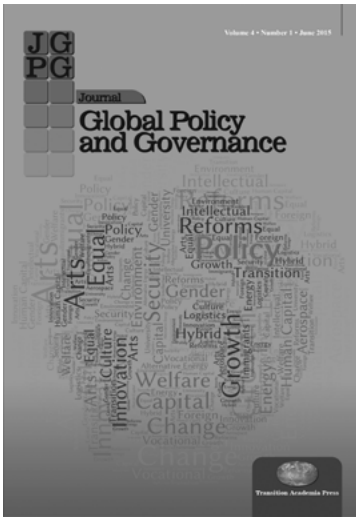

Journal of Global Policy and Governance
Aims and scope

Global governance is a challenge of our era and us as human beings no matter where we live and what values we believe in. After a 100 years of development, international relations are so closely and tightly knit. A problem in a community might affect the life of the people in a remote part of the world and its solution might also be in the hands of these people but can't be assumed outside the more global International Relations theories and practices approach, an interrelated already practiced at every policy decision making, economic and financial levels and first of all by the main powers. How can we manage this complex of various relations matters for our life and common future? It is the time for us to invest our wisdom and energy to make global governance work now and to give a sense to the United Nations already reduced to a zero-sum-game playing on the major emergencies and conflicts due first of all to the obsolete veto system that would be at least extended to all the 15 countries of the Security Council, being them permanent or at rotation, with the weighting of votes bringing less hypocrite the present five Jalta powers partition already 70 years ago. We are talking of the world not existing anymore.

There is no simple way and framework for global governance. Global governance is a general term which means to think globally and act globally. It is complicated because problems might be local. It is complicated because problems might be also global. It is complicated because the solution of problems might be local but also in a global framework global. That is why we need to check issues case by case carefully. We need to sort out what solution is the best choice for the problem. We need to identify who should be the persons of good will taking the challenge and adding their

intellectual and scientific capabilities to the human destiny. We have to take an action worldwide. Global issues are definitely the subjects of global governance. Meanwhile, global governance takes care of issues with local reasons and local solution because we believe the experience might be helpful for people living in other parts of the world. Interdependence of International Relations with finance, economy, technology, research and advanced knowledge until a few years ago unimaginable, new military might introduced by innovation must be some of the crucial challenges, where also our Journal Global Policy and Governance intends to contribute opening its pages, issue after issue, to faculty, experts, testimonies, articles and relevant review of books, junior researches working papers. But we know also that traditional conflicts would not have any perspective in the medium term and will bring to the defeat of the ones who are imagining a return to the past.

We intend to embrace and reach all the possible interested colleagues and fellows around the world, as choices and strategies in all the sectors involving public and private governance, nobody excluded, are under questioning and innovative evaluation. Global world is not anymore a provocative statement, a kind of utopian return to realism and the theories dominant up to the German reunification, the end of Soviet Union and the war in the Balkans have now become obsolete by definition.

Middle East, Black Sea, Eurasia, Ukraine, Baltic, Turkey have the capability to reshape the future. Even if they are now in the middle of the fire, soon the devastations and impressive mass killings will be overcome and reconstruction taking the lead in many of these countries.

But why not underline the successful 30 years development and growth of China, a unique case in the last 500 years. China is the third world power, after European Union and USA, and has now similar problems we have encountered and are still facing nowadays, needs to find a political solution to reforming and giving voice to an accountability to its almost 1 billion 500 million inhabitants.

We really have to rethink the International Relations and the theories of Global Governance and Policy Choices, accepting the pluralities of institutional architectures and ways to give voice and accountability to the citizens. The European Union represents a “non Statehood” institutional governance, without even a Constitution and the Sovereignty belonging to the member countries. Do you believe the EU will change its architecture established by the Treaty of Rome in the future? This is an illusion of the antagonists of the different strategies and policies that were adopted right up to the Euro and the high welfare and technologic standards already achieved, even in the face of a crisis on 2008 that from the Atlantic arrived to Europe three years later and is now affecting East Asia. By 2020 we will be out of this tunnel everywhere in the world. To add a valuable contribution to this scientific debate is our very aim and scope.

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