

ЭКОНОМИКА И УПРАВЛЕНИЕ НАРОДНЫМ ХОЗЯЙСТВОМ

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THE INFLUENCING FACTORS IN THE BUSINESS ENVIRONMENT OF THE VISEGRÁD GROUP IN THE LAST TEN YEARS AND THEIR COMPARISON TO RUSSIA'S EXPERIENCE¹

Objective: examination of development of the business environment in the Central and Eastern European Visegrád Group /Czech Republic, Slovak Republic, Poland and Hungary/ in the last ten years, 2004–2014, by determining its influencing factors, and comparison of the results with the experience of the Russian Federation.

Methods: approximation of the business environment with the help of five business-entity oriented indicators and analysis of relationship between them and their influencing factors, i.e. areas of competitiveness in the definition of the Heritage Foundation, based on correlation analysis, time series co-integration model and a specific panel co-integration model.

Research results: the characteristic feature of the business environment in the Visegrád Group was adapting to integration into regional and global value chains. The main influencing factors of these changes were fiscal, trade and investment freedoms, to a lesser extent – freedom from corruption, as well as membership in the European Union. The development in the Russian Federation was focused on concentration of business activities improving all indicators of the business environment and being caused by third factors.

Scientific novelty: first major complex study on the business environment in the Visegrád Group and in Russia, published in the Russian Federation.

Practical value: better insight in the development of the business environment in the Central and Eastern European economies and in Russia, which can be used in macroeconomic policies of the Russian Federation.

Key words: business environment; influencing factors; Central and Eastern Europe; Visegrád Group; Russian Federation.

Introduction

Creation of a competitive and efficient business environment is one of the long-term priorities of the government of the Russian Federation (RF), aimed at acceleration of economic growth [1]. The objective of this paper is to examine the development of business environment in the Central and Eastern European (CEE)²

Visegrád Group / Czech Republic, Slovak Republic, Poland and Hungary/³ in the last ten years, 2004–2014, by determining its influencing factors, and to compare the results to Russia's experience, in order to derive possible recommendations for the RF, under two hypotheses: (H1) post-socialist economies show common patterns in business environment, so their experience is shareable and (H2) membership in the European Union (EU) is

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² The CEE region is separated from the Eastern Europe in this study.

³ Economies of the Visegrád countries are considered to be significantly similar, hence all four countries are studied as one group / panel dataset.

important for business environment in the Visegrád Group, so recommendations for the RF have to be corrected for the EU aspect.

The following simple model is considered, see the relationship (1):

$$\text{Business environment} = g(\text{influencing factors}), \quad (1)$$

In this paper, the business environment is defined as a set of five indicators, as proposed by [2]: 1) business density, the total number of business entities per 1 thousand of economically active population (BD, main aspect); 2) value added per 1 business entity (VApB); 3) gross fixed capital formation per 1 business entity (GFCFpB); 4) inward foreign direct investment (FDI) stock per 1 business entity (FDIpB) and 5) exports of goods and services per 1 business entity (XpB); all indicators are based on the official data from the national statistical offices, CZSO, SOSR, CSOP, HCSO, Rosstat, UniSIS and Eurostat. The influencing factors of the business environment are approximated with the help of individual parts of the Heritage Foundation's Index of Economic Freedom (IEF, 10 domains of freedom), the longest available time-series on national competitiveness / business environment. To quantify the relationship (1), this paper employs a time series co-integration model [3, 4] and a specific panel co-integration model [5], based on Choi meta-analysis [6] and on the approach of [7]. The conclusions for the Visegrád Group are based on [2], as well as on case studies in [8–16; 19–20], and for the RF on [17–18].

Specifics of the Visegrád Group and of its business environment

The Visegrád Group (1991) unites four of the six most advanced CEE economies (other two being Slovenia and Estonia), which account for ca. 2/3 of the gross domestic product, 3/4 of industrial production, 1/2 of FDI inflows and 1/2 of population⁴ of the whole CEE region. The Visegrád countries are members of the EU since May 2004, and the Slovak Republic forms part of the Euro Area since 2009. The economies of the Visegrád Group may be characterized by a) GDP per capita in purchasing power parity of ca. 70–83 % of the EU 28 level; b) economic growth above the EU and Euro Area average (3,0 %

compared to 0,6% and 0,4 % in 2004–2014)⁵; c) relatively high specialization in selected industries (in the Czech Republic, the Slovak Republic and Hungary in the automotive industry, which generates up to 1/4 of their gross value added⁶); d) important dependence on foreign investment, especially in their export industries; e) trade surpluses and f) worsening investment income balance (according to the International Monetary Fund's BPM6), which leads to substantial current account deficits in V4 [19]. According to the surveys of the World Economic Forum and the World Bank for 2004–2014, the Visegrád countries, listed top 30s–60s in competitiveness rankings, belong among the most competitive economies in the CEE region, and are ahead of the RF by ca. 10–20 positions.

According to the findings of [2, 8–16], development of business environment in the Visegrád Group in 2004–2014 mostly corresponded to its integration into the EU and into the world economy, the regional and global value chains (GVCs), which was supported by important inflows of FDI, leading to growth in the number of business entities (BD) but not to improvement in their average productivity (VApB and GFCFpB), since foreign investors were interested in using existing comparative advantages⁷ [15–16] of the Visegrád countries and not in creating new ones (Fig. 1).

Determination of influencing factors for the Visegrád Group

The only non-spurious relationship between business environment of the Visegrád Group and the IEF indicators in 1995–2014 was the pooled panel regression between the inward FDI stock and parts of the IEF⁸, with $R^2=0.93$, $DW=1.37$ and slightly non-normally distributed residuals indicating acceptable model quality. A number of influencing factors played an important role in the integration of the four countries into GVCs even since 1995, namely: freedom from corruption (IEF2), fiscal freedom (IEF3), trade freedom (IEF8) and investment freedom (IEF10). The EU and Euro Area membership, were the other important influencing factors. Several indicators showed indirect relationship with the inward FDI stock, the interpretation of which is difficult: property rights (IEF1) and financial freedom (IEF10) (Table 1).

⁴ Calculations based on the World Bank data, 2009–2014.

⁵ Calculations based on the Eurostat data, 2015.

⁶ Calculations based on the CZSO data, 2015. By means of examples, Volkswagen, PSA and Toyota moved their assembling lines to all four Visegrád countries.

⁷ Specifically, these advantages include: a) location in the geographical centre of Europe; b) skilled labour force, less expensive than the advanced economies' average; c) the ability to adapt to changes in the world economy, as well as d) an important market of ca. 65 million people in 2014.

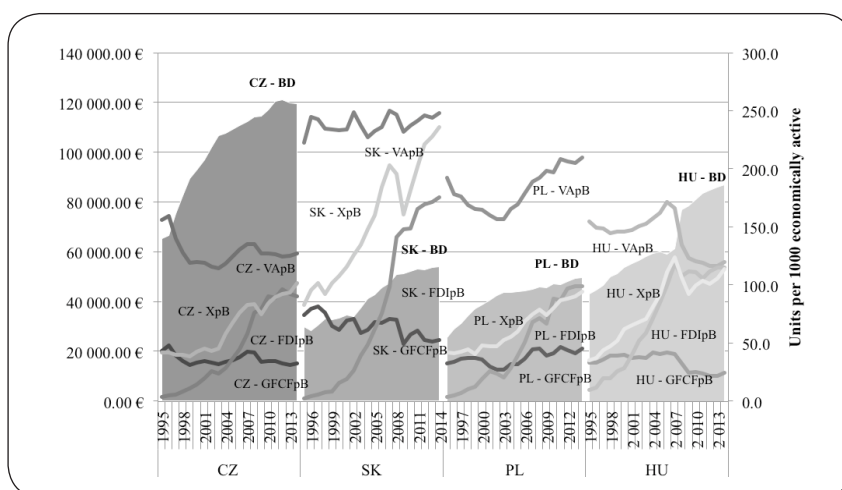


Fig. 1. Business environment in the Visegrád Group, 1995–2014 *

* Source: compiled by the author, based on the data from the CZSO, SOSR, CSOP, HCSO and Eurostat, 2015.

Table 1

Results of the panel co-integration regression model, Visegrád Group *

	Panel effects tests	Unit-root test of variables	Unit-root test of residuals	F p-value, within / pooled R ² , DW
BD	BP OK, Hausman OK	Homogeneously non-stationary	non-homogeneously stationary	$p = 3.32e-43$ $R^2 = 0.8632$ $DW = 0.9214$
VApB	BP OK, Hausman OK	Homogeneously non-stationary	non-homogeneously stationary	$p = 2.03e-33$ $R^2 = 0.4077$ $DW = 0.9479$
GFCFpB	BP OK, Hausman OK	Homogeneously non-stationary	non-homogeneously stationary	$p = 1.04e-24$ $R^2 = 0.5084$ $DW = 0.9658$
FDIpB	BP not OK, Hausman not OK	Homogeneously non-stationary	Homogeneously stationary	$p = 3.21e-36$ $R^2 = 0.9300$ $DW = 1.3944$
XpB	BP OK, Hausman OK	Homogeneously non-stationary	non-homogeneously stationary	$p = 6.53e-32$ $R^2 = 0.8416$ $DW = 0.9619$

Correlation matrix:

<i>pB</i>	<i>IEF1</i>	<i>IEF2</i>	<i>IEF3</i>	<i>IEF4</i>	<i>IEF5</i>	<i>IEF6</i>	<i>IEF7</i>	<i>IEF8</i>	<i>IEF9</i>	<i>IEF10</i>	<i>EU_D</i>	<i>EA_D</i>	<i>sq-μ</i>
<i>BD</i>	0.12	-0.22	0.45	0.49	0.02	0.08	0.65	0.44	0.26	0.65	0.36	-0.10	0.42
<i>VA</i>	0.22	0.28	-0.16	-0.57	-0.04	0.02	-0.32	-0.11	0.07	-0.32	0.03	0.43	0.30
<i>GFCF</i>	0.38	0.22	-0.26	-0.65	0.06	0.12	-0.23	-0.23	0.14	-0.09	-0.09	0.22	0.30
<i>FDI</i>	-0.24	-0.08	0.78	0.30	-0.16	0.26	0.47	0.75	0.33	0.12	0.79	0.62	0.53
<i>X</i>	0.10	0.07	0.45	-0.15	-0.01	0.24	0.20	0.43	0.39	0.05	0.53	0.67	0.38

FDIpB:

Sequential elimination using two-sided alpha = 0.10

Dropping IEF4 (p-value 0.944)

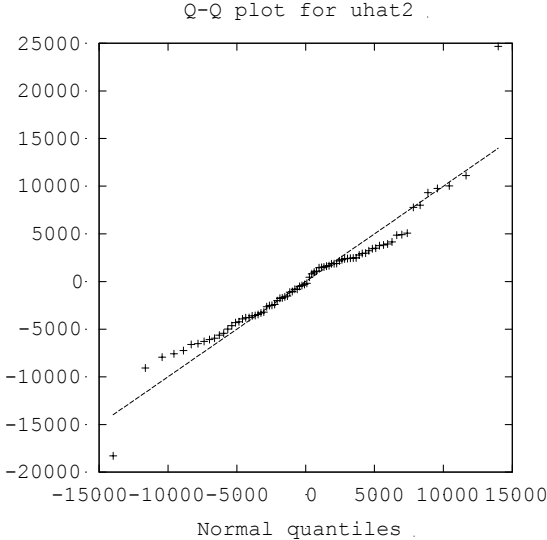
Dropping IEF7 (p-value 0.791)

Dropping IEF5 (p-value 0.373)

Dropping IEF6 (p-value 0.147)

⁸ Breusch-Pagan (BP) test and Hausman test were employed to estimate the type of panel model.

<u>Test on Model:</u>	
Null hypothesis: the regression parameters are zero for the variables	
IEF4, IEF5, IEF6, IEF7	
Test statistic: $F(4, 67) = 0.735986$, p-value 0.570686	
Omitting variables improved 3 of 3 model selection statistics.	
<u>Model: Pooled OLS, using 80 observations</u>	
Included 4 cross-sectional units	
Time-series length = 20	
coefficient std. error t-ratio p-value collinear.	

const -73737.3 11238.8 -6.561 7.42e-09 *** no	
IEF1 -329.408 104.664 -3.147 0.0024 *** no	
IEF2 206.456 122.857 1.680 0.0973 * no	
IEF3 627.673 117.446 5.344 1.05e-06 *** no	
IEF8 446.974 117.579 3.801 0.0003 *** no	
IEF9 521.181 113.523 4.591 1.86e-05 *** no	
IEF10 -156.054 63.5594 -2.455 0.0165 ** no	
EU_Dummy 14085.8 2212.97 6.365 1.68e-08 *** no	
EA_Dummy 33375.8 2772.81 12.04 8.19e-19 *** no	
Mean dependent var 27874.58 S.D. dependent var 22497.01	
Sum squared resid 2.48e+09 S.E. of regression 5905.948	
R-squared 0.938061 Adjusted R-squared 0.931082	
F(8, 71) 134.4122 P-value(F) 9.49e-40	
Log-likelihood -803.4384 Akaike criterion 1624.877	
Schwarz criterion 1646.315 Hannan-Quinn 1633.472	
rho 0.295642 Durbin-Watson 1.370585	
<p><u>Coefficient 95% confidence interval:</u> Const -73737.3 -96146.9 -51327.6 IEF1 -329.408 -538.102 -120.714 IEF2 206.456 38.515 451.426 IEF3 627.673 393.492 861.853 IEF8 446.974 212.528 681.420 IEF9 521.181 294.822 747.540 IEF10 -156.054 -282.787 -29.320 EU_Dummy 14085.8 9673.30 18498.4 EA_Dummy 33375.8 27847.0 38904.6</p> <p><u>Residuals (uhat2):</u> H0: all groups have unit root N,T = (4,19) Im-Pesaran-Shin t-bar = -3.31681 Choi meta-tests: Inverse chi-square(8) = 28.7377 [0.0004] Inverse normal test = -3.73457 [0.0001]</p>	<p>Q-Q plot for uhat2 .</p> 

* Source: compiled by the author, Gnu Regression, Econometrics and Time-series Library output.

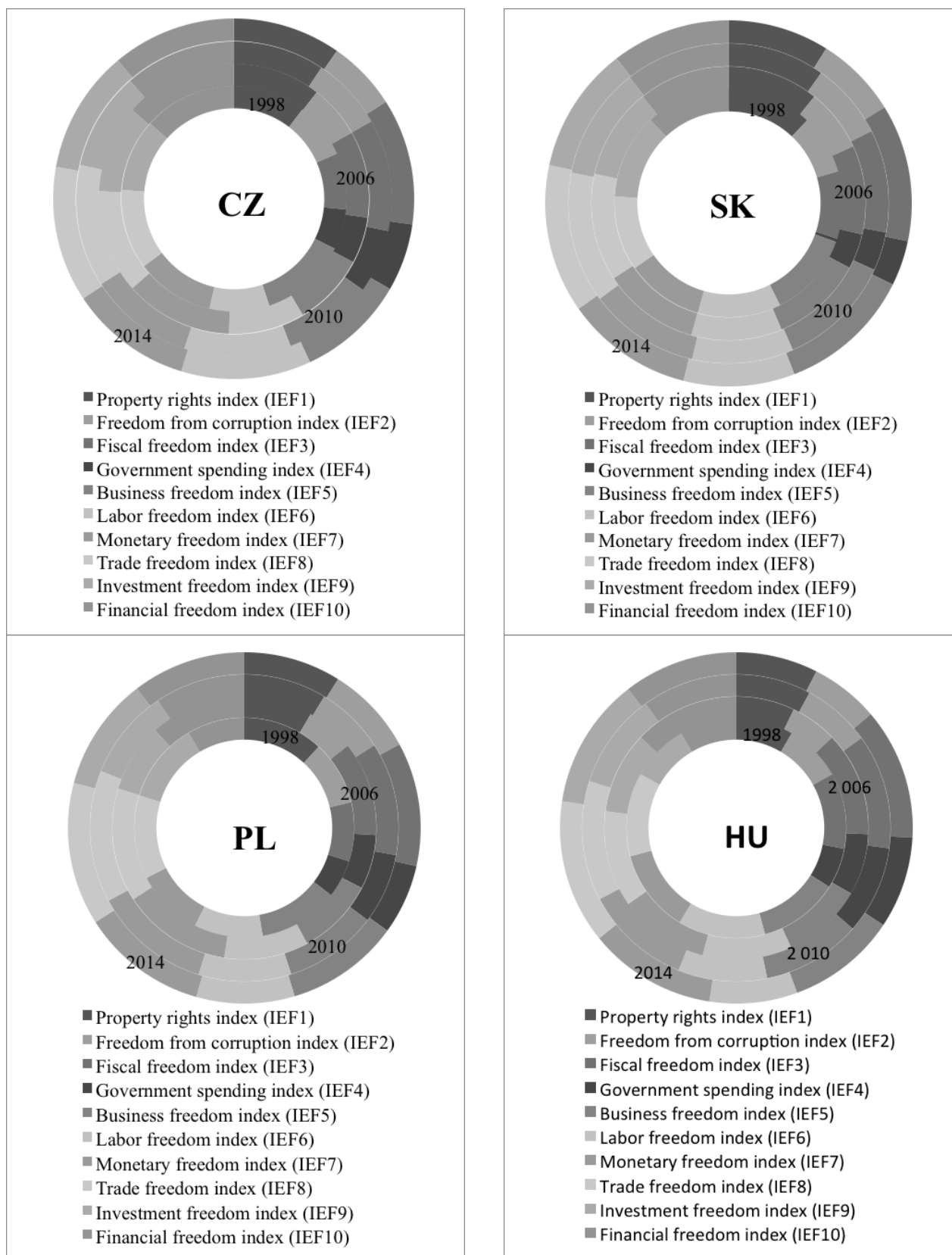


Fig. 2. Development of influencing factors in the Visegrád Group, 1995–2014 *

* Source: compiled by the author, based on the data from the Heritage Foundation published in 2015.

Differences of the Russian Federation and of its business environment

The RF, compared to the Visegrád Group, is a much bigger entity with 1) ca. 1,5 % of the world population producing ca. 2–3 % of the world GDP⁹, which is characterized by b) a lower GDP per capita, c) worse conditions for FDI attraction in relative terms (FDI stock is 24,8 % GDP against 52,6 %¹⁰) and d) a more prolonged economic transition period with an acceleration since 2000 (the RF is lagging after the

Visegrád Group by ca. 5–10 years). According to Rosstat and UniSIS data and [17–18], development of business environment in Russia in 2005–2014 / longer time series were unavailable / was characterized by continuous concentration (monopolization) of business activities (decline in BD), which lead to improvement of the other four indicators, especially the internationalization (FDI_{pB} and X_{pB}). Furthermore, the RF was mostly perceived as an end market by GVCs in 2000s [18] (Fig. 3).

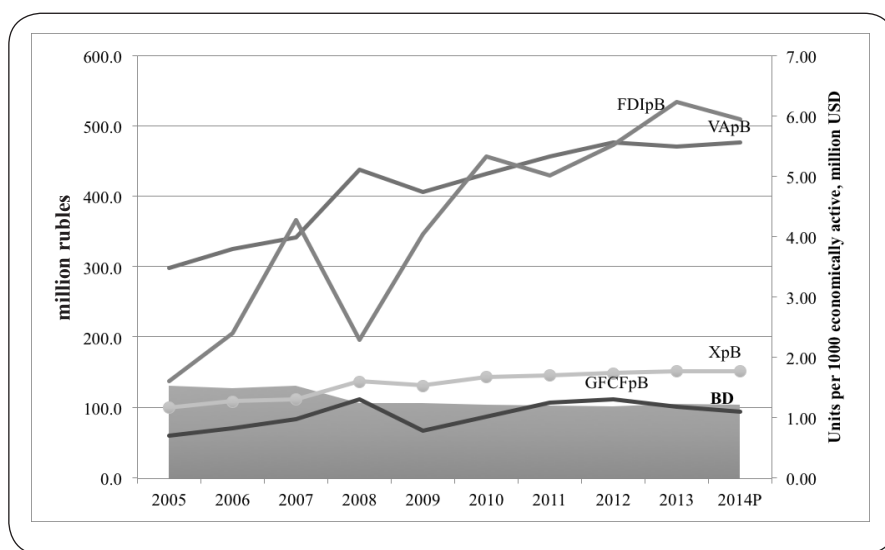


Fig. 3. Business environment in Russia, 2005–2014 *

* Source: compiled by the author, based on the available data from Rosstat and UniSIS, 2015.

Determination of the influencing factors for the Russian Federation

ADF tests revealed only spurious relationships between business environment of the RF and the IEF parts in 2003–2014¹¹ despite important correlation between individual indicators, especially in the case of property rights (IEF1), freedom from corruption (IEF2), fiscal freedom (IEF3) and

investment freedom (IEF9), which was higher than the one of the Visegrád Group in 1995–2014 and in 2004–2014. Different role of the RF (the end market for GVCs) set higher requirements for its business environment from the side of GVCs, but the five indicators and influencing factors seem to have been determined by third influences like economic transition (Table 2).

⁹ Calculations based on the World Bank data, 2009–2014.

¹⁰ Calculations based on the UN Conference on Trade and Development data, 2008–2013.

¹¹ Values for the years 2003 and 2004 were additionally extrapolated. Ordinary least squares (OLS) requires a number of observations at least equal to the number of explanatory variables + constant.

Table 2

Results of the co-integration regression model, Russia *

	Unit-root test of variables	Unit-root test of residuals	F p-value, adjusted R ² , DW
BD	non-stationary	stationary	p = 0.4846 R ² = 0.5217 DW = 2.6728
VApB	non-stationary	stationary	p = 0.6197 R ² = 0.1454 DW = 2.6728
GFCFpB	non-stationary at p-value ≤ 5%	stationary	p = 0.8991 R ² = -1.7072 DW = 2.6727
FDI _p B	non-stationary	stationary	p = 0.2093 R ² = 0.9188 DW = 2.6728
XpB	non-stationary	stationary	p = 0.5717 R ² = 0.2982 DW = 2.6728

Correlation matrix:

pB	IEF1	IEF2	IEF3	IEF4	IEF5	IEF6	IEF7	IEF8	IEF9	IEF10	sq.μ
BD	0.87	0.68	0.62	0.22	-0.19	0.35	-0.40	-0.31	0.72	-0.51	0.53
VA	-0.82	-0.64	-0.62	-0.30	0.38	-0.41	0.50	0.39	-0.81	0.47	0.56
GFCF	-0.53	-0.49	-0.62	-0.29	0.31	-0.18	0.38	0.17	-0.75	0.54	0.46
FDI	-0.87	-0.69	-0.53	-0.34	0.53	-0.53	0.46	0.70	-0.80	0.37	0.60
XpB	-0.84	-0.62	-0.60	-0.28	0.37	-0.45	0.53	0.44	-0.83	0.45	0.57

* Source: compiled by the author, Gnu Regression, Econometrics and Time-series Library output.

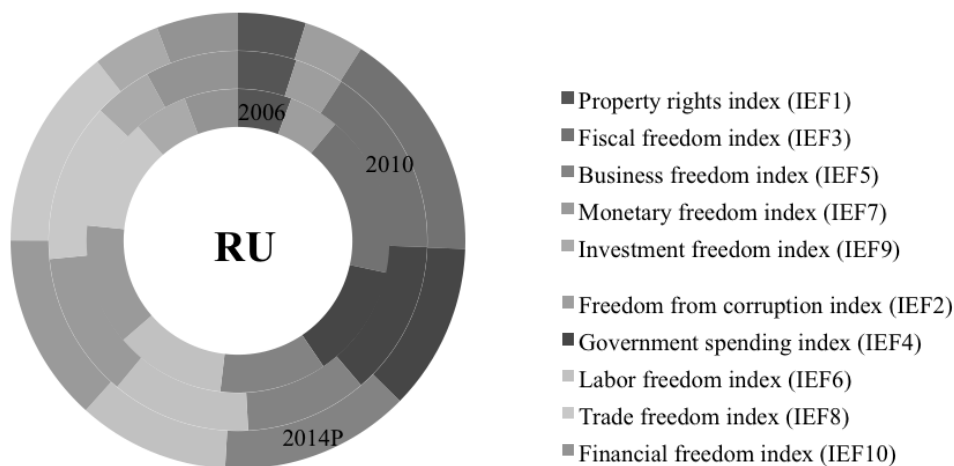


Fig. 4. Development of influencing factors in Russia, 2005–2014 *

* Source: compiled by the author, based on the data from the Heritage Foundation published in 2015.

Possible recommendations for the Russian Federation

The RF and the Visegrád Group experienced different economic development and approach of GVCs in 2004(5)–2014, which lead to differences in development of their business environment and influence factors (**H1** is rejected). Since the Visegrád Group has become more successful in terms of economic transition, among other thanks to the EU membership (**H2** is supported), it is possible to recommend for the Russian government to support deeper integration into regional (Eurasian Economic Union, EEU) and the world (GVCs) economy, based on the RF's comparative advantages, which are similar to the ones of the Visegrád Group: 1) geographical location between Europe and Asia, 2) skilled and less expensive labour force and 3) important market of more than 143 million people in 2014. This would lead to improvement in influencing factors, which were predominantly oscillating in the RF in 2005–2014 if compared with the Visegrád Group (Fig. 2 and 4).

Conclusion

The characteristic feature of the business environment in the Visegrád Group / Czech Republic, Slovak Republic, Poland and Hungary/ in the last ten years, 2004–2014, was adapting to integration into regional and global value chains (GVCs): foreign investors employed existing comparative advantages in the Visegrád Group to develop their export-orientation, but not the productivity per business. The main influencing factors of these changes were fiscal, trade and investment freedoms, to a lesser extent – freedom from corruption, as well as membership in the European Union (EU) and in the Euro Area. The development in the Russian Federation (RF) was different: concentration of business activities was taking place improving all indicators of the business environment and being caused by third factors, e.g. economic transition, since no connection between it and the influencing factors was found. Since the hypothesis **H1** was rejected and **H2** supported, the RF cannot exactly copy the experience of the Visegrád Group, but the Russian government, in order to improve business environment, can support further integration of the country into regional and the world economy (GVCs), as it was proved beneficial for smaller Central and Eastern European (CEE) post-socialist economies.

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ФАКТОРЫ ВЛИЯНИЯ В ПРЕДПРИНИМАТЕЛЬСКОЙ СРЕДЕ ВЫШЕГРАДСКОЙ ГРУППЫ В ПОСЛЕДНЕЕ ДЕСЯТИЛЕТИЕ И ИХ СРАВНЕНИЕ С РОССИЙСКИМ ОПЫТОМ

Цель: исследование развития бизнес-среды в Вышеградской группе (Чехии, Словакии, Польше и Венгрии) в течение последних десяти лет (2004–2014); определение влияющих факторов в ее развитии и сравнение результатов с опытом Российской Федерации.

Методы: аппроксимация бизнес-среды с помощью пяти бизнес-ориентированных показателей и анализ взаимосвязи между бизнес-средой и факторами влияния в определении Heritage Foundation, основанный на корреляционном анализе, коинтеграционном анализе временных рядов и специфическом коинтеграционном анализе панельных данных.

Результаты: характерной особенностью бизнес-среды в Вышеградской группе была адаптация к интеграции в региональные и глобальные цепочки создания добавленной стоимости. Основными факторами влияния при этом являлись фискальные, торговые и инвестиционные свободы, в меньшей степени – свобода от коррупции, а также членство в Европейском Союзе. Развитие в Российской Федерации было направлено на концентрацию (монополизацию), что приводило к улучшению относительных показателей бизнес-среды и было вызвано третьими факторами.

Научная новизна: первое крупное комплексное исследование бизнес-среды Вышеградской группы и Российской Федерации.

Практическая ценность: более глубокое понимание развития бизнес-среды в Центральной Восточной Европы и в России, которое может быть использовано в макроэкономической политике Российской Федерации.

Ключевые слова: бизнес-среда; факторы влияния; Центральная и Восточная Европа; Вышеградская группа; Российская Федерация.

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