Relationship between Human Capital and National Culture

VALERIJ DERMOL
International School for Social and Business Studies, Slovenia
valerij.dermol@gmail.com

The paper presents an insight into the relationship between the dimensions of national culture defined by Hofstede and human capital (HC) measured by the Global Human Capital Index (GHCI) regularly measured by World Economic Forum. The study is based on the data available on the Internet. Statistical analysis was performed on the sample of 89 countries presenting a regression model which shows that a significant positive relationship exists between the Long Term Orientation versus Short Term Normative Orientation (LTO), Individualism versus Collectivism (IDV) and Masculinity versus Femininity (MAS) on the side of national culture and GHCI as the indicator on the side of the HC. Besides, in the study, we recognize groups of countries with similar cultures which may be positively or negatively related to the HC, its development and deployment, that may also act as a mediator affecting the economic performance of a country. The findings of the study give an insight into factors that may affect long term performance not just of a country but also business organisations in a country. We believe that individualism, long-term orientation and minimisation of excessive competition in a society or an organization may be of great importance.

Key words: national culture, human capital, the performance of national economies
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Introduction

Human capital (HC) is supposed to be a predictor of the long-term success of national economies. On the other hand, national cultures may be a vital factor in promoting or obstructing the development of HC in a country. Because of such relationships, we believe, that, in general, the economic success of a country seems to be somehow predefined also by its national culture. This way, HC may play a mediating role between the national cultures and the countries' performance. However, in the literature, there are very few researches investigating the direct relationship between the concepts of national culture and human capital. Most of the research relates to

migration issues and entrepreneurship, and examines, for example, entrepreneurial behaviour because of migration in a country with different culture compared to the source country.

The paper aims to (i) check the relationships between different dimensions of national cultures and HC, and (ii) recognize groups of countries with similar cultures and (iii) link those groups with human capital as a predictor of their future economic performance. In this paper, statistical analysis will be conducted to identify the extent and direction of influences the culture might have on human capital, its development and deployment.

In the first part of the article, concepts of human capital and national culture, as well as the approaches of their measurements, are presented. In this part of the paper, the relationships between both concepts are also investigated and presented. In the second part of the paper, research methodology is explained together with the data sources and statistical methods used in the analysis. In the last part of the paper, the results of the statistical analysis are explained discussed.

Human Capital

The concept of human capital has its origins in economic literature. Becker (1964), for example, defined it as the knowledge, information, ideas, skills, and health of individuals. On the other hand, psychologists tend to equate HC not only to ingredients such as knowledge or health, but also abilities and other characteristics of individuals (Ployhart and Moliterno 2011). As Armstrong summarises (2010), HC can be defined as a sum of all human capabilities – congenital or acquired characteristics that can be developed by appropriate investments (Armstrong 2010).

Many definitions of HC focused on the individual level, but the construct has also been studied from a unit-level (team, organisation or even country). As Wright and McMahan (2011) state, the economic approach to human capital begins with individuals but does not limit itself to individual analysis. Much of the economic attention directed to HC has been exploring how aggregated HC (e.g., education of the workforce) impacts country productivity and its economic success. HC can be therefore treated also as the economic value of employees or the economic value of their capabilities. Namely, it is considered that education, experience, and skills of employees have economic value for the employers as well as for the entire societies.

Folloni and Vittadini (2010) note that HC has several sources linked not only to formal education and training but also to culture, family

background, social context as well as innate and non-cognitive abilities and skills. Bassi and McMurrer (2006) see HC as a productive capacity embedded in the people. Svetlik and Zupan (2009) recognize it, in addition to organizational capital and social capital, as an integral part of enterprises' intellectual capital. They note that HC incorporates elements such as knowledge, skills, abilities, values, attitudes, beliefs, expectations, as well as health. Folloni and Vittadini (2010) understand HC as a 'non-observable variable' obtained through an ad-hoc combination of a set of indicators concerning the results of an investment in education and terms of working ability.

HC can be divided into general and specific capital (Swart 2006; Wright and McMahan 2011). The general one is created mainly outside the organization, and individuals themselves cover most of the cost of its production. The creation of general HC is related mostly to education and schooling. On the other hand, creating specific human capital is directly related to the individual's experience, the number of specific projects that this individual is involved in, etc. It contains predominantly tacit knowledge, which can significantly hinder knowledge transfer (Edvinsson and Malone 1997) both among people in units (teams, organisations, countries) as well as in the direction of organizational capital creation, e.g., databases, manuals, norms and rules, etc. This way, the tacit components of HC may hinder further development of HC as well as other components of intellectual capital. Knowledge management represents a necessary means of promoting knowledge transfer at individual, organizational or societal level, and even more, it represents an essential part of human capital since it helps to implement the skills of localization, acquisition, development, transfer, codification, as well as the use of human capabilities (Paliszkiewicz 2010).

Literature reports that HC is directly as well as indirectly linked to the long-term success of individuals, organizations, and society. Weaver and Habibov (2012) found in their research that HC in the form of education and a favourable health condition has a more significant impact on individuals' income than any other social capital variable. HC defined as skills and qualifications, and to a lesser extent, personal wealth defined by behavioural characteristics, are considered critical determinants in gaining employment or career advancement (Brook 2005). Oliver (2001), Wiig (2007), Kwon (2009), and L'Angevin and Laïb (2005) list several studies indicating the impact of several aspects of HC development on the success of organizations. They find, for example, that the top 250 of 500 world-class companies with the highest investment in employee training achieve

approximately 86% higher ROE than the rest of them, Motorola earns 33 dollars per dollar invested in the training, e-learning brings 40% to 60% of operating savings for a company, etc. The same authors note that, at a country level, a 10% increase in the level of education brings 4.9% to 5.9% increase in overall productivity, an increase of schooling years on average for one year brings a 7% increase of GDP, a 1% increase in literacy among adults leads to a 2.5% increase of the individual performance as well as a 1.5% increase in GDP. Florida and Lee highlight the impact of creativity and diversity on innovation, measured by the number of patents per capita, and considering factors such as the differentiation of human capital (Florida 2010). Karasek and Dermol (2015) in their study finds a strong correlation between the size of the creative class that reflects the scale of human capital in an environment, and regional innovation as well as some innovation indicators such as the number of patents and the rights of design protection granted to domestic economic operators.

There are various approaches to asses human capital at the organisation level or the level of society. Among those, it is worth highlighting, for example, OECD, which regularly performs a series of interlinked research in this area (see https://data.oecd.org/education.htm), the Global Human Capital survey conducted by the World Economic Forum (Schwab 2018), United Nations Development Program titled Human Development Index (see http://hdr.undp.org/en/composite/HDI), Euro Plus Monitor (Schmieding 2015).), etc. In this article, human capital will be conceptualized and operationalized, according to the Global Human Capital Index (GHCI). The index includes the following dimensions of human capital: (i) capacity, which mainly relates to the educational level of the population and various literacy; (ii) deployment, based on the idea that human capital is created, and that it includes working experience of a part of the population involved in economic activities; (iii) development, which includes aspects of education, study effectiveness and (iv) know-how that provides for the element of adequate competence of the population.

National Culture

The concept of a culture can be defined as the way things are done in a social context. Culture is, therefore, typical of the organization – habits, prevailing attitudes, as well as the patterns of adult behaviour either anticipated or accepted (Drennan 1992). Kroeber and Kluckhohn (1952) note that culture is taught to be based on symbols and includes typical ways of behaviour, emotion and human reaction. Williams, Dobson, and Walters (1993) note that culture is generally

present and based on relatively stable and long-term beliefs, attitudes, and values. Morgan (1986) points out that culture is a means of creating organized activities by which it is possible to influence the language, the norms, the customs, the ceremonies and other social practices of communicating the fundamental ideology, as well as the values and the beliefs which direct human activity. Hoefstede (2001) defined national culture as 'the collective programming of the mind, which distinguishes members of one group or category from the people from other groups.' Kymlicka (2015) wrote that national culture is a consequence of a desire to promote some collective national identity among citizens.

From its definition of national culture for many years, Hofstede (see https://www.hofstede-insights.com) collected and analysed the data from which he produced cultural profiles of 100 countries. The culture of these countries is defined in terms of six dimensions – Power Distance Index (PDI), Individualism versus Collectivism (IDV), Masculinity versus Femininity (MAS), Uncertainty Avoidance Index (UAI), Long Term Orientation versus Short Term Normative Orientation (LTO), and Indulgence versus Restraint (IND). As describes on his website, PDI 'expresses the degree to which the less powerful members of a society accept and expect power to be distributed unevenly,' IDV can be defined as 'a preference for a loosely-knit social framework in which individuals are expected to take care of themselves and their immediate families, "MAS" represents a preference for the society for achievement, heroism, assertiveness, and material rewards for success [which means that] the society at large is more competitive.' UAI 'expresses the degree to which members of a society feel uncomfortable with uncertainty and ambiguity.' LTO bases on the idea that society must maintain some links with its past while addressing the challenges of present and future; however, the proportion of both directions may differ. IND 'stands for a society that allows relatively free gratification of basic and natural human drives related to enjoying life and having fun.'

Relationship between National Culture and Human Capital

From the above considerations, it may be induced that there exists a connection between the national culture and the country's HC leading to country performance. The culture defines the extent of learning activities in an organisation or a country, the size of knowledge transfer, trying out new things and experimenting, innovation, etc. which all lead to HC creation. Logically, the links may also be directed in the opposite direction.

Liebowitz (2008), for example, describes the relationship or even high correlation between knowledge management on one side and organizational and national cultures on the other. He lists various research findings indicating such links or even positive impacts on organisational performance. As we mentioned earlier, knowledge management reflects the amount of HC in an individual organisation as well as the activity of producing it. Jashapara (2011) in his book on knowledge management summarizes findings based on the research stemming from Nonaka's concept of knowledge-creating organisation. He states that the best area for optimal performance of knowledge management is located somewhere in between the cooperation and competition promoting organizational cultures. Chandan (2015) investigates the relationship between religiosity and economic growth. He finds out that the emerging economies with high growth rates include a variety of geopolitical regions representing many different religions, national cultures, and even 'no-religion' affiliation, and concludes, that faith alone is not sufficient to explain the higher economic growth. However, he continues that 'religious beliefs and cultural values related to work and social ethics are conducive to economic growth through entrepreneurship and organizational effectiveness.' Vinogradov and Kolvereid (2007) examined the relationship between national culture, human capital in the form of educational attainment in the country of origin and self-employment rates among first-generation immigrants in Norway. Their findings showed that immigrants from countries with low power distance are more likely to become self-employed. Nevertheless, other dimensions of cultural attributes, such as the uncertainty avoidance, masculinity/femininity and individualism/collectivism were not significantly associated with immigrants' self-employment rate. On the contrary, they found that educational attainment was significantly positively associated with self-employment among immigrants.

Research Methodology

The article aims to investigate the relationship between the dimensions of national culture and human capital in a country. In the empirical study, we step even a bit further since we assume a cause-effect relationship between the national culture and the human capital. In the model, presented in figure 1, we visualise the research model.

Since we base our study on Hofstede's model of national culture, we assume that different cultural dimensions differently relate to the construct of human capital. By examining the relationships between

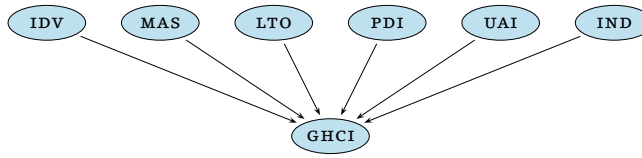

FIGURE 1 Model of Relationships between National Culture and Human Capital

the cultural dimensions and human capital, we intend to identify the cultural dimensions increasing or reducing the counties' performance potential as well as the groups of countries sharing a similar culture and possibly the same potential for future economic performance.

In the analysis, we used two sets of data belonging to 89 countries. Human capital was operationalized by the variable of Global Human Capital Index available on the web pages of World Economic Forum, and dimensions of national culture which are operationalized by the variables accessible on the web page of Hofstede's Insights (see https://www.hofstede-insights.com/models/national-culture/). In the analysis, we performed statistical calculations based on one variable (GHCI) operationalising the human capital, and six variables operationalising the national culture (PDI, IDV, MAS, UAI, LTO, and IND). All the variables were interval variables. In the analysis, we used two statistical methods: linear regression analysis and hierarchical cluster analysis. Statistical analysis was done with the use of IBM's SPSS.

Results

RELATIONSHIP BETWEEN CULTURAL DIMENSION AND HUMAN CAPITAL

The multiple regression analysis was carried out to investigate whether the six dimensions of national culture construct, defined by Hofstede, could significantly predict the Global Human Capital Index as the variable representing the amount of human capital in a country. As we already noted, in figure 1, the regression model is visually presented. Before we conducted the linear regression analysis, we also checked the assumptions of normality, linearity, homoscedasticity, and absence of multicollinearity. The tests showed that all the assumptions were met; therefore, we proceeded with the analysis.

The results of the regression analysis indicate that the model explains 62.8% of the variance and that it may be a significant pre-

dictor of the human capital index, $F(6, 64) = 17.99$, $p < 0.001$. As the analysis showed, only three dimensions of cultural dimensions seem to be statistically significantly related to human capital. The results of the analysis indicated, that while the culture dimensions IDV ($\beta = 0.30$, $p < 0.05$), MAS ($\beta = -0.18$, $p < 0.05$) and LTO ($\beta = 0.55$, $p < 0.001$) contribute significantly to the model, dimensions PDI ($\beta = -0.23$, $p = 0.06$), UAI ($\beta = 0.03$, $p = 0.72$) and IND ($\beta = 0.19$, $p = 0.054$) do not. Among the dimensions significantly related to human capital, LTO seems to have a relatively strong positive effect, IDV relatively modest but positive effect; on the other hand, MAS is related negatively and relatively weakly. Due to the p-value close to 0.05, the dimension of IND may also partly be positively related to the national culture.

The following equation presents the final predictive model:

$$\begin{aligned} \text{GHCI} = {} & 58.591 - 0.079 \times \text{PDI} + 0.09 \times \text{IDV} - 0.7 \times \text{MAS} + 0.01 \times \text{UAI} \\ & + 0.17 \times \text{LTO} + 0.06 \times \text{IND} \end{aligned}$$

GROUPS OF COUNTRIES WITH A SIMILAR CULTURE

In the second step of the analysis, we also performed a hierarchical cluster analysis. In the analysis, we only included variables defining the dimensions of the national culture of the countries. As the method, we used Ward's method with squared Euclidean distance as a measure. In table 1, we present the results that arise from the dendrogram created by SPSS. From the table, we can identify six different groups of countries sharing similar cultures but having significant differences towards other groups. In the table, we additionally present the value of GHCI for each group as well as the average values of groups' cultural dimensions.

From the results of the analysis, we can see that the group with the highest GHCI (group no. 1) contains countries with the highest value of IDV dimension – firm individualistic orientation, but slightly lagging in terms of long-term orientation as well as the Masculinity versus Femininity dimension. For the second-ranked group of countries, the most significant weakness seems to be the Masculinity versus Femininity dimension, since this dimension is rated almost as the highest among all the groups, otherwise, these countries are strongly long-term oriented with quite strong individualistic cultural dimension. On the other hand, the group with the lowest GHCI seems to be group no. 6. From table 1, we can realise that this group of countries contains countries that share quite active collectivistic cultures that are also highly masculine and very short-term oriented. Groups no. 3 and no. 4 both lag behind the best-ranked groups re-

TABLE 1 Groups of Countries with Similar Cultures

Group of countries	IDV	MAS	LTO	PD	UAI	IND	GHCI*
1 Norway, Finland, USA, Denmark, New Zealand, Sweden, Netherlands, Canada, Ireland, Australia, UK, and South Africa	76,8	41,6	37,8	33,3	44,0	67,3	72.5
2 Switzerland, Germany, Austria, Belgium, Japan, Czech Republic, Luxemburg, Poland, Italy, Hungary	64,5	69,3	67,8	46,0	77,3	44,3	71.3
3 Slovenia, Thailand, Malta, Spain, Portugal, Greece, Argentina, Chile, Uruguay, Peru, Turkey, Brazil, Salvador, Egypt, Iran, Tanzania, Morocco	33,6	41,7	31,2	63,4	82,5	48,2	61,5
4 Singapore, Malesia, China, Slovak Republic, Philippines, Indonesia, Vietnam, Saudi Arabia, Albania, India, Bangladesh	27,0	60,5	53,1	85,3	45,2	34,8	62,6
5 Estonia, Russia, Ukraine, Lithuania, South Korea, Latvia, Bulgaria, Croatia, Romania, Serbia	39,0	32,5	70,0	69,0	81,0	20,9	69,1
6 Trinidad and Tobago, Columbia, Mexico, Ghana, Venezuela, Dominican Republic, Nigeria, Mozambique	33,6	41,7	31,2	63,4	82,5	48,2	57,7

NOTES 18 countries are missing due to missing values. * Average.

garding all three dimensions – the individualism as well as the long-term orientation and Masculinity versus Femininity. However, group no. 5, the third best-ranked group, leads in the dimension of long-term orientation as well as in the dimension of Masculinity versus Femininity; however, it lags considerably in the dimension of individualism.

Discussion and Conclusions

From the results of the regression analysis, we can anticipate that national culture may be strongly associated with the know-how in a country, as well as the capacity, the development and the deployment of HC in a country. Assuming cause-effect relationship, we can conclude that national culture with some of its dimensions significantly influences human capital in a country, and through intellectual capital as a mediator, especially from the long-term point of view, also predict the prosperity and economic performance of a nation. From

the analysis, we can assume that cultures which are individualistic, long-term oriented and not extremely masculine, may have a better position leading to the development and deployment of HC at the level of a country.

The most substantial positive impact on human capital appears to have Long Term Orientation versus Short Term Normative Orientation dimension, and in the second place, Individualism versus Collectivism. On the other hand, Masculinity versus Femininity seems to have a slightly negative influence on human capital. From the model which our data confirmed, we assume that countries in which the culture supports long-term, strategic thinking combined with strong individualism. Still, without extreme achievement orientation, heroism, or dependence on material rewards, will probably be more successful than the other ones.

There are two cultural dimensions for which we cannot recognize any significant influence on human capital – Uncertainty Avoidance and Power Distance. On the other hand, according to our findings, we believe that Indulgence versus Restraint may be the cultural dimension, which may also partly be related to human capital in a country. It seems that countries which are too restraint, with many rules and norms, do not develop human capital to the extent of more indulged countries. This limitation may be evident, especially in the countries belonging to the group no. 5.

From table 1, we can somehow confirm our assumptions stemming from the regression analysis. The groups with the highest human capital indexes (groups 1 and 2) consist of countries in which individualistic and long-term oriented cultures prevail. Group 5 lags minimally behind the two leading groups. It seems that it is the Masculinity versus Femininity dimension, which slightly reduces the HC potential of the countries in this group. On the other hand, group no. 6 shows the lowest human capital index. All the cultural dimensions that significantly affect human capital seem to be considerably worse than in the leading groups. However, this group and the group no. 3 achieve the highest Uncertainty Avoidance Index leading to feelings of uncertainty and ambiguity.

The limitations of the study relate mostly to the data. The source of the data on cultural dimensions is the database on Hofstede's Insights webpage which may not be as precise and reliable as one would want, besides, in the case of larger countries it may be impossible to define only one culture profile per country. Because of such considerations, some examples are arising from the findings of the analysis, which cause some doubts about the results of the study.

However, the results at a general level, give handy insights for further investigation of the relationships between the national cultures and human capital.

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