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The Role of the Level of Development, Geographical Factors, and Culture for the Efficacy of Economic Freedom

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Abstract: *There are many studies focused on the role of economic freedom in creating conditions supportive for economic growth. Most of the recommendations in this area are based on the observations of the highly developed countries. But is it reasonable to generalize these findings to other countries, independently from their conditions? Contemporarily, the number of the research conducted for the countries outside the world's forefront is growing. Results are varied – some elements of economic freedom seem to be effective unconditionally, some of them bring different results. The aim of the paper is to examine the role of such factors as a stage of economic development, geographical location, and culture in the context of the efficacy of economic freedom. The study was conducted with usage of regression models for panel data and based on the indicators connected with economic freedom and economic growth.*

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Introduction

A discussion on the optimal level of public regulation has a long history among the economists. Many researchers indicate economic freedom as important determinant of achieving a high level of welfare. But, not all research bring the same results – it is still questionable which elements of economic freedom are important and whether economic freedom is required in all spheres of economy and works for each country. Most of the research are usually based on the highly developed countries. Western world however has its specific, as a result of the history, culture, geographical conditions etc. The question that can be raised is if the results true for western developed countries are also true for the rest of the world. The aim of the paper isn't set that widely. The research is focused on the diversification of the results of analysing the impact of economic freedom on GDP pc when the level of domestic product, geographical location and culture are taken into account. The purpose of the research is to examine the role of such factors as a stage of economic development, geographical location, and culture in the context of the efficacy of economic freedom. The study was conducted with usage of regression models with fixed effect for 178 countries in period 1995–2015. The indicators used in the analysis are the Index of Economic Freedom elaborated by Heritage Foundation and GDP pc (data form International Monetary Fund). Countries were analysed in three cross sections: economic (the level of GDP pc), geographical location (continent), and cultural (on the basis of Huntington's classification known as "the clash of the civilization theory").

Literature Review

Economic freedom is one of the aspects considered as a resource of the socio-economic welfare. Studies on the capability of provision of the most effective solutions by market mechanism have accompanied economics from the beginnings, but also advocates of the public intervention have important place in the history of economic thought. It is possible to speak about market mechanism, when there are settled rules of exchange, communication, transferring of property rights, establishing the means of payment. Otherwise, making rational decisions wouldn't be possible. From the other side, the state is considered as the one responsible for delivering an institutional order (Stankiewicz, 2005). Both regulators – market mechanism and state – are burdened with imperfections, and optimal level of public regulation is still under consideration of the economists.

Provision of empirical evidence for theories needs concrete measures of the phenomenon – in case of economic freedom such attempts began in the 80s. Earlier efforts in measuring freedom were concentrated on political and human rights rather than on economic liberty. Economic aspects in measuring of freedom appeared in studies published in 1982 and were provided by L. M. Wright in collaboration with Freedom House in the form of indicator of property rights (Wright, 1982, pp. 51-90; Leblang, 1996, pp. 5-26). The possibilities of measurement of economic freedom were also the subject of the public debate since 1984, when the meeting of Mont Pelerin Society (the society founded by F. A. von Hayek) took place in Cambridge (Kondratowicz, 2013, p. 29). Contemporarily, the most popular and complex indicators for measuring economic freedom are: Economic Freedom of the World – EFW (by Fraser Institute), and Index of Economic Freedom – IEF (by Heritage Foundation). The fist one is based on 5 main components (Size of Government: Expenditures, Taxes, and Enterprises, Legal Structure and Security of Property Rights, Access to Sound Money, Freedom to Trade Internationally, Regulation of Credit, Labor, and Business), and is published since 1996, currently for almost 150 countries (Gwartney *et al.*, 2014). The second one covers 4 main areas (Rule of Law, Limited Government, Regulatory Efficiency, Open Markets), and is available for over 180 countries since 1995 (Miller & Kim, 2015). Accept of EFW and IEF there are also such measures as Doing Business (published by World Bank), Product Market Regulation Index (included in OECD statistics), some elements of economic freedom (mainly connected with property rights, and barriers for entrepreneurship) are also present in other measures of institutions, quality of governance, in so called coordination indices developed under theories of varieties of capitalism (Hall & Gingerich, 2009, pp. 449-482; Zielenkiewicz, 2014, pp. 21-37), in measures connected with competitiveness, innovations (e.g. Global Competitiveness Index, Global Innovation Index) or knowledge based economy (Balcerzak, 2009, pp. 713-742).

Simultaneously with works on developing the measures of economic freedom publications with empirical evidences appeared. J. C. Hall and R. A. Larson (2014, pp. 1-19) made wide meta-analysis of over 400 research based on EFW. As authors conclude, from 198 articles, where EWF was an independent variable, "over two-thirds of these studies found economic freedom to correspond to a "good" outcome such as faster growth, better living standards, more happiness, etc. Less than 4% of the sample found economic freedom to be associated with a "bad" outcome, such as increased income inequality". In 28% of cases results were mixed (Hall & Larson, 2014, pp. 1-19).

In the research, where Granger causality test was used, results show that elements of economic freedom are usually causal for economic outcomes (e.g. Far, Lord, & Wolfenbarger, 1998, pp. 247-262; Vega-Gordillo & Alvarez-Arce, 2003, pp. 199-215, Piątek *et al*., 2013, pp. 267-288). However, results are often diverse for different areas of economic freedom in terms of significance and even direction of relationship (Sturm & De Haan, 2000, pp. 215-241; Carlsson & Lundström 2002, pp. 335-344; Dawson, 2003, pp. 479-495; Berggren, 2003, pp. 193-212).

An important issue connected with research on impact of economic freedom on economies' prosperity is that earlier studies are usually focused on western, developed countries, so results may be biased and not necessary true for the countries in other conditions. D. Rodrik, A. Subramanian, and F. Trebbi (2002, pp. 131-165) claim that the impact of institutions has primacy to geopolitical factors for economic growth. While the level of economic freedom is an element of institutional framework, the question about independency of the effects of economic freedom from factors connected with geography and political conditions can arise. Historically, geographical issues played an important role: such factors as coastal location, climate, natural resources had an impact on development of cities and countries. Contemporarily, transport system and agricultural technologies are developed, sources of comparative advantages have changed, but does it mean that geographical factors don't matter anymore? There are still the issues connected with costs, availability of technologies, and proximity of developed countries (Sachs, 1995).

Another important factor is the culture. A wide research on the determinants of government performance was published by team from Harvard University and The University of Chicago. Authors conclude: "These results present clear evidence of systematic influence of historical circumstances, as captured by ethnolinguistic heterogeneity, legal origins, and religion, on government performance. Governmental performance is surely in part determined by economic development, but it is also shaped by systematic variation in the histories of individual countries." (La Porta *et al*., 1999, pp. 222-279)

As measures of economic freedom became available for more and more countries, it is possible to verify results with taking into account different circumstances. Recent years brought an increase of the research based on data from countries other than the "world's forefront". Some results suggest the great impact of the factors other than institutional framework. E. g. studies conducted for economies in transition show that initial conditions matter and are more important than regulation changes (Heybey & Murrell, 1999, pp. 121-137). Regression analysis conducted by M. Brycz (2013, pp.

211-232) for the European Union shows some diversity of results between old and new member states as regards to property rights – in the second group the relation was negative, which can be a result of mistakes in privatization as well as of some benefits that less innovative countries can get from not respecting intellectual property. Similar benefits can be observed also in case of so called Asian Tigers. From static point of view such countries might not have reasons for applying property rights. But in long term the problem of "middle-income trap" may appear. The research conducted for developing and transition countries with usage of Bertelsmann Stiftung Transformation Index shows that property rights change the statistical importance and direction of relationship with economic growth dependently on the level of development (Zielenkiewicz, 2015). Summing up, the results of previous studies justify analysing economic freedom with taking into account factors such as the level of development, culture or geographical aspects.

Method of the Research

The research was conducted for 178 countries on the basis of the Index of Economic Freedom (IEF) developed by Heritage Foundation, and data published by International Monetary Fund and World Bank. The analysis covers years 1995–2015 (the period where data were available). The evaluation of economic performance (to measure the effects of economic freedom) was based on GDP per capita. The aim of the research was to verify whether the relationship between different areas of economic freedom and the level of income depends (in terms of its direction and importance) on factors connected with the level of GDP pc, geographical location, and culture. For this purpose, firstly, the countries were analysed together (in order to check general relationships), and then were divided into groups on the basis of the following criteria:

- the level of GDP pc;
- continent where the country is located;
- culture (with usage of Huntington's classification).

The analysis conducted for groups of countries was focused on the models' appropriateness (in order to test whether the variability of characteristics do explain variability of GDP's level, when factors listed above are taken into account), statistical importance of the variables, and the direction of the relationship. Data were analysed with usage of linear models of regression with fixed effect:

$$Y_{it} = \beta X_{it} + \alpha_i + \varepsilon_{it},\ i = 1,\ldots,n,$$

where:
Y_{it} – explained variables (GDP per capita),
β – vector parameter,
X_{it} – matrix of explanatory variables (ten components of IEF),
α_i – time-invariant component,
ε_{it} - idiosyncratic error,
n – number of countries.

Fixed effect allows to remove the effect of assumed time-invariant characteristics from the predictor variables and to assess the predictors' net effect, when each entity (in this case – a country) has its own individual characteristics that may have impact on the predictor variables (Cameron, Trivedi, 2010, pp. 237-238). The choice between models with random and fixed effects was based on the Hausman test.

The GDP used in the research is the GDP based on purchasing-power-parity per capita in current international dollar published by IMF. It is important to mention that in the case of poorer countries, the quality of the data is always a questionable issue (often GDP isn't calculated precisely, but only estimated by the government or statistical institutions), therefore a risk of some bias in the results exists.

The Index of Economic Freedom used in the research was elaborated by Heritage Foundation and published for first time in 1995. The index covers ten components divided into four groups presented in the table 1. For each category countries are evaluated in range from 0 to 100, where 0 means lack of freedom, and 100 full freedom. The original version of IEF didn't include Labor Freedom – it appeared as a component of IEF in 2005.

Table 1. Construction of Index of Economic Freedom

Index of Economic Freedom	**Rule of Law**	Property Rights (PR) Freedom from Corruption (FC)
	Limited Government	Fiscal Freedom (FisF) Government Spending (GS)
	Regulatory Efficiency	Business Freedom (BF) Monetary Freedom (MF) Labour Freedom (LF)
	Open Markets	Trade Freedom (TF) Investment Freedom (IF) Financial Freedom (FinF)

Source: Heritage Foundation.

Additional explanation is needed in case of Government Spending. This component is based on the level of government expenditures (including consumption and transfers) as a percentage of GDP, and inverted, so the higher level of government expenditures results as the lower level of the index. However, zero does not mean that there is no private consumption in the economy, because expenditures (GE) are corrected with accordance to the formula: $GEi = 100 - \alpha\ (Expenditures i)^2$, where α is a coefficient to control for variation among scores (set by Heritage Foundation at 0,03). Therefore GS = 0 means that government expenditures exceeded the level of about 57 percentage of GDP (Heritage Foundation, 2015).

IEF was chosen due to its complexity (it contains 10 areas of economic freedom), relatively long period of calculations (index is available since 1995), and availability for many countries (nowadays it is published for 186 countries; not for all of them GDP was available, so number of countries in the research is 178).

Regression Analysis of the Relationship Between Components of IEF and GDP

Table 2 shows the results of estimation for models (coefficients, standard errors, and statistical importance of the variables) without dividing countries into any groups.

The first model includes all variables, the second one only these which are statistically important. In both cases coefficients of determination (R^2) are similar and suggest that approximately 40% of variability of GDP pc can be explained by variability of the level of economic freedom. The factors that occurred as statistically unimportant are: Property Rights, Government Spending, and Financial Freedom. With the exception of Monetary and Labor Freedom, the components of IEF are positively related with GDP pc. The highest coefficient among positively related variables can be noticed in case of Fiscal Freedom, and – at the second place – Trade Freedom. These two factors, as well as Business Freedom and Freedom from Corruption are usually positively correlated with economic growth, independently from the diversity of the countries.

Table 2. Regression models for IEF and GDP

Independent var.	Model 1: Coef. (Std. Err.)	Model 2: Coef. (Std. Err.)
PR	2.681578 (12.46837)	-
FC	23.74547 (12.34623) **	25.78491 (12.04522) **
FisF	61.93711 (13.47664) ***	59.76883 (13.3283) ***
GS	-9.813207 (5.751014) *	-
BF	44.43339 (8.815595) ***	43.79326 (8.76593) ***
LF	-18.43322 (8.899011) **	-18.53914 (8.686303) **
MF	-49.28179 (10.56115) ***	-50.44567 (10.4597) ***
TF	54.53139 (8.799615) ***	53.88342 (8.749685) ***
IF	46.89536 (6.706558) ***	48.35401 (6.63164) ***
FinF	5.61115 (8.700471)	-
Const.	4599.384 (1601.471) ***	4545.579 (1505.092) ***
Number of observ.	**1842**	**1845**
Number of countries	**177**	**178**
R^2	**42.55%**	**39.72%**
Test-F	**26.22*** **	**37.01*** **
F test that all u_i=0	**189.31*** **	**191.20*** **
Effect	**Fixed**	**Fixed**

*** p < 0,01; ** p < 0,05; * p < 0,1

Source: own study.

Tables 3-5 contain results (direction of relationship, statistical importance of variables, measures of goodness of fit) of the analysis for countries divided into groups by income (Table 3), continent (Table 4), and culture (Table 5). The models are again with fixed effects.

In order to test whether the results are going to change when the level of domestic income is taken into account, countries were divided into groups dependently on the level of GDP pc. The most popular classifications of countries in terms of development come from World Bank, International Monetary Fund, and United Nations (Nielsen, pp. 7-18). World Bank recognizes four main groups: Low income ($1,035 or less); Lower middle income ($1,036 to $4,085); Upper middle income ($4,086 to $12,615); High income ($12,616 or more). UN's classification is based on Human Development Index and divides countries also into four groups: low-, medium-, high-, and very high-human development. IMF uses main division on Advanced economies (Euro area, Major advanced economies (G7), Other advanced economies (Advanced economies excluding G7 and euro area), European Union) and Emerging market and developing economies (Commonwealth of Independent States, Emerging and developing Asia, Emerging and developing Europe, Latin America and the Caribbean, Middle East, North Africa, Afghanistan, and Pakistan, Sub-Saharan Africa). Because the

analysis is based on other unit than classifications mentioned above, and due to the comparison of results for different versions of division, countries were divided into six groups by GDP pc. In case of countries in the range from $1000 to $2000 there are two models presented – the first one with all variables which occurred as statistically important, and the second one without these variables where probability was under 0,1 and with higher R^2.

Table 3. Results of regression analysis in groups by income

GDP pc[1] (1995)	+	-	Obs.	N	R^2	F-stat./ F for all u_i=0
<1000	FC*** MF* TF* FinF***		565	32	0.02%	14.05*** 123.76***
1000-2000	FC*** FisF*** LF* TF*** FinF*	PR***	306	29	15,77%	18.79*** 46.41***
	FC*** FisF *** TF***	PR***	540	29	23,69%	86.44*** 24.91***
2000-4000	FC* FisF *** BF*** LF** TF*** IF***	PR*** GS*** FinF**	314	31	23,05%	28.15*** 83.98***
4000-7000	FC** FisF *** MF*** TF***	GS***	458	27	33,11%	86.27*** 16.34***
7000-15000	FC*** FisF *** BF*** TF*** IF***	PR*** GS**	455	24	6,87%	66.37*** 42.06***
15000-30000	FisF *** BF*** TF*** IF*** FinF ***		614	30	27,92%	127.18*** 31.69***

*** p < 0,01; ** p < 0,05; * p < 0,1

[1] PPP, in current international dollar (IMF)

Source: own study.

As can be seen in Table 3, the coefficients of determinations are relatively low, but also diverse. In case of countries with GDP pc below $1000, the variability of GDP cannot be explained by variability of IEF's components. In this group, such results were predictable: these often are countries in conflicts, located in hard climate, with large mortality rate, diseases, and hunger burden, without access to the basic sanitation and clean water. A bias due to the quality of data in case of the poorest countries also cannot be ruled out. The highest level of R^2 (33,11%) can be observed in the $4000-$7000 group, which isn't a robust result. Thus, what can be seen is that direction of the relationship of some variables and their statistical importance change across groups. Property Rights, and Government Spending in three groups appear as negatively related, Financial Freedom – in one case ($2000-$4000). In all groups, a statistically important and positively related element of economic freedom is Trade Freedom. As relatively independent from the level of income can be also considered Freedom from Corruption and Fiscal Freedom (positive relation in five groups).

Table 4. Results of regression analysis in groups by continent

Continent	+	-	Obs.	N	R^2	F-stat./ F for all u_i=0
Africa	FisF*** TF*** FinF**	PR***	935	52	0,00%	44.13*** 187.05***
Latin+South America	FC*** TF***	PR*** GS*** FinF ***	554	29	5,54%	91.72*** 102.47***
Asia	FisF *** IF* FinF ***	PR *** MF**	864	46	3,73%	25.37*** 111.96***
Europe	FisF *** GS*** BF*** TF*** IF***	FC***	762	39	0,45%	128.87*** 74.67***
Oceania	FisF *** BF*** IF**	LF**	82	10	38,85%	8.16*** 125.08***

*** p < 0,01; ** p < 0,05; * p < 0,1

Source: own study.

For the analysis of geographical location simple continental classification was used. It is more common to divide Africa onto at least two parts: northern and southern, but in groups based on culture such a division was

made, hence groups would be duplicated. North America was omitted because of too low number of countries to perform the analysis.

According to the results (Table 4), only in the case of Oceania R^2 was nearly 40%, in other cases models based on IEF do not explain the variability of GDP. That means that other factors must play role, and IEF is not a good descriptor of changes of income, when countries are analysed in respect of location.

Table 5. Results of regression analysis in groups by culture

Culture	+	-	Obs.	N	R^2	F-stat./ F for all u_i=0
African	FC*** FisF *** GS** LF* TF* IF*	PR** BF*	433	41	1,25%	7.80*** 476.61***
Islamic	PR *** FC** FisF ** BF*** IF***	LF** MF**	347	34	36,50%	10.37*** 154.79***
Latin	FC*** TF***	PR*** GS***	493	26	3,56%	103.29*** 101.60***
Orthodox	FC* BF*** MF*** TF***	PR*** GS** IF** FinF**	255	14	17,08%	37.47*** 73.01***
Sinic/ Hindu/ Buddhist	FisF *** TF***	PR*** MF**	332	17	31,58%	15.59*** 36.82***
Western	FisF *** BF*** TF*** IF***		642	32	15,81%	265.43*** 127.52***

*** $p < 0,01$; ** $p < 0,05$; * $p < 0,1$

Source: own study.

The analysis based on culture (Table 5) refers to Huntington's classification of civilizations (Huntington, 1993, pp. 22-49), related to cultural identity (mainly religion). Countries are not internally homogeneous in this respect, but were classified due to the majority present in the countries and historical background. African culture covers Southern, Middle, and Eastern Africa. Islamic culture include countries of Northern Africa, Middle

East, Southwestern continental Asia, and Asian islands at the South. Latin civilization refers to Central and South America. Orthodox group includes mainly the former Soviet Union, the former Yugoslavia (without Croatia and Slovenia), and also Bulgaria, Romania, Greece, and Cyprus. The Eastern culture in Huntington's classification is differentiated: Japan is considered separately; Sinic civilization describes mainly China, but also Singapore, Taiwan, both Koreas, and Vietnam; Hindu group besides India also contains Nepal, and partly Bhutan; Buddhist countries are: partly Bhutan, Cambodia, Laos, Mongolia, Myanmar (Burma), Sri Lanka, Thailand (also Tibet which is not included in public statistics due to Chinese occupation). In the analysis, those groups were taken as one. The Western world includes mainly North America, Australia and Oceania, and most of Europe.

The coefficients of determination are the highest in the case of Islamic (36,5%) and Sinic/Hindu/Buddhist group (31,58%), which means that in these groups the impact of economic freedom on income's variability is noticeable. In other cases, again factors other than IEF must be more important. Trade Freedom seems to be the most independent from cultural circumstances factor – it is positively related with GDP pc and statistically important in five groups. Similarly – Freedom of Corruption and Fiscal Freedom in four groups. Business Freedom and Investment Freedom are rather positively related, with an exception of one group in case of each of the indicators, where the relation was negative, but with low statistical importance. Property Rights appear as negatively related in four group, and positively related in one case (Islamic culture). Mixed results can be observed in case of Government Spending (positive relationship in one group, negative in two groups), Labor Freedom (positive – one, negative – one), Monetary Freedom (positive – one, negative – two). Financial Freedom was statistically important only in one group.

Conclusions

The research conducted in the paper does not allow for rejecting the hypothesis that the analysis of the influence of economic freedom on countries' economic performance requires to consider also factors such as the geographical, cultural and related to the level of development circumstances. When countries are analysed in sections related to these factors, models based solely on components of the Index of Economic Freedom most often poorly explain the variability of the countries' economic outcome. Some of the elements of economic freedom seem to work regardless of the circumstances of the countries – that is freedom connected with trade, fiscal policy

and control of corruption. But results for other areas of economic freedom are mixed. Such results are in line also with the observations of other researchers who indicate the importance of a number of components in the selecting of the model of public regulation. The study presented in the paper is preliminary. Institutional changes often bring effects many years after the implementation, which requires an analysis of the lag effect. This is going to be examined in the future research. The future research are also going to be expanded to include other aspects associated with affecting the effects of changing the level of economic freedom.

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