Socio-economic problems in the humanitarian sphere of a nation's economy

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National Human Capital or National Institutions: Multilevel Theory Perspective

This article contributes management insight into the economic debate on the primacy of national human capital or national institutions in national economic development. The article utilized TIMSS Assessment results and the World Competitiveness Reports data for its statistical analysis via the use of multiple regressions. According to the statistical analysis, national human capital has significantly less effect on national economic development that the national institutional measures. The article employed the Multilevel theory of organizations to explain this phenomenon and extrapolated it to the level of a country. The Multilevel model of human capital creation explains how the collective organizational human capital resource is created out of individual-level organizational members' knowledge, skills and abilities thanks to the presence of enabling factors. The article shows that national institutions are such enabling factors on country level. Utilization of the human capital resource of a country's citizens is mediated by the factor of national institutions. With the absence of high quality institutions individual human capital of a country's citizens does not agglomerate into the national human capital resource. Unless open and transparent well-developed national institutions exist, the country will not have good economic development even though the human capital level of its citizens is adequate. Investing money in education without building a system of strong national institutions will not bring the desired results.

Keywords: multilevel theory of organization, national human capital, national institutions, national economic development.

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Introduction

The importance of human capital toward individual and national economic welfare has been convincingly demonstrated by multiple researchers throughout a number of years (Becker, 1964; Heckman et al., 2006). However, different aspects of this global issue still need to be dealt with. One of such aspects is the question of the primacy of national human capital or national institutions toward national economic development. There is discussion in academic literature on this issue, which has produced two different opinions. One group of researchers states that the most important determinant of economic growth is human capital of the country (Glaes-

er et al., 2004; Hanushek & Woessmann, 2010; Hanushek & Woessmann, 2016). This group of authors stresses that better human capital leads to the development of good institutions and higher levels of economic growth. They propose that economic "growth rates can be considered as a function of workers' skills along with other systematic factors… This formulation suggests that nations or states with more human capital tend to continue to make greater productivity gains than nations or states with less human capital" (Hanushek et al., 2017, p. 450). This group of authors suggests that "developing countries have room for improving their economic performance by moving toward better institutions. Once they have corrected the imperfect economic institutions, they must return on relying on knowledge capital for any further improvements in growth" (Hanushek & Woessmann, 2016, p.15). Another group of researchers argues that differences in economic institutions is the major source of cross-country differences in economic development and prosperity (Acemoglu et al., 2004; Glaeser et al., 2004; Acemoglu & Robinson, 2012; Acemoglu et al., 2014; Constantine, 2017), and that "correcting imperfect economic institutions" is often impossible. These authors state that "economic institutions are social decisions chosen for their consequences." (Acedmoglu et al., 2004, p.2). Consequently, it is impossible to simply correct the institutions in such countries. National human capital does lead to economic growth but only in the environment of effective economic institutions.

This article studies the raised issue by utilizing international statistical data on human capital, national institutions and GDP. Following Introduction, the second section of the paper evaluates statistical data in search of measured relationships between GDP, human capital and institutions. The third section of the paper provides insights for these discoveries from Management perspective while the fourth section provides conclusions and suggestions.

Statistical Analysis

This Section establishes statistical relationships between national economic development, national human capital and national institutions. It provides grounds for the choice of proxies for these factors.

Data

To establish relationship between national GDP, national human capital and national institutions, the first step is to establish measures of these factors. How can human capital be proxied? Historically, most of research on human capital utilized the measure of years of schooling as the only measure of human capital. During the past decade, however, it has been suggested that other proxies needed to be used together with or instead of the school attainment measure as the school attainment measure has low explanatory power (Flossmann, et al., 2007; Lundberg, 2017). A number of authors (Hanushek & Woessmann, 2008; Hanushek et al., 2017) developed a human capital measure which is a measure of variation in cognitive skills of workers, suggesting that measure to be a better measure of human capital than the school attainment factor. Following the educational production function literature, variation in cognitive skills (i.e. "knowledge capital") can be used as a direct measure of human capital input into empirical analysis of economic growth (Hanushek et al., 2017). Such a measure is a composite measure of cognitive skills developed by different sources (school, family and individual talent and ability) (Hanushek & Woessmann, 2012). The real importance for economic welfare on the individual or national levels is not simply in the number of school years that workers bring to the labor market, but their cognitive skills produced during those years (Heckman et al., 2006; Anger & Heineck, 2010; Hanushek & Woessmann, 2012; Hanushek, 2017). Consequently, a cognitive skills measure is a good index of skill differences of workers and a good measure of human capital.

The difficulty is that a direct measure of cognitive skills in the labor force does not exist. At the same time, the measure of skills in the student body adjusted for the time when they entered the workforce can be a good proxy of this factor (Hanushek et al., 2017). Consequently, the proxy of cognitive skills measure is the measure of educational achievement across countries, which is collected via international achievement tests.

In the analysis of this article, the TIMSS Assessment statistics was utilized to measure the human capital factor and the Global Competitiveness Report statistics provided data on the institutional factor. TIMSS (The Trends in International Mathematics and Science Study) is the assessment of 4th and 8th grade student achievement in Math and Science conducted by the International Association for the Evaluation of Educational Achievement every four years in more than 60 countries since 1959 (Mullis et al., 2008; Martin et al., 2008; IEA, 2019; NCES, 2019 a; NCES 2019 b).The Global Competitiveness Report is a yearly report published by the World Economic Forum for a number of years (WEF, 2019). The Report ranks about 140 countries based on macroeconomic and business aspects, including such pillars of competitiveness as institutions, infrastructure and macroeconomic framework.

In the analysis in this paper, data for 42 countries was used. The article utilized TIMSS Assessment results for the Math and Science international test scores for the 8th grade students for 2007 (Mullis et al., 2008; Martin et al., 2008; IEA, 2019; NCES, 2019 a; NCES 2019 b). Students who were in the 8th grade in 2007, graduated from the grade school in 2011 (assuming the 12-grades system), and graduated from a four-year college in 2015. This means that in 2016 such students were fully involved in the labor force. For countries which have a grade school system shorter than the 12-grades, such students fully joined the labor force even earlier. Those students, who

did not attend college, also joined the labor force earlier and by 2016 were fully involved into the labor force. This means that the human capital proxy of Math and Science test scores of the 8th grade students measured in 2007 can be used together with the respected countries macroeconomic and institutional data of 2016. The data on institutions came from the World Competitiveness Report 2017–2018 (WEF, 2017), which presents the actual data for 2016.

A number of authors (Acemoglu et al., 2014; Hanushek & Woessmann, 2016) suggested that among diverse institutions factors, the factor of Security of Property Rights strongly affected economic development, as it provided secure property rights for a broad cross-section of society. That was why two such measures (Security of Property Rights and Intellectual Property Rights Protection) were chosen for the analysis on behalf of the Institutions factors. The researchers also stated that political institutions which placed checks on those who held political power were useful for the emergence of good economic institutions. That was why two more institutions measures of Judicial independence and Irregular Payments and Bribes were also utilized.

Consequently, the following variables were used in the analysis: GDP per capita, Security of Property Rights, Intellectual Property Rights Protection, Judicial Independence, Irregular Payments and Bribes, Math test scores, Science test scores. All variables in the analysis were standardized.

Data analysis

As the first step, simple regression analyses with GDP p/c as the dependent variable and individual human capital and institutional measures as independent variables (Math test scores, Science test scores, Security of Property Rights, Intellectual Property Rights Protection, Judicial independence and Bribes) were conducted. Because of the total number of observations utilized equaled to 42 the use of independent variables in a multiple regression was chosen to be four maximum.

According to the results reported in Table 1, all independent variables are individually significant and affect GDP, although human capital variables are less statistically significant and influence GDP to less degree than the institutional factors. The fit of the models with the human capital variables is much smaller than the fit of the model with institutional factors. Amount of variation in GDP as explained by the model with the human capital variables is only 8.2% and 7.4% respectively, while the institutional variables explain the variation at the level of almost 70%. One standard deviation change in the human capital variables leads to change in GDP for only at the level of 0.3 SD, while this number rises to 0.7–0.8 SD when the institutional variables are utilized.

Further analyses show that human capital factor is not always significant, while most of institutions factors are always significant.

Table 1. *Simple Regressions Results for Six Equations with Gdp P/C As the Dependent Variable and Human Capital and Institutional Variables as the Individual Independent Variables of Simple Regressions*

	Equation 1	Equation 2	Equation 3	Equation 4	Equation 5	Equation 6
	Math (human capital variable)	Science (human capital variable)	Property (institutional variable)	Judicial (institutional variable)	Intellectual (institutional variable)	Bribes (institutional variable)
F-stat	4.67*	4.25*	57.47***	59.66***	86.7***	82.75***
Adj R^2	0.082	0.074	0.579	0.589	0.676	0.666
Bstd	0.322	0.306	0.768	0.774	0.827	-0.821
t-test	2.16*	2.06*	7.58***	7.72***	9.31***	-9.10***
N	42	42	42	42	42	42

Note.
Math = Math test scores
Science = Science test scores
Property = security of property rights
Judicial = judicial independence
Intellectual = intellectual property rights protection
Bribes = irregular payments and bribes

F-Stat = the fit of the model
Adj R^2 = amount of variation in dependent variable explained by variation in independent variable
Bstd = standardized coefficient
t-test = test statistic
* = Significant at 0.05 level
** = Significant at 0.01 level
*** = Significant at 0.001 level
N = number of observations

The second step of the analysis was conducting multiple regression analyses with individual human capital factors (either Math or Science test scores) and two institutional factors.

The following four Tables (Tables 2–5) report on the results of these analyses. According to the results reported in Tables 2–5, in multiple regression analyses with three independent variables, the human capital factors stop being significant, while institutional variables continue being significant.

Table 3 reports on the relationships between individual human capital variables and such institutional variables as Judicial Independence and Irregular Payments and Bribes. According to the reported results, both institutional variables are statistically significant and have strong affect on GDP. One standard deviation increase on these variables leads to about 0.5 SD increase in national GDP p/c. At the same time, human capital variables are not significant.

Table 4 reports on the relationships which include such institutional variables as Intellectual Property Rights Protection and Judicial Independence. According to the results, the Intellectual Property Protection variable is significant at 0.01 level, affecting GDP at the level of *b* equal 0.524 and 0.536 respectively. The Judicial Independence variable is significant at 0.1 level, while human capital variables are not significant.

Table 5 reports on the relationships which include such institutional variables as Security of Property Rights and Judicial Independence. Property Rights variable turns out to be not significant, while Judicial Independence variable is significant with *b* at the level of 0.480–0.510.

Table 6 reports on the analysis of the effect of individual human capital variables (Math and Science test scores separately) and three institutional variables: Security of Property Rights, Judicial Independence and Bribes variables on national GDP. Similarly to the results reported in the previous Tables,

Table 2. *Multiple Regressions Results for Two Equations with Gdp P/C as the Dependent Variable and Selected Human Capital and Institutional Variables as Independent Variables*

	Math (human capital variable)	Science (human capital variable)	Intellectual (institutional variable)	Bribes (institutional variable)	
			Equation 1		
t-test	not sig		2.74**	-2.46**	
Bstd	not sig		0.465	-0.418	
F-stat					33.95***
Adj R^2					0.707
N					42
			Equation 2		
t-test		not sig	2.75**	-2.45**	
Bstd		not sig	0.465	-0.419	
F-stat					33.95***
Adj R^2					0.707
N					42

Note.
Math = Math test scores
Science = Science test scores
Intellectual = intellectual Property Rights Protection
Bribes = Irregular Payments and Bribes

F-Stat = the fit of the model
Adj R^2 = amount of variation in dependent variable explained by variation in independent variable
Bstd = standardized coefficient
t-test = test statistic
* = Significant at 0.05 level
** = Significant at 0.01 level
*** = Significant at 0.001 level
N = number of observations

Table 3. *Multiple Regressions Results for Two Equations with Gdp P/C as the Dependent Variable and Selected Human Capital and Institutional Variables as Independent Variables*

	Math (human capital variable)	Science (human capital variable)	Judicial (institutional variable)	Bribes (institutional variable)	
			Equation 1		
t-test	not sig		2.29*	-2.94**	
Bstd	not sig		0.361	-0.493	
F-stat					31.64***
Adj R^2					0.692
N					42
			Equation 2		
t-test		not sig	2.25*	-3.04***	
Bstd		not sig	0.352	-0.505	
F-stat					31.41***
Adj R^2					0.690
N					42

Note.
Math = Math test scores
Science = Science test scores
Judicial = judicial independence
Bribes = irregular payments and bribes

F-Stat = the fit of the model
Adj R^2 = amount of variation in dependent variable explained by variation in independent variable
Bstd = standardized coefficient
t-test = test statistic
* = Significant at 0.05 level
** = Significant at 0.01 level
*** = Significant at 0.001 level
N = number of observations

although the human capital variables are not significant, most of institutional variables (except for the Security of property rights) continue to be strongly significant and have strong positive relationship with GDP.

Table 7 reports on the analysis which included both human capital variables (Math and Science test scores) and individual Institutional variables separately. All institutional variables are significant, while the human capital variables are not significant.

Table 8 reports on the results on multiple regressions which included both human capital variables and two out of four institutional variables. According to the reported results, all institutional variables except for Security of Property Rights are significant and powerfully affect GDP, while the human capital variables are not significant.

Overall, according to this analysis, national human capital (as proxied by Math and Science test scores) has significantly less effect on national economic development that the institutional measures (Security of Property Rights, Judicial Independence, Intellectual Property Rights Protection and Irregular Payments and Bribes). Some countries with good level of human capital resources do not have good economic development, while others do. This analysis provides some evidence that the factor which makes the difference is the institutions factor.

The next section of the article deals with some theoretical explanation of this phenomenon.

Theoretical Background

This paper tries to find the reason for the low affect of human capital on economy when institutions are controlled for. It attempts to develop a more specific theoretical explanation that describes the process of interaction between human capital, institutions and national welfare. In its attempt to explain low affect of national human capital on national economic development this paper utilizes insights from Management literature.

Table 4. *Multiple Regressions Results for Two Equations With Gdp P/C as the Dependent Variable and Selected Human Capital and Institutional Variables as Independent Variables*

	Math (human capital variable)	Science (human capital variable)	Intellectual (institutional variable)	Judicial (institutional variable)	
			Equation 1		
t-test	not sig		2.87**	1.86 (sig at 0.1.level)	
P>t	not sig		0.007	0.071	
Bstd	not sig		0.524	0.320	
F-stat					31.23***
Adj R^2					0.689
N					42
			Equation 2		
t-test		not sig	2.99**	1.83 (sig at 0.1 level)	
P>t		not sig	0.005	0.075	
Bstd		not sig	0.536	0.311	
F-stat					31.12***
Adj R^2					0.688
N					42

Note.
Math = Math test scores
Science = Science test scores
Intellectual = intellectual property rights protection
Judicial = judicial independence

F-Stat = the fit of the model
Adj R^2 = amount of variation in dependent variable explained by variation in independent variable
Bstd = standardized coefficient
t-test = test statistic
* = Significant at 0.05 level
** = Significant at 0.01 level
*** = Significant at 0.001 level
N = number of observations

More specifically, the paper grounds its rationale for explaining the relationship between human capital, institutions and GDP within the Multilevel theory. It employs this theory on an organizational level of a country, therefore a country is a unit of analysis.

Management literature insights

Resource-Based View of the firm suggests that a good understanding of a macro-level construct requires an understanding of its subsystems, which means that firm-level constructs are created by lower-level psychological and behavioral mechanisms (Wright et al., 1994; Wright, et al., 2001; Wright & Haggerty, 2005; Felin & Hesterly, 2007; Teece, 2007). The Dynamic Capabilities View of the firm suggests that an organization's resource base, including human resources, is created through processes which change in response to their environment (Helfat et al., 2007; Maritan & Peteraf, 2007). This means that creation of organization-wide human capital needs to be studied in terms of its component parts (individual human capital) and the environment which influences how these individual components are agglomerated into a higher level construct.

This is why this paper suggests using the Multilevel theory to studying the national human capital resource creation, as this theory takes into consideration both of the mentioned above aspects. Multilevel theory deals with explaining, how constructs and processes are related across levels of analysis (Ostroff & Bowen, 2000; Bowen & Ostroff, 2004; Ployhart & Weekley, 2006; Ployhart & Moliterno, 2011). Multilevel research deals with

Table 5. *Multiple Regressions Results for Two Equations with GDP p/c as the Dependent Variable and Selected Human Capital and Institutional Variables as Independent Variables*

	Math (human capital variable)	Science (human capital variable)	Property (institutional variable)	Judicial (institutional variable)	
			Equation 1		
t-test	not sig		not sig	2.57**	
Bstd	not sig		not sig	0.510	
F-stat					25.14***
Adj R^2					0.639
N					42
			Equation 2		
t-test		not sig	not sig	2.44*	
Bstd		not sig	not sig	0.480	
F-stat					25.04***
Adj R^2					0.638
N					42

Note.
Math = Math test scores
Science = Science test scores
Property = Security of property right
Judicial = judicial independence

F-Stat = the fit of the model
Adj R^2 = amount of variation in dependent variable explained by variation in independent variable
Bstd = standardized coefficient
t-test = test statistic
* = Significant at 0.05 level
** = Significant at 0.01 level
*** = Significant at 0.001 level
N = number of observations

the emergence process, explaining how phenomena at lower levels are organized to emerge as a higher-level construct which is distinct from its lower-level original parts. Kozlowski and Klein (2000) state that a phenomenon is emergent when "it originates in … characteristics of individuals, is amplified by their interactions, and manifests as a higher-level, collective phenomenon" (p. 55).

According to a number of authors (Wright et al., 1994; Wrigh et al., 2001; Wright & Haggerty, 2005; Abell et al., 2008), the roots of organizational human capital lie at the individual level of individual employees' knowledge, skills, abilities and other characteristics (KSAOs). Ployhart et al. (2006) emphasize cross-level origin of the organizational human capital resource, defining the level of theory for organizational human capital resource at the unit level, but identifying its origins in the individual KSAOs. Consequently, Ployhart and Moliterno (2011, p.128) define human capital resource as "a unit – level resource that is created from the emergence of individual's KSAOs," where the term *unit* refers generically to the organizational level of interest (firm, business unit, division, group, or team). The Multilevel Model of human capital creation explains how the collective organizational human capital resource originates in individual-level organizational members' KSAOs via the driver of the transformative process – the "emergence enabling process" (Ployhart & Moliterno, 2011).

According to the Multilevel theory, higher-and lower-level constructs share some common features, yet are distinct from one another (Chan, 1998). This means that the organizational human capital resource, although it originates in the KSAOs of individual members, is not identical to the individual KSAOs because the determinants that create KSAOs are different from the ones which create the human capital resource. What are the determinants which create the organizational human capital resource?

According to a number of authors (Kozlowski & Ilgen, 2006; Ployhart & Moliterno, 2011), these determinants

Table 6. *Multiple Regressions Results for Two Equations With Gdp P/C as the Dependent Variable and Human Capital and Institutional Variables as Independent Variables*

	Math (human capital variable)	Science (human capital variable)	Property (institutional variable)	Judicial (institutional variable)	Bribes (institutional variable)	
			Equation 1			
t-test	not sig		not sig	2.06*	-2.55**	
Bstd	not sig		not sig	0.394	-0.532	
F-stat						23.19***
Adj R^2						0.684
N						42
			Equation 2			
t-test		not sig	not sig	1.99*	-2.51**	
Bstd		not sig	not sig	0.376	-0.536	
F-stat						22.98***
Adj R^2						0.682
N						42

Note.
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Science = Science test scores
Property = security of property rights
Judicial = judicial independence
Bribes = irregular payments and bribes

F-Stat = the fit of the model
Adj R^2 = amount of variation in dependent variable explained by variation in independent variable
Bstd = standardized coefficient
t-test = test statistic
* = Significant at 0.05 level
** = Significant at 0.01 level
*** = Significant at 0.001 level
N = number of observations

include the unit's (organizational) task complexity and emergence-enabling factors such as behavioral, cognitive and affective processes which exist among organizational members in the organizational environment. In other words, these are the task content and how unit members act, think and feel.

Task complexity term includes the demands of the organizational task.

Behavioral, cognitive and *affective factors* "establish the social environment that facilitates and supports the emergence of human capital resources" (Ployhart & Moliterno, 2011, p. 137). If these factors are not present, then organizational human capital resource cannot be formed. According to Wright et al (1994, p.304), "characteristics of individuals do not provide value to the firm unless they are utilized through employee behavior."

Let's discuss the *behavioral, cognitive* and *affective* factors in more details.

Behavioral factor includes coordination, communication and regulatory processes that exist among organizational members. These processes make individuals' behavior interdependent (Ployhart & Moliterno, 2011). These processes are the actual behavior which organizational members employ while fulfilling the demands of the task.

Behavioral factor is present if organizational members coordinate their work toward achieving the task goal, if they have established effective communication process which helps them in their work, and if the regulatory processes which guide the work and interaction are present and clear for everyone. Unit regulations include monitoring and regulating of behavior in terms of the organizational goals and actions toward other organizational members (Marks et al., 2001). If these factors are present, individual KSAOs become complementary. However unless effective regulatory process exists, unit members will not be able to coordinate their work and communicate well.

Cognitive factor includes the organization's climate, memory and learning (Hinsz et al., 1997; Ployhart &

Table 7. *Multiple Regressions Results for Four Equations with Gdp P/C as the Dependent Variable and Human Capital and Institutional Variables as Independent Variables*

	Math (human capital variable)	Science (human capital variable)	Property (institutional variable)	Judicial (institutional variable)	Intellectual (institutional variable)	Bribes (institutional variable)	
				Equation 1			
t-test	not sig	not sig	7.04***				
Bstd	not sig	not sig	0.738				
F-stat							19.93***
Adj R^2							0.581
N							42
				Equation 2			
t-test	not sig	not sig		7.67***			
Bstd	not sig	not sig		0.744			
F-stat							23.43***
Adj R^2							0.621
N							42
				Equation 3			
t-test	not sig	not sig			8.37***		
Bstd	not sig	not sig			0.816		
F-stat							27.58***
Adj R^2							0.660
N							42
				Equation 4			
t-test	not sig	not sig				-8.15***	
Bstd	not sig	not sig				-0.814	
F-stat							26.26***
Adj R^2							0.649
N							42

Note.
Math = Math test scores
Science = Science test scores
Property = security of property rights
Judicial = judicial independence
Intellectual = intellectual property rights protection
Bribes = irregular payments and bribes

F-Stat = the fit of the model
Adj R^2 = amount of variation in dependent variable explained by variation in independent variable
Bstd = standardized coefficient
t-test = test statistic
* = Significant at 0.05 level
** = Significant at 0.01 level
*** = Significant at 0.001 level
N = number of observations

Table 8. *Multiple Regressions Results for Four Equations with Gdp P/C as the Dependent Variable and Human Capital and Institutional Variables as Independent Variables*

	Math (human capital variable)	Science (human capital variable)	Intellectual (institutional variable)	Bribes (institutional variable)	Judicial (institutional variable)	Property (institutional variable)	
				Equation 1			
t-test	not sig	not sig	2.70**	-2.42*			
P>t	not sig	not sig	0.01	0.021			
Bstd	not sig	not sig	0.465	-0.419			
F-stat							24.79***
Adj R^2							0.699
N							42
				Equation 2			
t-test	not sig	not sig		-2.90**	2.26*		
P>t	not sig	not sig		0.006	0.030		
Bstd	not sig	not sig		-0.494	0.360		
F-stat							23.11***
Adj R^2							0.683
N							42
				Equation 3			
t-test	not sig	not sig	2.83**		1.83 (sig at 0.1 level)		
P>t	not sig	not sig	0.008		0.075		
Bstd	not sig	not sig	0.524		0.320		
F-stat							22.81****
Adj R^2							0.680
N							42
				Equation 4			
t-test	not sig	not sig			2.45*	not sig	
P>t	not sig	not sig			0.019	not sig	
Bstd	not sig	not sig			0.500	not sig	
F-stat							18.42****
Adj R^2							0.630
N							42

Note.
Math = Math test scores
Science = Science test scores
Intellectual = intellectual property rights protection
Judicial = judicial independence

F-Stat = the fit of the model
Adj R^2 = amount of variation in dependent variable explained by variation in independent variable
Bstd = standardized coefficient
t-test = test statistic
* = Significant at 0.05 level
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*** = Significant at 0.001 level
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Moliterno, 2011). Unit climate "reflects the members' shared perceptions of the unit's leadership, goals, expectations and what is valued and rewarded…, the norms, through which unit's members interact and communicate" (Ployhart & Moliterno, 2011, p. 138). Unit memory includes the knowledge held by the organizational members. This knowledge includes knowledge about each other and knowledge of work processes (Klimovski & Mohammed, 1994). Unit learning includes the unit's ability to acquire and transfer information and knowledge.

Presence of this factor is evident when the organizational members have shared perception of what is valued and rewarded in the organization. They have shared perception about organizational leadership, expectations and goals. Knowledge and information are transferred effectively through the organization. However, if organizational members do not have a clear understanding of what is valued in their unit, if they do not share expectations toward what behavior is rewarded, if they hide valuable knowledge from each other, this means that this *cognitive factor* is absent.

Affective factor is the emotional ties between organizational members. This includes unit cohesion, trust and mood. The stronger the organizational cohesion, the better the organization performs and deals with difficulties (Alesina et al., 2003; Easterly et al., 2006). The higher the degree of organizational trust, the more likely organizational members transfer ideas and information among each other (Oldham, 2003). With low degree of trust, organizational members often withhold relevant information. Organizational affect represents emotional orientation of members and emotional state of entire organization. Positive emotional state enhances sharing of knowledge, creation of new ideas and improves organizational communication and exchange. Organizational human capital resource does not emerge unless employees are willing to trust each other and share their knowledge with each other. They also need to work interdependently and communicate well (Mesmer-Magnus & DeChurch, 2009).

Presence of this factor is evident when organizational members feel like "swimming together in one boat," which is the result of a certain level of organizational cohesion. In such a case organizational members experience trust and commitment toward one another. They are willing to support each other, and are open to knowledge sharing and dissemination, to open creation of new ideas. People believe that other members' input toward common organizational performance is fair and adequate. Consequently, they themselves are willing to adequately contribute toward the common goal.

The human capital resource that gets formed is a function of all these factors: behavioral, cognitive and affective. According to Ployhart and Moliterno (2011, p.137), "these states must exist in some form if human capital resource emergence is to occur in a manner valuable for the unit." It means that even though organizational members had outstanding level of their individual KSAOs, in the situation of the absence of the emergence-enabling environment these KSAOs will not create the human capital resource on the organizational level.

Discussion and Conclusion

Let's now discuss each of these factors in terms of a country.

Behavioral factor. In terms of a country this factor means that unless effective regulatory processes exist, people in the country will not be able to coordinate their work well, their interaction will not be orderly, neither they will be able to hear each other as the communication process will not establish effective communication channels. Even if people had good level of individual human capital, these individual human capitals will not agglomerate to create national human capital resource.

All of the mentioned above aspects – coordination, communication, regulatory – are the area of responsibility of national institutions. This is what national institutions are for. They establish the regulatory, coordination and communication processes which govern behavior of those living in a country and uphold behavior to a required standard. A broad definition of an institution as a well-established structural arrangement which is a part of society and is devoted to sustaining of a particular cause (Acemoglu et al., 2004) fully supports this idea. Thus, we can say that the *Behavioral factor* of the human capital resource emergence process is in reality a part of the national institutions factor.

Cognitive factor. In terms of a country this factor means that unless shared "rules of the game" exist, and unless these "rules of the game" are applied equally to every person in the country, people will not be able to have shared perceptions. They will have different views on what the norms are, they will have different views on what is valuable and what is rewarded, they will have different opinions on what leadership is. Even though people had adequate level of individual human capital, these individual resources will not agglomerate into national human capital resource without presence of the cognitive factor aspects. Once again, all of the mentioned above aspects which are necessary for individual human capitals to form the national human capital resource are regulated by national institutions. National institutions establish such "rules of the game." The Cognitive factor of the human capital resource emergence process in reality belongs to the national institutions factor.

Affective factor. In terms of a country this factors means that unless national cohesion exists, people in the country will be divided into small competing groups, they will not be able to trust each other, and general positive and optimistic mood will not be prevailing in the country. Organizational cohesion will not be created by itself. It is consequence of effective work of established certain structures, which hold the society together. Such structures are national institutions. In

fact, as Easterly, Ritzen, and Woolcock (2006, p.104) put it, "key development outcomes… should be more likely associated with countries governed by effective public institutions, and… those institutions, in turn, should be more likely found in socially cohesive societies." Thus, it is possible to state that the *Affective factor* of the human capital resource emergence-enabling process is in reality a part of the national institutions factor.

What does it mean on the nation al level? On the national level, people in a country may have good educational level, but if the emergence enabling factors are not present, this education will not create the national human capital resource, which works toward national economic development. Individual human capital will be wasted on national level. Furthermore, the country will be constantly losing its human capital to other countries which will attract the talent. As we see, these emergence enabling factors can be suggested to include the national institutions factor.

As has been shown in the statistical analysis and subsequent theoretical explanation, unless open and transparent well-developed national institutions exist, the country should not hope for good economic development even though the human capital level of its citizens is adequate. Investing money in education without building a system of fair honorable national institutions will not bring the desired results. At the same time, building national institutions and developing national human capital should go hand-in-hand for sustained national welfare. Without adequate level of national human capital, there are no good candidates to appoint for positions in national institutions even though the national institutions were well-built.

References

1. Abell, P., Felin, T., & Foss, N. (2008). Building microfoundations for the routines, capabilities, and performance links. Managerial and Decision Economics, 29(6), 489–502.
2. Acemoglu, D., Johnson, S., & Robinson, J. (2004). Institutions as the fundamental cause of long-run growth. NBER Working Paper Series. Working Paper 10481. National Bureau of Economic Research. Cambridge, MA.
3. Acemoglu, D., & Robinson, J. (2012). Why nations fail. The origins of power, prosperity and poverty. New York, NY: Crown Publishers.
4. Acemoglu, D., Gallego, F., & Robonson, J. (2014). Institutions, human capital and development. NBER Working Paper Series. Working Paper 19933. National Bureau of Economic Research. Cambridge, MA.
5. Alesina, A., Devleeschauwer, A., Easterly, W., Kurlat, S., & Wacziarg, R. (2003). Fractionalization. Journal of Economic Growth, 8, 155–194.
6. Anger, S., & Heineck, G. (2010). Cognitive abilities and earnings-first evidence for Germany. Applied Economics Letters, 17(7), 699–702.
7. Becker, G. (1964) Human capital. New York, NY: National Bureau of Economic Research.
8. Boudreau, J. W., & Ramstad, P. M. (2005). Talentship, talent segmentation, and sustainability: A new HR decision science paradigm for a new strategy definition. Human Resource Management, 44, 129–136.
9. Bowen, D., & Ostroff, C. (2004). Understanding HRM-firm performance linkages: The role of the strength of the HRM system. Academy of Management Review, 29(2), 203–221
10. Chan, D. (1998). Functional relations among constructs in the same content domain at different levels of analysis: A typology of composition models. Journal of Applied Psychology, 83, 234–246.
11. Constantine, C. (2017). Economic structures, institutions and economic performance. Journal of Economic Structures, 6(2), 1–18.
12. Easterly, W., Ritzen, J., & Woolcock, M. (2006). Social cohesion, institutions and growth. Economics and Politics, 18(2), 103–120.
13. Felin, T., & Hesterly, W. S. (2007). The knowledge-based view, nested heterogeneity, and new value creation: Philosophical considerations on the locus of knowledge. Academy of Management Review, 32, 195–218.
14. Flossmann, A., Piatek, R., & Wichert, L. (2007). Going beyond returns to education: The role of noncognitive skills on wages in Germany. In the 2007 European Meeting of the Econometric Society, Budapest, Hungary.
15. Glaeser, E., La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2004). Do Institutions Cause Growth? NBER Working Paper Series. Working Paper 10568. National Bureau of Economic Research, Cambridge, MA.
16. Hanushek, E. (2017). For long-term economic development, only skills matter. IZA World of Labor 2017: 343. doi: 10.15185/izawol.343. Retrieved from: https://www.semanticscholar.org/paper/Stanford-University-%2C-USA-%2C-and-IZA-%2C-Germany-For-%2C-Hanushek/8287d78c655ef584a6b2bf1e9477a20b65252fbf on Feb 10, 2019.
17. Hanushek, E., Ruhose, J., & Woessmann, l. (2017). Economic gains from educational reform by US states. Journal of Human Capital, 11(4), 447- 486.
18. Hanushek, E. A., & Woessmann, L. (2008). The role of cognitive skills in economic development. Journal of Economic Literature 46(3), 607–668.
19. Hanushek, E. A., & Woessmann, L. (2010). Education and economic growth. In: P. Peterson, E. Baker, & B. McGaw, (Eds.), International Encyclopedia of Education (pp.245–252). Oxford: Elsevier.
20. Hanushek, E.A., &Woessmann, L. (2012). Schooling, educational achievement and Latin American growth puzzle. Journal of Development Economics, 99(2), 497–512.
21. Hanushek, E. A., & Woessmann, L. (2016). Skills, mobility and growth. In Ninth Federal Reserve System Community Development Research Conference, Washington, D.C.
22. Heckman, J., Stixrud, J., & Urzua, S. (2006). The effect of cognitive and noncognitive abilities on labor market outcomes and social behavior. NBER Working Paper Series. NBER Working Paper 12006. National Bureau of Economic Research. Cambridge, MA.
23. Helfat, C., Finkelstein, S., Mitchell, W., Peteraf, M., Singh, H., Teece, D., & Winter, S. (2007). Dynamic capabilities: Understanding strategic change in organizations. Malden, MA: Blackwell.
24. Hinsz, V. B., Tindale, R. S., & Vollrath, D. A. (1997). The emerging conceptualization of groups as information processors. Psychological Bulletin, 121, 43–64.
25. Klimoski, R. J., & Mohammed, S. (1994). Team mental model: Construct or metaphor? Journal of Management, 20, 403 – 437.
26. IEA (2019). Retrieved from: https://timssandpirls.bc.edu/about.html on Feb 7, 2019
27. Kozlowski, S., & Klein, K. (2000). A multilevel approach to the theory and research in organizations: Contextual, temporal,

and emergent processes. In K. Klein & S. Kozlowski (Eds.), Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions (pp. 3–90). San Francisco: Jossey-Bass.
28. Kozlowski, S. W. J., & Ilgen, D. R. (2006). Enhancing the effectiveness of work groups and teams. Psychological Sciences in the Public Interest, 7, 77–124.
29. Lippman, S. A., & Rumelt, R. P. (2003). The payments perspective: Micro-foundations of resource analysis. Strategic Management Journal, 24, 903–927.
30. Lundberg. S. (2017). Noncognitive skills and human capital. Retrieved from: http://www.nber.org/chapters/c13701 on Jan 29, 2018.
31. Maritan, C. A., & Peteraf, M. A. (2007). Dynamic capabilities and organizational processes. In C. Helfat, S. Finkelstein, W. Mitchell, M. Peteraf, H. Singh, D. Teece, & S. Winter (Eds.), Dynamic capabilities: Understanding strategic change in organizations (pp. 30–46). Malden, MA: Blackwell.
32. Marks, M. A., Mathieu, J. E., & Zaccaro, S. J. (2001). A temporally based framework and taxonomy of team processes. Academy of Management Review, 26, 356–376.
33. Martin, M.O., Mullis, I.V.S., & Foy, P. (2008). TIMSS 2007 International Science Report: Findings from IEA's Trends in International Mathematics and Science Study at the Fourth and Eighth Grades. Chestnut Hill, MA: TIMSS & PIRLS International Study Center, Boston College.
34. Mesmer-Magnus, J. R., & DeChurch, L. A. (2009). Information sharing and team performance: A meta-analysis. Journal of Applied Psychology, 94, 535–546.
35. Mullis, I.V.S., Martin, M.O., & Foy, P. (2008). TIMSS 2007 International Mathematics Report: Findings from IEA's Trends in International Mathematics and Science Study at the Fourth and Eighth Grades. Chestnut Hill, MA: TIMSS & PIRLS International Study Center, Boston College.
36. NCES National Center for Education Statistics (2019 a). Average mathematics scores of fourth-and eighth-grade students, by country, 2007. Retrieved from: https://nces.ed.gov/timss/table07_1.asp on Feb 10, 2019.
37. NCES National Center for Education Statistics (2019 b). Average science scores of fourth-and eighth-grade students, by country, 2007. Retrieved from: https://nces.ed.gov/timss/table07_3.asp on Feb 10, 2019.
38. Oldham, G. R. (2003). Stimulating and supporting creativity in organizations. In S. E. Jackson, M. A. Hitt, & A. S. DeNisi (Eds.), Managing knowledge for sustained competitive advantage (pp. 243–273). San Francisco: Jossey-Bass.
39. Ostroff, C., Bowen, D.E. (2000). Moving HR to a higher level: HR practices and organizational effectiveness. In K.K. Klein & S.W.J. Kozlowski (Eds.), Multilevel theory, research, and methods in organizations: Foundations, extensions and new directions (pp.211–266). San Francisco, CA: Jossey-Bass.
40. Ployhart, R. E., Weekley, J. A., & Baughman, K. (2006). The structure and function of human capital emergence: A multilevel examination of the attraction-selection-attrition model. Academy of Management Journal, 49(4), 661–677.
41. Ployhart, R. E., Moliterno, T. P. (2011). Emergence of the human capital resource: A Multilevel Model. Academy of Management Review, 36(1), pp 127–150.
42. Skaggs, B. C., & Youndt, M. (2004). Strategic positioning, human capital, and performance in service organizations: A customer interaction approach. Strategic Management Journal, 25, 85–99.
43. Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. Strategic Management Journal, 28, 1319–1350.
44. WEF, the World Economic Forum (2017). The Global Competitiveness Report 2017–2018. Retrieved from: https://www.weforum.org/reports/the-global-competitiveness-report-2017–2018 on Feb 7, 2019.
45. WEF, the World Economic Forum (2019). Retrieved from: https://www.weforum.org/ on Feb 5, 2019.
46. Wright, P. M., McMahan, G. C., & McWilliams, A. (1994). Human resources and sustained competitive advantage: A resource-based perspective. International Journal of Human Resource Management, 5(2), 301–326.
47. Wright, P. M., Dunford, B., & Snell, S. A. (2001). Human resources and the resource based view of the firm. Journal of Management, 27(6), 701–721.
48. Wright, P. M., & Haggerty, J. J. 2005. Missing variables in theories of strategic human resource management: Time, cause, and individuals. Management Revue, 16, 164–173.

Верхогляд О. О.

Національний людський капітал або національні інституції: погляд з перспективи багаторівневої теорії організації

Ця стаття вносить свій внесок в економічні дебати про верховенство національного людського капіталу або національних інститутів у національному економічному розвитку. У статті для статистичного аналізу використовувалися результати TIMSS Assessment і дані World Competitiveness Reports як змінні в рівняннях множинних регресій. Згідно зі статистичним аналізом національний людський капітал надає значно менший вплив на національний економічний розвиток, ніж національні інститути. У статті використовувалася багаторівнева теорія організацій для пояснення цього феномена, яка екстраполювалася на рівень країни. Багаторівнева модель створення людського капіталу пояснює, як колективний ресурс людського капіталу організації створюється зі знань, навичок і здібностей членів організації на індивідуальному рівні завдяки наявності сприятливих факторів. У статті показано, що національні інститути є такими сприятливими факторами на рівні країни. Використання ресурсів людського капіталу громадян країни опосередковано є фактором національних інститутів. В умовах відсутності якісних інститутів індивідуальний людський капітал громадян країни не агломерується в національний людський капітал.

Ключові слова: багаторівнева теорія організації, національний людський капітал, національні інституції, національний економічний розвиток.