

# Exploring the influence of demographic characteristics on the homogeneity of national culture in the context of social changes\*

Jiri Dvorak, Lenka Komarkova\*\*

## Abstract

Cultural differences have a significant impact on international business. Therefore, employers must understand the potential risk of misinterpretation due to the inhomogeneity or instability of national cultures. Using Hofstede's model, this case study analyses the influence of selected demographic variables on the homogeneity of the Czech national culture in the context of radical economic and political changes. The results based on the questionnaire survey with the quota sampling show that age and education influence the homogeneity of cultural dimensions whereas the impact of gender is weak. In particular, human resource managers should pay attention to the young generation, which requires less distance from superiors, accept decentralisation better and reject visible signs of status.

**Keywords:** National culture, Homogeneity, Age cohorts, Education, Gender.

**JEL Codes:** F23, M5, Z1

## Introduction

Cultural differences are viewed as a vital phenomenon in the cooperation of employees from different countries (e.g., Bauer/Matzler/Wolf 2016; Kozan 2002) and need to be taken into account in human resource management practices (Ryan/Reeder/Golubovich 2017). Therefore, understanding the specifics of national cultures is an important element influencing the success of companies in a globalised world (Nadeem/Raza/Kayani 2018; Ryan et al. 2017). However, a simplified comparison of national cultures brings the inevitable stereotyping of such groups of people (Osland/Bird 2000; Tung/Verbeke 2010) and creates leeway for speculation and biased reactions from the participants. Although culture is considered to be relatively stable and characterised by considerable inertia (Beugelsdijk/Maseland/Hoorn 2015; Hofstede 2003), it is also expected to be time-varying and dependent on the living environment (Inglehart 2018). From a practical management point of view, the major challenge is the internal variability of culture based on regional specifics, ethnicity, demography and variability in time (Minkov 2012; Shenkar 2001, 2012).

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This paper aims to verify the idea by Kaasa et al. (2016) on relatively rapid changes in cultural dimensions in countries undergoing a significant change in their political and economic environment. In the context of such changes, this study analyses the influence of selected demographic characteristics on the homogeneity of national culture in the Czech Republic based on Hofstede's concept. The stability of Hofstede's national cultural dimensions for Czech society is also examined. The Czech Republic represents an ideal sample for such a study for several reasons. First, it underwent a radical economic transformation after 1989. Within just a few years, a close to 100 % state-owned and managed socialist command economy was transformed into a relatively free-market economy with the private sector greatly expanding (Clark/Soulsby 1995; Hanousek/Kocenda/Svejnar 2007). This was expected to change the basic economic relations and in turn, the social security affecting the hierarchy of values and cultural behaviour in Czech society (Bartosova/Zelinsky 2013). Second, given the speed and depth of these changes, a generation growing up in a fundamentally different environment is now gradually entering the labour market. And finally, the Czech Republic has relatively high national and regional homogeneity (Minkov/Hofstede 2014), which limits the disruptive effects that can potentially skew the results.

Compared to the considerable amount of studies focusing on the comparison of cultural differences between nations, the issue of the internal homogeneity of national culture is much less discussed as it is assumed to be internally homogeneous (Fatehi/Priestley 2018; Kozan 2002; Lenartowicz/Johnson/White 2003; Venaik/Midgley 2015). In this respect, our article makes a significant contribution to the scholarly debate. Moreover, it also has practical benefits with regard to the documented link between the cultural specificities of individuals and their labour market behaviour (Nadeem et al. 2018; Probst/Lawler 2006; Tenhiala/Giluk/Kepes 2016).

## 1. Theoretical Background

Hofstede et al. (2010:6) define culture in general as *“the collective programming of the mind that distinguishes the members of one group or category of people from others”*. This programming usually has common features for a certain internally consistent group of people, which allows the application to the nation or state. To be able to grasp such a complex topic in practice, a number of cultural models have gradually emerged that structure the topic into more illustrative dimensions (Hall 1960; Hofstede 1980; Inglehart/Basanez/Diez-Medrano 2000; Javidan/House 2001; Schwartz 2006). Hall (1960) and Hofstede (1980, 2003) provided significant impetus to the investigation of national cultures. Hofstede's (1980) ecological dimension approach was the primary innovation. This concept reduces the complexity of cultural differences and conceptualises

observed social phenomena (Minkov 2012), which has led to an increase in interest among scholars and practitioners due to greater clarity and ease of use in practice.

Hofstede's concept of cultural dimensions consists of six dimensions following independent aspects of national culture. He used the original IBM dataset to define the first four cultural dimensions (Hofstede 1980), while the other two were added later (Hofstede et al. 2010). Power Distance dimension (PDI) reflects how a culture perceives the unequal distribution of power in a given society. Individualism dimension (IDV) describes the extent to which respondents perceive themselves as independent individuals or, conversely, as loyal members of a group. The level of masculinity (MAS) reflects the degree between masculine motivations, which are seen as competition, achievement, success, and feminine priorities, which are stated as the quality of life, and caring for others. Uncertainty Avoidance (UAI) examines how a culture perceives and deals with the ambiguity of the future. Long Term Orientation (LTO) follows how society perceives the importance of and the connections between the past, present and future. Finally, Indulgence (IVR) reflects how much people balance their desires and obligations.

Simultaneously, several other approaches to the issue emerged, e.g. Schwartz and Bilsky (1987) and Schwartz (2006) constructed the theory of the universal types of cultural value dimensions. The GLOBE research project has examined the relationship between national culture, leadership and organisational culture since 1990 (Chhokar/Brodbeck/House 2013; Javidan/House 2001). Cultural differences and dynamics were studied by Inglehart et al. (2000) using the vast dataset from the World or European Values Survey projects. The list of cultural value models is not exhaustive, and each approach presents a specific view of cultural differences (Swoboda/Batton 2019) including the advantages and disadvantages. The concepts have been repeatedly criticised, revised and validated (e.g. Beugelsdijk et al. 2015; de Mooij 2013; Fernandez/Carlson/Stepina 1997; Hofstede 2006; Kaasa et al. 2014; Kitayama 2002; Minkov 2018; Venaik/Brewer 2013).

Nevertheless, Hofstede's method remains one of the most influential and the long list of applications demonstrates the contribution of this concept. This is the ability to highlight the most significant aspects in which national cultures differ, which enables a better understanding of people's specific behaviours and preferences as employees or entrepreneurs. However, the predictive value of this approach is dependent on the homogeneity and relative stability of national cultures. The following sections 1.1 and 1.2. address these two aspects of national culture and their possible sources.

### 1.1 Culture Homogeneity

Shenkar (2001, 2012), Venaik and Brewer (2013) and Zaheer et al. (2012) analysed critical aspects of cultural differences and highlighted the dangers of simplified usage of the cultural concept. Shenkar (2001, 2012) names the generally accepted assumption of symmetry, linearity, causality, discordance, and also the stability and homogeneity of national culture as the main sources of risk. These problems can lead to a distortion or disproportionate simplification of the view of cultural differences and a misleading interpretation of the resulting implications (Martinsons/Ma 2009). Huo and Randall (1991) highlight that an inhomogeneous environment complicates management decisions, especially in culturally diverse countries such as China and India.

Venaik and Midgley (2015) distinguish exogenous sources of inhomogeneity (e.g., nationality, regional specifics, ethnicity, demography) and endogenous sources based on differences in the common cultural values in a society. Our study focuses on the exogenous sources and their influences on national culture. A source of exogenous inhomogeneity, namely nationality and ethnicity, can be an inappropriately chosen research sample. Kaasa et al. (2014, 2016) emphasise the need for a clear definition of the terms “country”, “state” and “nation” and view a nation as a group of people, not an administrative unit. Regional specificities can play an important role, especially in countries with large differences in lifestyles and living standards between regions (Lenartowicz et al. 2003; Redfern/Crawford 2004). However, Minkov and Hofstede (2014) separately analysed European regions based on the 2010 European Social Survey. The results indicate that regions tend to form relatively homogeneous and distinct national clusters, which is in line with their previous analysis (Minkov/Hofstede 2012). The Czech Republic was specifically evaluated as a relatively high nationally and regionally homogeneous country (Minkov/Hofstede 2014).

Based on Venaik and Midgley (2015), the demography and specifics of the population structure remain the last unexplored potential external source of the inhomogeneity of national culture. The effect of the individuals' age, as a source of inhomogeneity, and cultural attitude was discussed by Erikson (1998) who explained it using the theory of the life cycle effect based on the expected evolution of values and experiences during a human lifetime (Davies/Chun 2012). In the context of global social changes, differences in national culture by generation (Howe/Strauss 2009) can be examined. The markedly different behaviour of millennials compared to previous generations is confirmed by Howe and Strauss (2009) and Inglehart et al. (2017). However, they do not see the development of the individual over time as the reason but rather a permanent difference arising in childhood and adolescence. Singh (1990) analysed the cultural inhomogeneity of Indian managers and also found variations concerning age as well as education, the nature of the job and the economic sector. The age of individuals is

repeatedly mentioned as influencing their behaviour (Chipulu/Ojiako/Gardiner 2014; Vieregge/Quick 2011), and is particularly important in countries that have undergone a significant social change (Martinsons/Ma 2009).

In addition to changes over time, the homogeneity of national culture is also influenced by the structure of the population (Shenkar 2001, 2012). Therefore, as a further view of the homogeneity of national culture, the influence of demographic variables such as the gender and education of nation members is addressed. Since the structure of society in terms of gender remains stable (Cuddy/Wolf/Glick 2015) and the structure of society in terms of educational attainment changes only very slowly, these aspects represent a stable source of the possible inhomogeneity of society.

Most studies analyse gender differences in relation to the behaviour of respondents in specific situations. Concerning Central and Eastern Europe (CEE) countries foreign senior managers working in the region consider women to be more effective managers than men (Buzády 2015). Other differences were identified in negotiation performance (Miles 2010; Shan/Keller/Joseph 2019), the willingness to compete (Booth/Fan/Meng 2019; Sutter/Glaetzle-Ruetzler 2015), task and relationship orientation (Chipulu et al. 2014; Nguyen/Mujtaba/Ruijs 2014), and shopping styles (Dennis/Brakus/Garcia 2018). Gneezy et al. (2009) and Booth and Nolen (2012) show that the differences in the willingness to compete are heavily influenced by upbringing and family relationships, while Sutter and Glaetzle-Ruetzler (2015) indicate that they emerge in early childhood and remain stable. This is consistent with the statement that the level of gender stereotyping depends on national culture (Cuddy et al. 2015; Shan et al. 2019). Equality and gender stereotyping remain important issues, especially in the rapidly developing CEE countries (Lipovka/Buzady 2020). However, direct analyses of the impact of gender on national culture dimensions are rare. AlAnezi and Alansari (2016) and Rajh et al. (2016) confirm the influence of gender on cultural specifics in the case of Kuwait and Croatia based on Hofstede's cultural dimensions.

A non-negligible source of inhomogeneity influencing the preferences of the individuals is their education level (Ambos/Leicht-Deobald/Leinemann 2019; Nguyen et al. 2014), as shown by studies on leadership orientation and the task or relationship orientation of the employees. The importance of education level for the formulation of basic values is also documented by studies tracking changes in fertility (Zeman 2018) and willingness to marry (Kreidl 2012) in the Czech Republic during the 20th century. Education level is also considered to be a significant factor affecting job satisfaction (Vila/Garcia-Mora 2005). However, despite the results of Rajh et al. (2016), Taras et al. (2010) and Singh (1990) confirming the influence of education on Hofstede's cultural dimensions, the

question of the homogeneity of national culture remains a rather marginal issue from this perspective.

## 1.2 Culture Stability

Culture can also be shaped by the external environment. Hofstede et al. (2010) predict an increase in IDV and a decrease in PDI with the modernization of society, while for the other dimensions they do not indicate the expected direction of development. Huo and Randall (1991) followed the influence of the political and economic environment by examining the cultural differences of the Chinese population living under different political systems. They opine that a socialist establishment leads to collectivism. Their findings are generally in line with the conclusions published by Mayfield and Mayfield (2012), who demonstrate the relationship between national culture and infrastructure development in the country. Using Hofstede's methodology, Tang and Koveos (2008) identified interdependence between GDP and cultural dimensions by comparing figures for 52 countries. Tarabar (2019) confirmed these results and highlighted the influence of GDP changes, namely on power distance and individualism in a group of 72 countries. Using modified Hofstede dimensions, Beugelsdijk and Welzel (2018) show that social modernisation leads to an increase in IDV, IVR and a decrease in UAI. This should lead indirectly to a decline in PDI and LTO, respectively, which they find negatively correlated with IDV and IVR. Berry et al. (2011) also view culture as an evolving adaptation to a changing environment, *inter alia* as a manifestation of acculturation and advancing globalisation.

These studies suggest a relatively rapid mutability of culture if it responds to a state institution lasting only a few decades or to even faster technological development. This raises the question of the stability of culture in terms of the time and speed of possible changes (Beugelsdijk et al. 2015; Inglehart 2018; Tarabar 2019). Inglehart et al. (2017) also document the connection of culture with economic development and predicted changes in national cultures in terms of the age cohorts. Moreover, Inglehart (2008, 2018) demonstrate that the obtained opinions remain relatively unchanged during an individual's life, which is consistent with the generation subculture theory (Howe/Strauss 1992). Smola and Sutton (2002) also confirm significant differences between generations and a weaker shift in views over the life course. Deeper changes in culture are therefore only possible if based on intergenerational population replacement (Hofstede/Hofstede/Minkov 2010; Inglehart 2018) and could be accelerated when individual-choice norms reach tipping point pressure to shift public opinion (Inglehart 2018). This confirmed the conclusions by Howe and Strauss (1992, 2009). In addition, Inglehart (2008, 2018) and Beugelsdijk and Welzel (2018) do not find evidence for a life cycle effect, i.e. for the dependence

of the cultural attitudes of the individuals at their current age, when this attitude changes with age (Erikson 1998).

Beugelsdijk et al. (2015) and Kaasa et al. (2016) validated the results of Hofstede et al. (2010) using different data sources rather than the original questionnaires. Whereas the results of Beugelsdijk et al. (2015) indicate that cultural change is mostly absolute rather than relative and the cultural distances among nations are generally stable, Kaasa et al. (2016) showed that the significant exceptions are Eastern European countries and Greece, where the rapid development of society leads to faster obsolescence of the data obtained and to an overall change in the cultural position.

## 2. Czech Context and Hypotheses Development

The presented theory was verified on the example of Czech national culture by testing the research hypotheses formulated in this section. Thus, this empirical study seeks to fill a research gap in the investigation of demographic factors affecting the homogeneity of national culture. Specifically, we examined the influence of age, gender and educational attainment on the individual national cultural dimensions. The stability of Czech national culture through appropriate age cohorts is also assessed.

### 2.1 Age

To consider the specific development of a particular country, it is appropriate to introduce the age cohorts according to local social milestones (Booth et al. 2019; Martinsons/Ma 2009). The Czech Republic underwent major social changes at the end of the 20th century, which can be expected to have an impact on the cultural settings of individual age cohorts with regard to the development of the social atmosphere in which these individuals grew up. This leads to our first hypothesis, which has two variants. One is formulated in the context of the theory of homogeneity of national culture, and the other is stated in the context of the stability of national culture.

*Hypothesis 1: Age has a significant effect on the dimensions' values of Czech national culture.*

*Hypothesis 1a: Between the values of cultural dimensions and age, there is a monotonous trend indicating the direction of the development of Czech national culture.*

### 2.2 Gender and Education

During the 20th century, gender inequality in the Czech Republic gradually decreased. Under communist rule between 1948 and 1989, women's employ-

ment continued to grow and relatively equal access to education developed if we ignore discrimination against real and supposed opponents of the regime. Nevertheless, women continued to play the role of cheaper labour and the 'glass ceiling' paradox persisted (Kucera 1994). Based on the European Commission (2019), despite significant societal changes, higher gender inequality and lower female employment rates persist in the Czech Republic compared to the EU average. On the other hand, women report higher levels of job satisfaction compared to men (Cabelkova/Abraham/Strielkowski 2015).

Despite minor reforms during the 20th century, the Czech Republic has a stable education system. As a result, the population is, on average, relatively well educated. However, because of the too early selection of students into different study programmes and little individual support from their teachers, inequalities in educational attainment persist or even grow in comparison to other OECD countries (Strakova/Tomasek/Willms 2006). Further, given the above-mentioned links between the respondents' education, behaviour and preferences, we expect the level of formal education to be the presumable source of the inhomogeneity of Czech society. These premises and the behavioural differences documented above lead us to the following hypotheses:

*Hypothesis 2: Gender has a significant effect on the dimensions' values of Czech national culture.*

*Hypothesis 3: Education attainment has a significant effect on the dimensions' values of Czech national culture.*

### 3. Data and Methods

To verify the hypotheses, we chose a cross-sectional study based on a questionnaire survey. Despite the many different views on national culture, Hofstede's cultural dimensions can be considered as dominant and enable easy data collection by questionnaire. The validity of this unidimensional method on an individual level has been repeatedly challenged (e.g. Bearden/Money/Nevins 2006; Fischer/Vauclair/Fontaine 2010; Venaik/Brewer 2013). However, we consider the use to be reasonable at the level of logically defined groups according to gender, age and education level (van de Vijver/Poortinga 2002), which is in line with similarly focused studies (Inglehart 2018; Minkov/Hofstede 2014; Naumov/Puffer 2000). In particular, the original Value Survey Modul 2013 (VSM 2013) questionnaire (Hofstede/Minkov 2013b) was used to obtain primary and actual data for the Czech Republic. The Czech version of the questionnaire was created from its publicly available English version (Hofstede/Minkov 2013b) and verified using a double translation. The VSM 2013 manual was used to calculate the individual dimensions, namely PDI, IDV, MAS, UAI, LTO and IVR.

### 3.1 Respondents and Procedure

The data was collected in the Czech Republic throughout 2019. We used quota sampling to reach proportional representation in terms of the age cohorts, gender and education of respondents. In the first wave, we used a convenience sample using the electronic distribution of questionnaires and then a purposive sample to reach at least 50 respondents in each age group separately for males and females. We collected 445 questionnaires with 11 questionnaires not completed. The responses from the 434 respondents were then analysed.

We chose the age cohorts with respect to the milestone year 1989 and the adult age limit in the Czech Republic, which is 18 years. The youngest researched cohort AG1 (18–29 years) represents a generation that was born after the change in the political establishment so did not experience the fading political and economic stereotypes of the previous period. The second cohort AG2 (30–49) was marked by childhood and adolescence in a communist-dominated society and the period of the political and economic transformation of society. The third cohort AG3 (50 years and over) includes respondents who have lived a significant part of their lives in a communist-dominated society and have entered subsequent political and economic changes as adults.

We used the division of respondents according to the length of school attendance by Hofstede and Minkov (2013b). This division was adjusted for the Czech education system and the respondents were grouped into three clusters. The "primary" education (PE) cluster consists of respondents who achieved a lower level of education and represents those who attended school for 12 years or less. The "secondary" education (SE) cluster consists of respondents studying for 13 to 15 years, most of whom are secondary school graduates but not university graduates. The "higher" education (HE) cluster includes respondents who have studied for 16 years or more and can be assumed to have reached a level of university education.

Table 1 shows the distribution of respondents by gender and three age cohorts. We can see that there are more than 50 respondents in each group and that the numbers are not balanced by gender. Furthermore, the sample contained 27.4 % PE, 39.9 % SE, and 32.7 % HE respondents.

**Table 1** Distribution of respondents by gender and age.

Gender / Age	AG1	AG2	AG3	Total
Male	84 (19.4 %)	69 (15.9 %)	53 (12.2 %)	<b>206 (47.5 %)</b>
Female	91 (21.0 %)	54 (12.4 %)	83 (19.1 %)	<b>228 (52.5 %)</b>
<b>Total</b>	<b>175 (40.3 %)</b>	<b>123 (28.3 %)</b>	<b>136 (31.3 %)</b>	<b>434 (100 %)</b>

### 3.2 Data Analysis

When calculating the value of individual dimensions, we did not adjust the results by a constant as Hofstede and Minkov (2013a) recommend. We monitored the relative differences between groups, so the absolute amount of each dimension is not important, see Table 2. We consider the risk of the limited validity of the results, which Kitayama (2002) draws attention to when using the Likert-type scale per the original questionnaire, to be insignificant. This is because the surveyed groups are not isolated from each other, and we are not examining cross-cultural variation.

**Table 2** Weighted sample mean values of indices by age, education and gender.

Group	PDI	IDV	MAS	UAI	LTO	IVR
AG1	-5.7	34.3	-6.7	-50.3	2.3	61.3
AG2	45.5	22.7	-18.3	-34.0	-10.3	42.0
AG3	30.0	22.8	-28.9	-25.6	0.6	41.7
PE	21.3	11.3	-22.9	-28.7	-4.9	40.2
SE	8.6	28.5	-19.7	-27.3	7.1	54.3
HE	32.8	39.5	-8.7	-58.7	-10.1	52.1
Female	18.8	24.3	-22.3	-36.8	-1.1	50.2
Male	21.2	30.5	-11.6	-39.1	-2.5	49.3
<b>Total</b>	<b>20.0</b>	<b>27.4</b>	<b>-17.0</b>	<b>-37.9</b>	<b>-1.8</b>	<b>49.7</b>

To answer hypotheses 1–3, a multi-way ANOVA was used, where the dependent variable was indices representing individual dimensions of national culture and the explanatory factors were *Age*, *Education* and *Gender*. Since some works (e.g., AlAnezi/Alansari 2016) suggest differences between male and female responses, the statistical model took into account the weights balancing the unequal number of males and females in individual age groups (see Table 1). The method of Hothorn et al. (2008) was chosen for multiple comparisons. Further, the ANCOVA model was used to answer Hypothesis 1a concerning the trend, but only for those culture dimensions where it was possible to assume a linear trend for *Age* based on the sub-model F-test.

## 4. Results

Tables 3 to 5 show the multi-way ANOVA results separately for each considered factor, and vice versa for all six examined dependent variables – Hofstede's indices. Statistically significant results are highlighted in bold for clarity. The tests are supplemented by the results of multiple comparisons indicating statistically significant differences between groups concerning the factor. The influence of *Age* was statistically significant for the four cultural dimensions: PDI ( $p < 0.001$ ), MAS ( $p = 0.005$ ), UAI ( $p = 0.002$ ), and IVR ( $p = 0.009$ ), see Table 3. This indicates

a statistically significant inhomogeneity of the population in terms of the respondent's age. The main differences occur between the youngest cohort (AG1) and the other two (AG2, AG3) when the differences between the middle and the oldest cohort are not statistically significant. Regarding Hypothesis 2, the effect of *Gender* was statistically significant only in MAS ( $p=0.030$ ), see Table 4.

**Table 3** F-test results for the age factor within the ANOVA model with weights and multiple comparisons of means with simultaneous confidence intervals.

AGE	F-test	AG2 vs. AG1		AG3 vs. AG1		AG3 vs. AG2	
Index	p-value	Diff	CI	Diff	CI	Diff	CI
PDI	< 0.001	49.6	(36.1, 63.1)	37.0	(23.9, 50.0)	-12.6	(-26.9, 1.7)
IDV	0.198	-10.2	(-25.5, 5.2)	-9.3	(-24.2, 5.5)	0.8	(-15.4, 17.1)
MAS	0.005	-11.5	(-27.2, 4.1)	-21.1	(-36.3, -6.0)	-9.6	(-26.1, 7.0)
UAI	0.002	17.9	(1.6, 34.1)	22.3	(6.6, 38.0)	4.5	(-12.7, 21.6)
LTO	0.245	-10.8	(-26.3, 4.7)	-2.2	(-17.2, 12.7)	8.6	(-7.8, 24.9)
IVR	0.009	-18.0	(-35.0, -0.9)	-18.9	(-35.4, -2.4)	-0.9	(-19.0, 17.1)

**Table 4** F-test results for the gender factor within the ANOVA model with weights and estimates and the related confidence interval for differences between means.

GENDER	F-test	M vs. F	
Index	P-value	Diff	CI
PDI	0.655	2.1	(-7.2, 11.5)
IDV	0.068	9.9	(-0.7, 20.5)
MAS	0.030	12.0	(1.2, 22.8)
UAI	0.610	-2.9	(-14.1, 8.3)
LTO	0.998	0.0	(-10.7, 10.7)
IVR	0.842	1.2	(-10.6, 13.0)

Hypothesis 3 addresses the influence of *Education* on cultural preferences. Four dimensions (PDI:  $p<0.001$ , IDV:  $p<0.001$ , UAI:  $p<0.001$ , LTO:  $p=0.035$ ) were statistically significantly dependent on the education level (see Table 5). This result also indicates the existence of relatively homogeneous groups different from the rest of the population. In particular, post-hoc multiple comparison analyses show that university graduates differ the most in the mentioned dimensions. Moreover, the results in Tables 3 to 5 show that statistically significant differences were found for at least one pairwise comparison for each cultural dimension. Therefore, it cannot be judged that Czech society would be homogeneous in at least one cultural dimension.

**Table 5** F-test results for the education factor within the ANOVA model with weights and multiple comparisons of means with simultaneous confidence intervals.

EDUCATION Index	F-test	SE vs. PE		HE vs. PE		HE vs. SE	
	p-value	Diff	CI	Diff	CI	Diff	CI
PDI	< 0.001	-6.3	(-20.2, 7.7)	15.5	(1.1, 29.9)	21.8	(8.8, 34.8)
IDV	< 0.001	18.5	(2.6, 34.3)	29.1	(12.8, 45.5)	10.7	(-4.1, 25.5)
MAS	0.103	5.0	(-11.2, 21.2)	14.6	(-2.1, 31.2)	9.6	(-5.5, 24.6)
UAI	< 0.001	2.7	(-14.1, 19.5)	-28.4	(-45.7, -11.2)	-31.1	(-46.8, -15.5)
LTO	0.035	10.7	(-5.3, 26.7)	-5.5	(-21.9, 11.0)	-16.1	(-31.1, -1.2)
IVR	0.233	12.3	(-5.3, 29.9)	10.3	(-7.8, 28.5)	-2.0	(-18.4, 14.5)

Furthermore, the ANCOVA model was considered to assess the trend in the culture dimensions concerning age cohorts. *Age* entered the model as a numerical variable compared to the previous ANOVA model. The considered ANCOVA model also included the categorical explanatory variables *Gender* and *Education*. This ANCOVA model was used only in those cases where it was a sub-model of the ANOVA model. Table 6 then provides the basis for answering Hypothesis 1a. The results suggest that with decreasing age, the MAS and IVR index increase, and conversely, the UAI value decreases. If we accept the claim that the basic values are defined during childhood and adolescence and stay relatively stable in adulthood (e.g. Inglehart 2018), then the indicated trend may be a precursor to the gradual growth of MAS and IVR and, conversely, a decrease in UAI in Czech society.

**Table 6** Sub-model F-tests (ANCOVA vs ANOVA model) and trend identification for age within the ANCOVA model and estimates for slopes and related confidence intervals and t-tests.

Index	F-test	Slope	95 % CI	t-test
PDI	< 0.001		Not considered	
IDV	0.354	-4.9	(-11.1, 1.3)	0.123
MAS	0.872	-10.6	(-16.9, -4.3)	0.001
UAI	0.285	11.4	(4.9, 18.0)	< 0.001
LTO	0.107	-1.5	(-7.7, 4.8)	0.647
IVR	0.196	-9.8	(-16.6, -2.9)	0.006

In summary, we found statistically significant results confirming the dependence of PDI, MAS, UAI and IVR values on the respondents' age (Hypothesis 1) and in the case of MAS, UAI and IVR, a statistically significant monotonous trend in this development was confirmed (Hypothesis 1a). However, the results show relatively small differences in terms of gender in Czech society, where statistically significant differences were found only in the case of MAS (Hypothesis 2). In contrast, the effect of education on the inhomogeneity of Czech society is

clearly higher. We demonstrated statistically significant differences in PDI, IDV, UAI and, for one combination, in LTO (Hypothesis 3).

## 5. Discussion

The results show the existence of groups that statistically significantly differ in particular cultural dimensions. However, the results obtained need to be compared with previous research on the given issue. In particular, the differences concerning gender are surprisingly weak in contrast to the results from previous studies following Hofstede's cultural dimensions in Kuwaiti and Croatian society (AlAnezi/Alansari 2016; Rajh/Budak/Anic 2016) and examining the effect of gender on managerial performance (e.g. Shan et al. 2019).

### 5.1 *Weak Influence of Gender*

For gender, we identified only one difference in Hofstede's cultural dimensions. Specifically, in the MAS dimension, males scored higher than females. Of the other dimensions, the IDV index has a tight statistically insignificant difference ( $p=0.068$ ). This is partly inconsistent with the results of AlAnezi and Alansari (2016), which lead to significantly higher scores for Kuwaiti males on IDV and MAS and significantly lower scores on PDI and LTO. Rajh et al. (2016) also identified differences in MAS, UAI and LTO in Croatian society. However, we can find some consistency with the findings of Woldu et al. (2013), who found a significant difference between males and females only for individual orientation but based on a different definition of cultural dimensions, where only the "Individual" and "Hierarchical" dimensions have a similar meaning to IDV and PDI.

Despite the lack of studies directly comparing cultural dimensions in terms of the respondents' gender, the observed differences among countries are consistent with the assumption of Cuddy et al. (2015), Guimond et al. (2007), Woldu and Budhwar (2011), Woldu et al. (2013) and Shan et al. (2019) that the strength of cultural stereotyping of gender depends on the cultural specifics of the nation. This raises the question of which cultural specifics moderate the gender differences. For example, Cuddy et al. (2015) and Shan et al. (2019) suggest a link between a society's level of individualism and gender stereotypes. But can the overall MAS influence the strength of cultural stereotyping? In this case, the Czech Republic, as a more masculine society than Croatia and Kuwait (Hofstede 2020; Hofstede et al. 2010), shows weaker gender differences in comparison with the results in Croatia and Kuwait.

In contrast to the weak gender differences in cultural dimensions, the gender equality index of the Czech Republic shows that the country is not a champion of gender equality. The Czech Republic is in 21st position from 28 EU countries

(EIGE 2019) and reaches an average world value by ranking 78th out of 153 countries (WEF 2020), which is between Kuwait and Croatia. Comparisons with other CEE countries are difficult because no other studies tracking the gender gap through Hofstede's dimensions of culture have been identified.

## 5.2 Significant Influence of Education and Age

In terms of the respondents' education, the analysis showed statistically significant differences in PDI. In particular, the HE group score was higher than the result for PE and SE, which is in contrast with the results of Hofstede et al. (2010) that predict higher PDI for a lower level of education and which is confirmed by Woldu et al. (2013) for Turkey. Adversely, the higher level of PDI in the HE group is in line with the Croatian results (Rajh et al. 2016). Although Woldu et al. (2013) did not find a statistically significant difference for the HE group in the case of Poland, the result indicates the possibility of a specific situation in transition countries with historically imposed egalitarian regimes. We see the explanation in the historical link between education and social status when another option of appreciation was not admissible. People with higher education tend to belong to higher social groups, and this result suggests that they perceive this stratification more intensely than groups with lower education.

In terms of the respondents' age, a significant decrease in PDI for the youngest cohort appears to be essential, in the range of 37 or 50 points, compared to the previous generations. One reason for such a difference may be the young age of the respondents in terms of socialisation. They may be dominated by their experience of educational institutions with more liberal relationships than in the rest of society, which would indicate a life cycle effect (Erikson 1998). However, these differences can suggest more fundamental transformations of society associated with social changes (Inglehart 2018). Rajh et al. (2016) for Croatia and Woldu et al. (2013) for Poland also recorded a significant decrease in PDI towards younger respondents, most notably in the youngest categories, which also indicates a trend towards the modernisation of society and is in line with the real GDP per capita growth (Tang/Koveos 2008; Beugelsdijk/Welzel 2018; Tarabar 2019).

The IDV level shows a link to the education of the respondents. The scores of the HE and SE groups show a significant distance from the PE group. The youngest generation also shows a higher value, which would follow the modernisation theory of Inglehart (2018). The findings are consistent with the results valid for Croatia (Rajh et al. 2016), both in terms of the education and age of the respondents and with Poland in terms of education (Woldu/Patel/Crawshaw 2013). However, in our case, the relationship is not statistically significant in terms of age, as in Poland (Woldu et al. 2013), although it is expected in terms

of the modernisation theory and the real GDP per capita growth (Hofstede et al. 2010; Tang/Koveos 2008; Tarabar 2019).

MAS values do not show a significant link to the respondents' education, although MAS values tend to increase with higher education. However, a more significant relationship is evident in the respondents' age. In particular, the MAS value increases with lower age and the difference between the youngest and oldest cohorts is statistically significant. The existence of this trend was also confirmed by the ANCOVA model. This result suggests a possible further societal shift of national culture towards higher MAS values. This shift may also be supported by the growing proportion of people with higher education, who also show higher MAS values although this is not statistically significant. This development is again in line with Rajh et al. (2016).

The UAI value shows a statistically significant dependence on education, where the HE group shows a notably lower value of about 30 points, compared to the other two groups. At the same time, in terms of the age of the respondents, a clear decrease in value towards younger cohorts is evident. This difference is significant between the youngest group and the other two. The existence of this trend was also confirmed by the ANCOVA model. This would indicate a gradual shift in society to lower values of UAI, which is in line with the modernisation theory (Inglehart 2018) and the growing sense of security of the younger generation (Hofstede et al. 2010; Beugelsdijk/Welzel 2018). The percentage of people with higher education and the average length of school attendance are gradually growing in the Czech Republic, which should further intensify this trend.

LTO analysis shows a relatively small variation in the resulting values. In terms of the respondents' education, there is a significant difference only between the HE and SE groups, and the p-value is close to the limit of statistical significance in this case. In terms of the respondents' age, no statistically significant difference is evident. This indicates the relative time-invariance of this dimension. In contrast, the value of IVR does not show significant differences in terms of the respondents' education. However, there is a clear growth in the values of this dimension towards the youngest cohorts. This trend is confirmed by the ANCOVA model and predicts a gradual growth of this value in Czech society, which corresponds with the modernisation theory (Inglehart 2018) and is consistent with the results of Beugelsdijk and Welzel (2018).

Concerning the overall results, it would be useful to compare our study with other countries. Similar results may indicate a shift in values in CEE countries with similar experiences with the transition from a centrally planned economy to a market economy. To confirm this conjecture, it is necessary to compare the results obtained with a much wider range of countries, both those that have undergone similar developments and those without dramatic shifts. However, the Croatian study (Rajh et al. 2016) and, due to the different methodology,

partially the Polish study (Woldu et al. 2013), represent the only available possibility of comparison with countries that underwent similar social and economic development as the Czech Republic at the turn of the 20th and 21st centuries.

### 5.3 Limitations and Further Research

The aim of this research study is not to formulate general conclusions. We paid particular attention to the data collection. However, the limited number and the selection method of the sample is one of the limitations weakening any generalisation of the results. Methodologically, there is a question of the suitability of the cohorts used for the respondents according to age. However, the alternative division according to generations X, Y, Z does not reflect social development in the Czech Republic (Bejtkovsky 2016). Moreover, in examining stability, we proceed from Inglehart's (2018) assumption that basic cultural values are relatively unchanging in adulthood. Removing this assumption would require a longitudinal study. Exploring changes in the status of gender and the structure of education in light of dynamic changes in Czech society was beyond the scope of this study and thus provides an opportunity for further research. From a theoretical point of view, the relationship between gender equality and gender stereotyping appears to be another possible topic.

The main limitation of this study is the focus on only one country, namely the Czech Republic. This weakens the results indicating significant internal inhomogeneity and the potential shift of Czech society in comparison to other countries with a similar history. We tried to partially compensate for this by comparing the results with the Polish and Croatian studies. Nevertheless, it is necessary to verify the presented results in other CEE countries. Because only a comparison of the results with other countries can show how significant the changes found are and whether they create a prerequisite not only for an absolute change in the values of cultural dimensions but especially for a change in relative position compared to other countries. This represents a major challenge for further research.

## Conclusion

Our results have various theoretical implications. The first is the confirmation of the previous results of Taras et al. (2010) and Rajh et al. (2016), which indicate a significant influence of education on the inhomogeneity of national culture. This is in accord with the caution expressed by Shenkar (2001, 2012) or Venaik and Brewer (2013) regarding the simplified usage of cultural differences. Even in the case of the small and ethnically relatively homogeneous Czech Republic, specific subcultures can be identified that differ significantly from each other. A further contribution is the confirmation of significant differences in the values of PDI, MAS, UAI and IRV in individual age cohorts, and the

existence of the trend in MAS, UAI and IRV confirming the influence of social changes on culture. Notable differences in values and confirmed trends in terms of age indicate a potential substantial shift in the values of cultural dimensions accompanying the gradual generational change.

Various practical implications can be derived from this study. The results indicate that despite the relatively low level of gender equality in the Czech Republic, Czech society shows a low level of cultural gender differences, which reduces the need to take gender into account when communicating with employees. For an employer or manager, a key conclusion is that employees with a higher level of education can be expected to be more interested in signs of status because of the higher level of PDI combined with the need for independence based on a higher IDV value and a negative relationship with formal rules resulting from lower UAI values compared to the average values of national culture (Hofstede et al. 2010). Therefore, in general, employees with higher education are better equipped to perform independent work without undue constraints on creativity while emphasising their unique position appears to be an important component of their motivation.

The most significant results arise from the differences in the age of the respondents when a significantly lower value of PDI and UAI and a higher value of IVR in the youngest cohort is evident in comparison to the other two cohorts. Further, the higher level of MAS of the youngest cohort compared to the oldest is also important in this aspect. In contrast, there was no significant difference between the middle and oldest cohort, indicating a higher degree of homogeneity between the two cohorts. Conversely, the youngest generation can be expected to behave distinctly differently from other employees. They require less distance from superiors, accept decentralisation better and refuse visible signs of status. The lower level of UAI indicates a lower interest in formal rules. Further, in connection with a higher level of MAS, it shows a willingness to take risks in the vision of visible results and, based on the higher level of IVR, exhibits a greater willingness to realise their desires and have fun (Hofstede et al. 2010). These characteristics create a challenge for employers to take advantage of this group's willingness to take risks and their creativity and drive to achieve high goals when they are perceived as equal partners and not constrained by unnecessary rules. Since these characteristics apply to the cohort up to 29 years, the importance of this generation in the economy is currently quite low and will grow slowly. However, with the subsequent generational change, we can expect a substantial shift of the whole of society to the values achieved in our research by the youngest cohort.

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