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Globalization and Human Development in Post-Transition Countries: Empirical Evidence from Panel Data[**]

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Abstract: *In this paper we investigate empirically the relationship between globalization and human development in post-transition countries using annual panel data for the 1971-2010 period. We show that there exists a positive and statistically significant relationship between globalization and human development in the case of unconditional regressions. This relationship remains positive and significant once the process of European and regional integration is controlled for. However, when differences in the level of economic development are taken into account the globalization variable loses its statistical significance.*

Introduction

The consequences of globalization have long been a subject of interest to scholars, policy makers, politicians and even the general public (Collier & Gunning, 2008). Traditionally, the impact of globalization on economic efficiency, growth and income convergence attracted the most attention in the economic literature (Garrett, 2000; Nyahoho, 2001; Dreher, 2006). For example, it has been argued that globalization enhances productive efficiency and brings prosperity for liberalizing countries. Although, wages of the unskilled workers may fall, especially in the developed countries, globalization encourages acquisition of new skills and this may create positive externalities of the rest of the society (Grennes, 2003).

Moreover, globalization facilitates the spread of industrialization into developing countries and thus reduces global income inequality (Firebaugh & Goesling, 2004). Additionally, economic globalization was found to be effective in increasing productivity and institutional building of a society which leads to faster economic growth (Urata & Yokota, 1994, Rodrik *et al.* 2004). Even though economists point out the shortcomings of the current form of globalization and suggest some better options, they ultimately tend to favour globalization (Dreher, 2006). However, other social scientists who are non-economists generally tend to oppose globalization as they expect the social costs associated with globalization exceed its benefits.

Although it is clear that income is an important determinant of the standard of living, other aspects of the quality of life, such as health and education, are important as well (Stiglitz, 2006). Several articles in the sociological literature framing the theoretical linkage between globalization and human quality of life (QOL) by Sirgy *et al.* (2004) and empirical tests of some of these linkages by Tsai (2007) and Sapkota (2011) find that globalization has both positive and negative effects on human QOL in the context of developing countries. Although the aforementioned studies have attempted to investigate the effects of globalization on human and social aspects of development, their efforts are still quite preliminary and those aspects should receive further theoretical and empirical attention.

In particular, this applies to the case of the post-transition Central and Eastern European countries and the successor states of the former Soviet Union, where the formal empirical evidence on the overall relationship between globalization and human development is still rather limited. Recently, very few studies were devoted to studying the relationship between human development and some selected aspects of globalization in the post-transition countries. For example, Brzozowski (2013) and Goczek (2013) studied the relationship between foreign direct investment and human de-

velopment, while Cieślik *et al.* (2012, 2013) investigated the relationship between international trade and human development.

The main goal of this paper is to study the consequences of globalization for human development in two groups of the post-transition countries: the countries that joined the EU in two subsequent rounds of the Eastern enlargement in 2004 and 2007, and those that have remained outside the EU. In contrast to previous empirical studies, which had employed various proxies for globalization such as international migrations, trade, FDI or openness, this paper adopts a more general and multidimensional approach. The main advantage of this approach is the use of the composite KOF index of globalization that would prevent excessive oversimplification of complexities involved in understanding the ongoing process of globalization. The current study is intended to close a part of the existing gap in the literature and contribute to the study of the effects of globalization on the human aspects of development in the post-transition countries of Central and Eastern Europe.
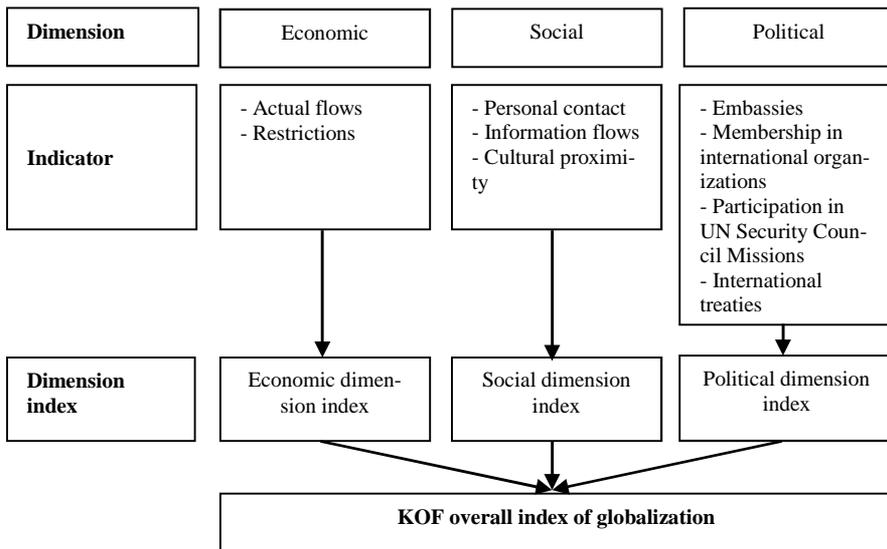
The structure of this paper is as follows. In the next section we provide definitions of globalization and human development indexes used in our empirical analysis. Then we discuss the research methodology and control variables. Subsequently, we discuss empirical results. The last section summarizes and concludes with directions for further research.

Measuring globalization and human development: Definitions of key variables

In this section we provide description of the main variables used in our empirical analysis: the KOF overall index of globalization and the hybrid Human Development Index (HDI). The KOF index of globalization, initially developed by Dreher (2006) and later revised by Dreher *et al.* (2009), measures three main dimensions of globalization: economic, social and political. The economic dimension of globalization measures actual trade and investment volumes on the one hand, as well as the extent to which countries apply trade an capital movement restrictions to protect their own economies on the other hand. The social dimension of globalization reflects the extent of the dissemination of information, ideas, images and people. Finally, the political dimension shows the degree of political cooperation between countries and the diffusion of government policies.

The KOF index of globalization is the most comprehensive measure of globalization that is currently available.[1] The use of this index allows preventing excessive oversimplification of complexities involved in understanding the ongoing process of globalization associated with the use of one-dimensional variables such as foreign trade, FDI or migration. The construction of the KOF overall index of globalization is shown in Figure 1.

Figure 1. Construction of the KOF overall index of globalization

Dimension	Economic	Social	Political
Indicator	- Actual flows - Restrictions	- Personal contact - Information flows - Cultural proximity	- Embassies - Membership in international organizations - Participation in UN Security Council Missions - International treaties
Dimension index	Economic dimension index	Social dimension index	Political dimension index

KOF overall index of globalization

Soruce: own work.

The KOF overall index of globalization measures three main dimensions of globalization: economic, social and political. The economic dimension of globalization is measured by i) the actual flows and ii) restrictions, each with a 50 % weight. The actual flows comprise: trade (21%), FDI stock (28%), portfolio investment (24%) and income payments to foreigners (27%) as a % of GDP. The restrictions include: hidden import barriers (24%), mean tariff rate (27%), taxes on international trade as % of current

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[1] The possible alternative measure of overall globalization could also be AT. Kearney/Foreign Policy Magazine (2002) index of globalization. However, the values of this index are available for a relatively short period of time which limits its usefulness for an empirical study.
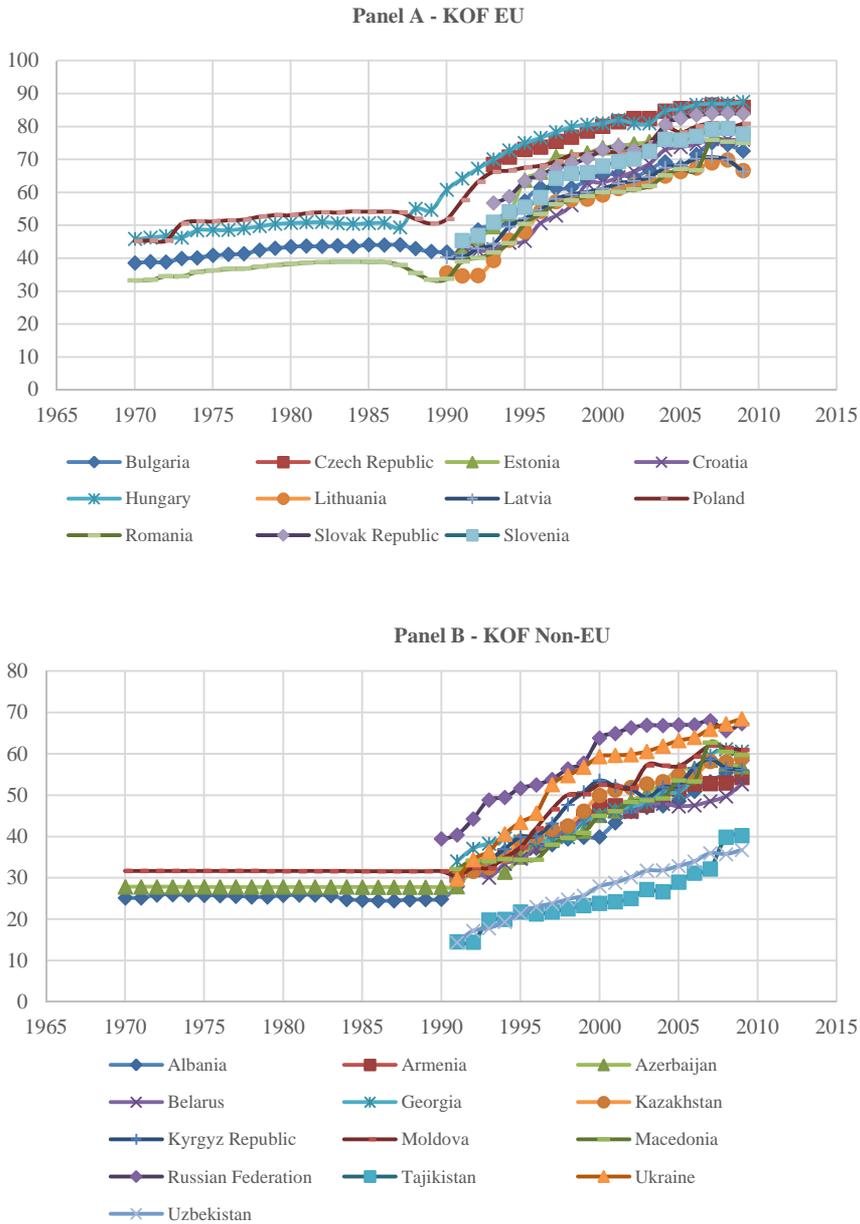
revenue (26%), capital account restrictions (23%). The social dimension of globalization is measured by: i) personal contact with a 34% weight, ii) information flows with a 35% weight and iii) cultural proximity with a 31% weight. Personal contact includes: telephone traffic (25%), transfers as a % of GDP (4%), international tourism (26%), foreign population as a % of total population (21%) and international letters per capita (25%). Information flows comprise: internet users per 1000 people, television per 1000 people and trade in newspapers as a % of GDP. Cultural proximity is measured using: the number of McDonald's restaurants per capita (44%), the number of Ikea per capita (45%) and trade in books as a % of GDP (11%). Finally, the political dimension of globalization is measured by: i) the number of embassies in a country with a 25 % weight, ii) the membership in international organizations with a 28% weight, iii) the participation in the U.N. Security Council missions with a 22% weight, and the number of international treaties with a 22% weight.

The KOF index measures globalization on scale of 1-100 and the expressions of the underlying variables are divided into percentiles. This reduces the impact of extreme data points, which results in fewer fluctuations over time. The values of this index are available for the 40 year period 1970-2009. The data on the KOF index of globalization are obtained from: http://globalization.kof.ethz.ch.

The changes in the values of the KOF overall index of globalization for two groups (EU-10 and non-EU) of the post-transition countries over time are shown in Figure 2.

Panels 2A and 2B show the values of the KOF overall index of globalization for the group of Central and East European countries that joined the European Union during two waves of the Eastern enlargement in 2004 and 2007 and the group that had stayed outside the EU, respectively. Unfortunately, for many post-transition countries the values of the KOF index are not available for the period prior to the beginning of transition. However, it can be noted that on average the countries that belong to the former group have higher values of the KOF overall index of globalization than the countries that belong to the latter group.

Figure 2. *KOF Index*: Changes in post-transition countries (1971-2010)

Panel A - KOF EU

Bulgaria	Czech Republic	Estonia	Croatia
Hungary	Lithuania	Latvia	Poland
Romania	Slovak Republic	Slovenia	

Panel B - KOF Non-EU

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Albania	Armenia	Azerbaijan	
Belarus	Georgia	Kazakhstan	
Kyrgyz Republic	Moldova	Macedonia	
Russian Federation	Tajikistan	Ukraine	
Uzbekistan			

Source: http://globalization.kof.ethz.ch.

The HDI is the original, best-known and widely used composite index of human development. It was introduced by the Human Development Report (HDR) by combining indicators of per capita income, education, and health into a single composite index. According to the HDR (2010) human development is a process in which people can develop their full potential and lead their productive, creative lives in accord with their needs and interests. It is a broad concept that has many dimensions. Among its most important dimensions are: long and healthy life, access to knowledge, and a decent standard of living. By ranking countries according to their HDI value, the HDR has helped to shift the debate away from GDP per capita as the sole measure of human development.

In our study to measure the level of social development we use the hybrid Human Development Index (HDI). The construction of the hybrid HD index is shown in Figure 3.

Figure 3. Construction of the hybrid Human Development Index (HDI)
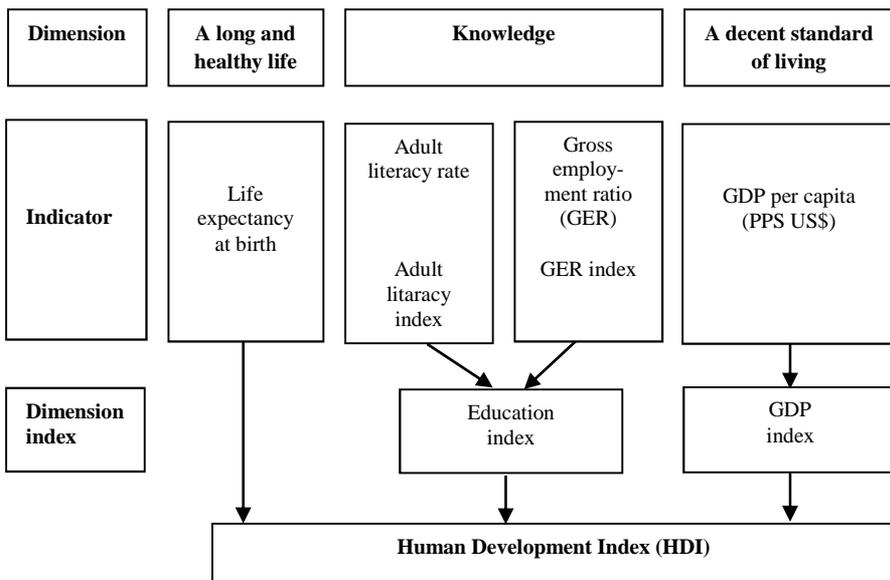
Source: Human Development Indices (2010).

The hybrid Human Development Index measures the average achievement of a country in three basic dimensions of human development:
− A long and healthy life measured by life expectancy at birth and expressed in terms of a relevant index ranging from 0 to 1.
− Access to knowledge measured by the education index composed of the adult literacy rate for the percentage of population aged 15 and above (with two-thirds weight) and the combined gross enrolment ratio (GER) in primary, secondary, and tertiary education (with one-third weight).
− A decent standard of living measured by the GDP per capita expressed in purchasing power parity [PPP] terms in current US dollars.

These three dimensions are standardized to values between 0 and 1, and the simple geometric mean is taken to calculate HDI value in the range 0 to 1.[2] Three thresholds are used to classify HDI values as high, medium or low (at or above 0.800; between 0.500 and 0.800; and below 0.500, respectively).[3] The values of this index are available for the 40 year period 1971-2010. The data on human aspect of development are obtained from the UNDP database available on line at: http://hdr.undp.org/en/statistics.
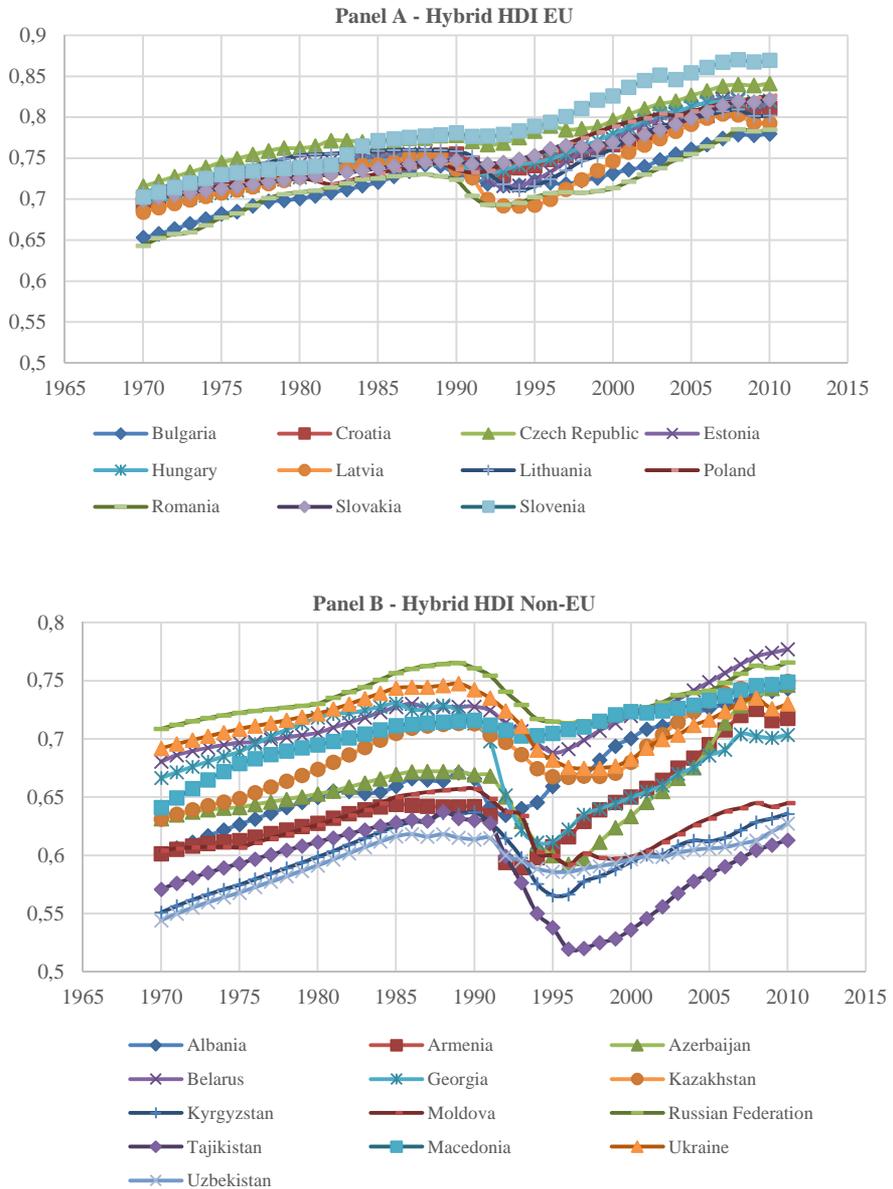
The changes in the values of the hybrid HDI for two groups (EU and non-EU) of the post-transition countries over time are shown in Figure 4.

Panels 4A and 4B show the values of the HDI for the group of Central and East European countries that joined the European Union during two waves of the Eastern enlargement in 2004 and 2007, and the group that stayed outside the EU, respectively. Several countries that belong to the former group achieved in the early 2000s the HDI values above 0.8 which qualified them into the high HDI group, while all countries that belong to the latter group have the HDI values in the range between 0.5. and 0.8 which qualifies them into the medium HDI group.

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[2] The equal weights are not crucial for the level of indices. The application of other weights (e.g. 0.25; 0.25 and 0.5) does not change significantly the ranking of countries, according to Human Development Indices (2010).

[3] The differences among countries with high and low levels of HDI are very important not only in terms of GDP per capita. For example, the life expectancy in the top 20 countries is close to 80 years, but in one of the bottom 20 countries, life expectancy is only 49 years on average.

Figure 4. *Human Development Index*: Changes in post-transition countries (1971-2010)

Panel A - Hybrid HDI EU

Bulgaria · Croatia · Czech Republic · Estonia · Hungary · Latvia · Lithuania · Poland · Romania · Slovakia · Slovenia

Panel B - Hybrid HDI Non-EU

Albania · Armenia · Azerbaijan · Belarus · Georgia · Kazakhstan · Kyrgyzstan · Moldova · Russian Federation · Tajikistan · Macedonia · Ukraine · Uzbekistan

Source: Human Development Indices (2010).

Moreover, it can be noted that all the post-transition countries experienced some decline in the values of the HDI during the initial period of transition in the late 1980s and early 1990s. This decline was mainly due to the decline in the level of GDP per capita and to some extent also in life expectancy following the collapse of the state-run healthcare system in many countries of the region.

The recovery from the initial transition shock varied across the region. In Central European countries including the Czech Republic, Hungary, Poland, Slovakia and Slovenia the decline in the HDI values was relatively small and short lived. However, in the Baltic states, such as Latvia and Lithuania, and the Southern European countries such as Bulgaria and Romania the decline was much bigger, but they recovered relatively faster. Finally, in some successor states of the former Soviet Union such as Georgia or Tajikistan the decline was very deep and recovery relatively slow.[4]

In the subsequent sections we will examine more formally the empirical relationship between human development and globalization using the panel data analysis. In particular, we will study the relationship between the hybrid HDI and the KOF overall index of globalization with and without controlling for other variables and individual time effects using the fixed and random effects estimators that exploit the panel properties of the dataset.

Research methodology and control variables

This study investigates empirically the relationship between globalization and human development using the modified theoretical framework developed by Sirgy *et al.* (2004). In their study they developed a set of theoretical propositions to explain the impact of globalization on a country's quality of life (QOL). In particular, they described how globalization affected the quality of life of residents of a country by first articulating the globalization construct (in terms of inflows and outflows of goods, services, capital, technology, and workers), second, articulating the country's QOL construct (in terms of economic, consumer, social, and health well being), and showing the relationships between globalization and a country's QOL. This theoretical framework, combined with the empirical approaches of Tsai (2007) and Sapkota (2011), is used to derive the general estimating equation of the following form:

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[4] It can be noted that in contrast to the HDI index the values of the KOF index globalization did not decline in the beginning of transition but instead they were rapidly increasing in almost all countries.

$$HDI_{it} = \alpha + \beta KOF_{it\text{-}1} + C_{it}\,\gamma + v_t + u_i + \varepsilon_{it},$$

where: HDI_{it} is the measure of human development in country i in year t, $KOF_{it\text{-}1}$ is the measure of globalization in country i in year $t\text{-}1$, C_{it} is the vector of control variables in country i in year t, v is the time specific effect (i.e. a year dummy), u is the country specific effect that may be fixed or random depending on the estimation method, and ε is the error term that satisfies the standard properties.

The values of the KOF index are lagged by one period, which allows to avoid the potential problem of simultaneity.

In choosing the set of control variables we follow the previous empirical studies. In particular, the level of economic development is considered as a critical element in improving human development (Ranis *et al.*, 2000; Tsai 2007; Sapkota, 2011). Therefore, income per capita can be included to control the differences in the level of economic development across countries. Moreover, the rate of population growth can be included as many of the post-transition countries, especially the newly independent countries from Central Asia that emerged from the former Soviet Union, share the features of developing economies. These control variables are culled from the World Development Indicators database available on-line at: http://data.worldbank.org/indicator.

In addition to the overall globalization captured by the KOF index in the study we also control for the process of European and regional economic integration. European integration is controlled for by including dummy variables for the Europe Agreements as well as dummy variables for the full EU membership (2004 and 2007) and the membership in the European Monetary Union (EMU). Regional integration is controlled for by including dummy variables for the Baltic Free Trade Area (BAFTA) established by three Baltic States: Estonia, Latvia and Lithuania, and the Central European Free Trade Area (CEFTA) initially established by Visegrad-4 countries: the Czech Republic, Hungary, Poland and Slovakia and later expanded to include also other countries of the region.[5]

To maintain the comparability with the previous studies two econometric techniques are employed to estimate the relationship postulated by the theory: the ordinary least squares (OLS) on the pooled dataset and the panel data analysis (PDA) that allows controlling for individual country effects that may be fixed and random depending on the estimation method. Many early studies on the economic consequences of globalization, such as Rodrik (1998) or Garret (2000), used cross-country data pooled over a certain

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[5] See, for example, Cieślik and Hagemejer (2011) for detailed description of these agreements and their effectiveness for trade liberalization.

period of time and employed the simple OLS methods. Although the OLS approach is useful in identifying differences across countries it fails to take into account changes of certain structural features and their correlates over time. Therefore, the panel data techniques are used as the main estimation method here and the Hausman test is employed to determine the appropriate estimation format. Moreover, the PDA has the merit of having a larger number of observations that yield precise estimates and test statistics with more power.

The sample covers 24 post-transition countries from Central and Eastern Europe and the successor states of the former Soviet Union for the 40-year period from 1971 to 2010.[6] The panel is unbalanced as for some countries of the region certain variables were not available for the entire sample period.

Estimation results

In this section we present two sets of estimation results showing both unconditional and conditional empirical relationship between the KOF overall index of globalization and the HDI. In Table 1 we present the baseline estimation results showing the unconditional relationship between the HDI and the KOF, while in Table 2 we report estimation results showing the conditional relationship between the KOF index and the HDI having controlled for the process of European and regional integration, the level of per capita income and the rate of population growth.

In column (1) we report the results obtained using the simple OLS method without controlling for time effects for particular years of the sample. It turns out that the relationship between the measure of human development and the overall measure of globalization is positive and statistically significant already at the 1 % level of statistical significance. The value of R2 shows that the KOF overall index of globalization alone is able to explain over 50 % of variation in the value of the HDI.

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[6] No data for Bosnia and Hercegovina, Kosovo, Montenegro, Serbia and Turkmenistan were available.

Table 1. Unconditional relationship between HDI and KOF index of globalization

Variables	(1)	(2)	(3)	(4)	(5)	(6)
			(t and z-statistics in parentheses)			
KOF	0.00296 ***	0.00321 ***	0.00201 ***	0.00206 ***	0.00133 ***	0.00168 ***
	(27.81)	(24.83)	(23.16)	(23.74)	(5.200)	(7.081)
Constant	0.555***	0.535***	0.604***	0.605***	0.614***	0.606***
	(95.91)	(31.90)	(131.9)	(65.02)	(57.35)	(45.86)
Time effects	No	Yes	No	No	Yes	Yes
Country effects	No	No	FE	RE	FE	RE
Observations	623	623	623	623	623	623
Number of countries	24	24	24	24	24	24
R-sq within	0.555	0.597	0.473	0.473	0.705	0.704
R-sq between			0.679	0.679	0.672	0.659
R-sq overall			0.555	0.555	0.503	0.544
F test for fixed effects			78.22	-	133.4	-
P-value			(0.00)	(0.00)	(0.00)	(0.00)
Wald chi2(7)				563.6		1334
P-value				(0.00)		(0.00)
Hausman			32.45	32.45	13.07	13.07
P-value			(0.00)	(0.00)	1.000	1.000
LM test for random effects				3557		4949
P-value				(0.00)		(0.00)
F test for time effects		1.57			11.31	425.1
P-value		(0.02)			(0.00)	(0.00)

Notes: HDI – dependent variable, *** - denotes statistical significance at the 1 level, ** - denotes statistical significance at the 5 level, * - denotes statistical significance at the 10 level.

Source: own estimation.

In column (2) we show the estimation results obtained having controlled for individual time effects. However, the F-test for the joint statistical significance of the individual time effects (p-val 0.02) shows only the weak significance of time dummies. Therefore, the presence of individual time effects does not affect our previous conclusions regarding the relationship

between human development and globalization. The robustness of our empirical results with respect to the estimation methods is investigated in columns (3)-(6).

In columns (3)-(4) we present estimation results obtained using the fixed effects (FE) and random effects (RE) estimators without controlling for individual time effects, respectively. Both the F-test (p-val 0.00) in the case of the FE estimator, and the LM-test (p-val 0.00) in the case of the RE estimator, confirm the importance of controlling for individual country effects. In both cases the estimated coefficient on the KOF overall index of globalization is positive and statistically significant already at the 1% level. However, the Hausman test (p-val 0.00) favours the FE estimator over the RE estimator as the proper estimation format .

In columns (5)-(6) we present estimation results obtained using the FE and RE estimators with controlling for individual time effects, respectively. In both cases the F-test (p-val 0.00) for the joint statistical significance of the individual time effects confirms the importance of controlling for time dummies. Both the F-test (p-val 0.00) in the case of the FE estimator, and the LM-test (p-val 0.00) in the case of the RE estimator, confirm the importance of controlling for individual country effects. However, in the specifications with time effects the Hausman test (p-val 1.00) favours the RE estimator over the FE estimator as the proper estimation format.

Interestingly, it seems that the inclusion of the individual time effects changes the role of individual country effects. However, in all specifications the estimated coefficient on the KOF overall index of globalization remains positive and statistically significant at the 1% level. Therefore, it seems that there exists a positive unconditional relationship between human development and globalization irrespectively of the employed estimation method.

To verify the robustness of our empirical results we estimate also the conditional relationship between the HDI and the KOF index having controlled for the process of European and regional integration, the level of per capita income and the rate of population growth. The estimation results showing the conditional empirical relationship between the HDI and the KOF index are shown in Table 2. The particular columns in Table 2 are the direct counterparts of columns from Table 1.

Table 2. Conditional Relationship between HDI and KOF index of globalization

(t and z-statistics in parentheses)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
KOF	0.00210***	0.00227***	0.00164***	0.00167***	6.80e-05	0.000536**	-0.000218	0.000316
	(15.57)	(15.61)	(14.16)	(14.45)	(0.264)	(2.211)	(-0.903)	(1.358)
EU_2004	0.0601***	0.0613***	0.0316***	0.0325***	0.0351***	0.0345***	0.000609	-0.000380
	(7.946)	(7.843)	(6.095)	(6.252)	(8.613)	(8.347)	(0.126)	(-0.0756)
EU_2007	0.0387**	0.0390**	0.0241***	0.0235**	0.0357***	0.0333***	0.0127**	0.0115*
	(2.438)	(2.489)	(2.606)	(2.525)	(5.110)	(4.681)	(2.012)	(1.739)
EU Agreement	0.0158**	0.0256***	-0.000109	0.000350	0.0352***	0.0341***	0.0178***	0.0193***
	(2.149)	(3.269)	(-0.0246)	(0.0782)	(9.341)	(8.896)	(4.745)	(4.938)
EMU	0.0369**	0.0352*	0.00101	0.00177	-0.00301	-0.00368	-0.0132*	-0.0160**
	(1.976)	(1.940)	(0.0947)	(0.164)	(-0.378)	(-0.452)	(-1.929)	(-2.228)
CEFTA	0.0206***	0.0249***	0.00287	0.00311	0.00114	0.000766	-0.00269	-0.00359
	(2.919)	(3.591)	(0.702)	(0.754)	(0.371)	(0.245)	(-1.029)	(-1.311)
BAFTA	0.0139	0.0213**	-0.00742	-0.00601	-0.00766	-0.00717	-0.00493	-0.00483
	(1.461)	(2.314)	(-1.064)	(-0.861)	(-1.461)	(-1.346)	(-1.088)	(-1.020)
GDP per capita							3.02e-06***	3.42e-06***
							(5.711)	(6.228)
POP							0.00521***	0.00427***
							(4.707)	(3.707)

Table 2 Continued

(t and z-statistics in parentheses)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	0.586***	0.570***	0.621***	0.621***	0.659***	0.647***	0.652***	0.639***
	(92.39)	(36.71)	(115.8)	(66.42)	(62.85)	(50.77)	(42.34)	(36.52)
Time effects	No	Yes	No	No	Yes	Yes	Yes	Yes
Country effects	No	No	FE	RE	FE	RE	FE	RE
Observations	623	623	623	623	623	623	511	511
Number of countries	24	24	24	24	24	24	24	24
R-sq within	0.615	0.673	0.527	0.527	0.766	0.765	0.833	0.830
R-sq between			0.711	0.713	0.555	0.658	0.355	0.683
R-sq overall			0.583	0.586	0.428	0.531	0.295	0.499
F test for fixed effects			73.86		135.7		100.6	
P-value			(0.00)		(0.00)		(0.00)	
Wald chi2(7)				685.5		1759		2003
P-value				(0.00)		(0.00)		(0.00)

Table 2 Continued

(t and z-statistics in parentheses)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Hausman test			80.35	80.35	27.46	27.46	61.78	61.78
P-value			(0.00)	(0.00)	(0.99)	(0.99)	(0.07)	(0.07)
LM test for random effects				2412		3469		1339
P-value				(0.00)		(0.00)		(0.00)
F test for time effects		2.62			14.48	527.8	7.661	248.4
P-value		(0.00)			(0.00)	(0.00)	(0.00)	(0.00)

Notes: HDI – dependent variable, *** - denotes statistical significance at the 1 level, ** - denotes statistical significance at the 5 level, * - denotes statistical significance at the 10 level.

Source: own estimation.

In columns (1) and (2) we show empirical results obtained using the simple OLS method having controlled for the process of European and regional integration without and with controlling for individual time effects, respectively. The F-test for the joint statistical significance of the individual time effects (p-val 0.00) confirms the importance of controlling for time dummies. In both cases the KOF index is statistically significant already at the 1% level, however the estimated coefficients on this index are of slightly smaller magnitude compared to those obtained from the unconditional regressions reported in Table 1. Moreover, in both cases the estimated coefficients on the control variables display positive signs and in the majority of cases are significant although at various levels of statistical significance. This suggests that in addition to overall globalization the HDI is positively related also to the process of European and regional integration.

In columns (3)-(4) we present estimation results obtained using the FE and RE estimators having controlled for the process of European and regional integration without controlling for individual time effects, respectively. Similar to the case of unconditional regressions the F-test (p-val 0.00) in the case of the FE estimator and the LM-test (p-val 0.00) in the case of the RE estimator confirm the importance of controlling for individual country effects. In both cases the estimated coefficient on the KOF overall index of globalization remains positive and statistically significant at the 1 % level. The Hausman test (p-val 0.00) favours the FE estimator over the RE estimator as the proper estimation format. Interestingly, once the FE and RE estimators are employed most control variables lose their previous statistical significance. The only statistically significant variable in both regressions is the dummy variable describing the EU membership.

In columns (5)-(6) we present estimation results obtained using the FE and RE estimators having controlled for the process of European and regional integration with controlling for individual time effects, respectively. Again, the F-test (p-val 0.00) in the case of the FE estimator and the LM-test (p-val 0.00) in the case of the RE estimator confirm the importance of controlling for individual country effects. In both cases the F-test (p-val 0.00) for the joint statistical significance of the individual time effects confirms the importance of controlling for time dummies. The estimated coefficient on the KOF overall index of globalization remains positive and is statistically significant at the 5% level only in the case of the RE estimator, while in the case of the FE estimator it loses completely its previous statistical significance. However, the Hausman test (p-val 0.99) favours the RE estimator over the FE estimator as the proper estimation format.

Finally, in columns (7)-(8) we present estimation results obtained using the FE and RE estimators having controlled for the process of European and regional integration, the level of per capita income and the rate of population growth with controlling for individual time effects, respectively. In both cases the level of per capita income and the rate of population growth are statistically significant at the 1 per cent level. However, the inclusion of additional control variables make the estimated coefficient on the KOF overall index of globalization not statistically significant.

Conclusions

In this paper we have studied empirically the relationship between globalization and human development in the post-transition countries over the 1971-2010 period. To study this relationship we used the KOF index as the overall measure of globalization and the hybrid HDI as the most comprehensive measure of social development. Our descriptive analysis revealed substantial heterogeneity among post-transition countries of Central and Eastern Europe. In particular, those countries that have joined the European Union in the two subsequent waves of the Eastern enlargement in 2004 and 2007 have on average higher levels of human development and are more globalized compared to those countries that decided to stay outside the EU.

The empirical relationship between the level of human development and globalization was studied formally using two econometric techniques: ordinary least squares (OLS) and panel data analysis (PDA) that allowed controlling for individual fixed and random effects with and without controlling for individual time effects and other variables at the same time. In the case of unconditional regressions it turned out that there exists a positive and statistically significant relationship between human development and globalization.

The evidence for conditional regressions was rather mixed. The relationship between human development and globalization was still positive and statistically significant once the process of European and regional integration was controlled for. However, once the differences in the level of economic development were taken into account the globalization variable lost its statistical significance. This result may suggest the impact of globalization on human development many be driven only by the economic dimension of globalization. This issue requires, however, a more detailed analysis in subsequent studies. In particular, in subsequent studies more attention should be devoted to the particular dimensions of globalization.

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