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Ekaterina Maklasova, Alexander Tatarko

THE INTERACTION OF CLIMATE AND ECONOMY AS A FACTOR OF COLLECTIVISM IN THE REGIONS OF RUSSIA

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Ekaterina Maklasova[1], *Alexander Tatarko*[2]

THE INTERACTION OF CLIMATE AND ECONOMY AS A FACTOR OF COLLECTIVISM IN THE REGIONS OF RUSSIA[3]

This study investigates the role of the climato-economic characteristics of 85 Russian regions in the formation of collectivism in those territories. Based on the results of previous research, the authors suggested that in regions with harsh climatic conditions, the richer population has a lower level of collectivism, whereas the poorer population has a higher level of collectivism. For testing these theoretical assumptions, we prepared a dataset with statistical data about each Russian region for the climatic demand (based on the temperature characteristics), monetary resources (the gross regional product (GRP)) and collectivism (the population natural growth, multi-generational households, marriages, divorces, etc.). We used correlation and moderation analyses where regional climate and GRP were the predictors of collectivism. The study demonstrated that these factors predicted the level of collectivism in regions. The study also revealed the moderating role of GRP in the relation between regional climatic conditions and the level of collectivist among the population, which allows the identification of the specific and universal relationships of the indicators.

JEL Classification: Z

Keywords: collectivism, climatic demand, climate, GRP, gross regional product, Russia, region.

[1] National Research University Higher School of Economics. Centre for Sociocultural Research. Research Intern; E-mail: emaklasova@hse.ru

[2] National Research University Higher School of Economics. Centre for Sociocultural Research. Senior Researcher; E-mail: atatarko@hse.ru

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Introduction

Climato-economic theory suggests that the demands and resources of human habitats equally determine the needs of individuals, and consequently the choices to satisfy them (Van de Vliert, 2013). The central concept of this theory is "climatic demand", which is the need to cope with the climate. A harsh climate has a higher demand for resources. For instance, insufficient resources require a person to make a series of forced decisions, in order to increase life certainty, rather than decisions that could characterize an autonomous person, namely, an entrepreneurial person (Van de Vliert, 2013). Conversely, a demanding climate with sufficient resources leads a person to intentionally seeking risk, instead of avoiding it. Because of risk perception, the person considers the habitat as a space of free decision making, and autonomy (Van de Vliert, 2013). In other words, a demanding climate with insufficient resources to meet the needs form a narrow mindset and negative attitude towards risk, while a demanding climate with sufficient resources leads to openness to new experiences and a positive attitude towards risk.

Climato-economic theory argues that the temperature of the human habitat is the fundamental factor for forming climatic demand. It considers that the optimal temperature range for a human habitat is the thermoneutral zone, in which a person is able to maintain a comfortable level of thermoregulation, established as 22°C. This temperature is the average temperature of the range of the thermoneutral zone (Parsons, 2003; Van de Vliert, Postmes & Van Lange, 2019); a temperature range between 17°C to 27°C is optimal for the grow the and maintenance of flora and fauna (Cline, 2007; Hatfield & Prueger, 2015; Parker, 2000; Van de Vliert et al., 2019) and is the ideal temperature for the human biological fitness (Carleton & Hsiang, 2016; Fischer & Van de Vliert, 2011; Tavassoli, 2009; Van de Vliert et al., 2019).

Temperatures deviating from the thermoneutral zone lead to more intense human thermoregulation (Van de Vliert, 2013). Temperatures below the thermoneutral zone increase metabolism and trigger compensatory thermoregulatory reactions to produce enough heat to survive, while higher temperatures increase the metabolism to cool down the body (e.g. sweating or shortness of breath) (Van de Vliert, 2013). In short, the biological costs of maintaining a comfortable state for human beings increase outside the thermoneutral zone (Van de Vliert, 2013). In addition, outside this zone human needs associated with thermal comfort, nutrition, and health are compromised (Rehdanz & Maddison, 2005; Tavassoli, 2009; Van de Vliert, 2009, 2013). Thus, a temperate climate has low climatic demand and offers human thermal comfort, abundant nutrient resources of flora and fauna, and a healthy habitat (Van de Vliert, 2013). A harsher climate has high climatic demand and requires a lot of resources (e.g. appropriate clothing, a heating or cooling system) to satisfy human needs for thermal comfort, nutrition and a healthy habitat (Parsons, 2003; Van de Vliert, 2013).

In the modern world, monetary resources allow humans to compensate for the crucial biological costs of conditions deviating from the thermoneutral zone (Parker, 2000; Van de Vliert, 2009). Monetary resources can change the effects of a harsh climate by investment in the goods and services that compensate for climatic demand. For example, households in richer countries spend up to 50% of their income on goods and services which compensate for the high climatic demand, while in poorer countries this figure reaches 90% (Parker, 2000; Van de Vliert, 2013).

A harsh cold or hot climate requires resources to an unequal degree, as resources are used differently. Monetary resources in cold harsh habitats are for heating and nutrition, while in the hot harsh habitats they are used to prevent and treat diseases caused by germs, bacteria, and insects (Van de Vliert, 2013). Monetary resources are used in different ways in the Arctic and in the tropics, for example, to fight frostbite, flu, and colds, and to fight against malaria, and yellow fever respectively (Van de Vliert, 2009, 2013). This leads to different psycho-behavioral adaptations (Cottrell & Neuberg, 2005; Parker, 2000; Sachs, 2000; Van de Vliert, 2009; Van de Vliert, 2013).

Individuals make primary and second assessments of the impact of a harsh climate on their well-being (Van de Vliert, 2013; Drach-Zahavy & Erez, 2002; Lazarus & Folkman, 1984; Skinner & Brewer, 2002; Van de Vliert, 2009). The initial assessment is the level of stress that a harsh climate evokes, and the satisfaction of personal needs for thermal comfort, nutrition, and health in these climatic conditions (Van de Vliert, 2013). The secondary assessment is how much the harsh climate threatens the life of a person taking into account the availability of monetary resources (e.g. the purchasing power of household) (Van de Vliert, 2013; Parker, 2000). The assessments of possible consequences relate to the choice of behavioral adaptations to habitats with different climatic demands.

People who live in the same habitat and have the same level of economic prosperity tend to make similar primary and second assessments of the impact of a harsh climate (Fischer & Van de Vliert, 2011). The collective character of these assessments forms a common culture, which determines the needs, stresses, goals, and means of these people ((Fischer & Van de Vliert, 2011; Hofstede, 2001; House et al., 2004; Leung & Bond, 2004; Schwartz, 2006; Triandis, 1995; Van de Vliert, 2013).

Fischer and Van de Vliert (2011) provide evidence for the collective nature of habitat assessments in a study devoted to the impact of climato-economic factors on the occurrence of negative psychological states and mental diseases among the population of 58 countries. The study shows that poor people who live in a harsh climate mostly suffer from burnout, depression, anxiety, a perceived unhappiness, and a deterioration in health status while rich people do not

suffer from such effects (Fischer & Van de Vliert, 2011; Van de Vliert, 2013). People who live in a moderate climate less suffer from these diseases regardless of income (Fischer & Van de Vliert, 2011; Van de Vliert, 2013).

The primary and second assessments of human habitats relate to the degree of fundamental freedom (Van de Vliert, 2013). Poor people who live in a harsh climate have less freedom, which leads them to make forced decisions in order to avoid life uncertainty (Van de Vliert, 2013), while rich people enjoy the highest degree of freedom, allowing them to make autonomous and free decisions to overcome unfavorable conditions (Van de Vliert, 2013). People who live in moderate climates demonstrate an average degree of freedom, regardless of their material wealth (Gelfand et al., 2011; Richter & Kruglanski, 2004; Ryan & Deci, 2011; Schaller & Murray, 2008, 2011; Van de Vliert, 2013).

As mentioned, the collective character of the assessment forms a common culture which determines the goals of people who make these assessments (Fischer & Van de Vliert, 2011; Hofstede, 2001; House et al., 2004; Leung & Bond, 2004; Schwartz, 2006; Triandis, 1995; Van de Vliert, 2013).

People achieve these goals in several ways: individual efforts, collective efforts or the conjunction of both (Brewer & Chen, 2007; Gelfand et al., 2004; Hofstede, 2001; Triandis, 1995; Van de Vliert, 2013). The choice depends on the climato-economic conditions in which people live (Van de Vliert, 2013). For example, poor people assess the harsh climate as threatening and collaborate with their social group for more successful adaptation, while rich people assess the harsh climate as complex and prefer to rely on their own abilities (Van de Vliert, 2011). Thus, climato-economic threats start the collective processes of culture formation towards restriction and intragroup favoritism (Richter & Kruglanski, 2004; Van de Vliert, 2013) while their absence leads people to greater autonomy and the ability to make independent decisions (Richter & Kruglanski, 2004; Van de Vliert, 2013).

Van de Vliert (2011) provides an example of the impact of climato-economic factors on the development of ingroup favoritism. In the study, ingroup favoritism is defined as the average preferable relation to the members of the in-group in comparison with the members of the out-group (Brewer & Chen, 2007; Van de Vliert, 2011). Ingroup favoritism consists of three forms – social patriotism, nepotism and familism (Van de Vliert, 2011). Social patriotism is the preference for compatriots in comparison with migrants at work (Van de Vliert, 2011). Nepotism is the preference for relatives in comparison with other people at work (Van de Vliert, 2011). Familism is the preference for relatives of nuclear family demonstrating through the mutual beneficial exchange of time, joint efforts and pride (Van de Vliert, 2011).

Van de Vliert's (2011) study indicate that:

1) rich countries with a harsh climate have low social patriotism (b = –12,41, p <.01), whereas poor countries have high social patriotism (b = 9,37, p <0,05);

2) rich countries with a harsh climate (e.g. Canada and Finland) have low nepotism (b = –.26, p <.001); in poor countries (e.g. Kazakhstan and Mongolia) the level of nepotism is high (b = .34, p <.001);

3) rich countries with a harsh climate (e.g. Sweden and Canada) show low familism (b = –.91, p <.001), while the familism in poor countries (e.g. China) is high (b = .51, p <.05) (Van de Vliert, 2011).

Another example of the impact of climato-economic factors on the collectivistic orientation of the population is China (Van de Vliert et al., 2013). The study reveals that climatic demand (b = .06, ΔR2 = .64, p <.01), income (b = -.05, ΔR2 = .06, p <.05), and the intersection of these factors (b = -.06, ΔR2 = .15, p <.05) have an impact on the formation of the collectivistic orientation of the population on the provincial level (Van de Vliert et al., 2013). For example, poor provinces with a harsh climate have high collectivistic orientation (b = .12, p <.01) while rich provinces do not (b = –.91, ns) (Van de Vliert et al., 2013). Whereas climatic demand (b = .07, p <.01), income (b = -.03, p <.05), and the intersection of these factors (b = -.04, p <.05) was statistically significant, explaining 7,3% of changes of collectivistic orientation on the individual level. The results demonstrate that collectivism on the provincial level moderates the impact of climatic and economic factors on the collectivistic orientation on the individual level and increases the explanation of changes of the collectivistic orientation on the individual level by 10% (Van de Vliert et al., 2013).

Climato-economic theory predicts that human culture is a way of adaptation to the stress which climatic demand evokes and to which individuals respond by spending monetary and other resources (Van de Vliert, 2013).

In the present study, we investigate how the basic postulates of climato-economic theory are applicable to the formation of collectivism in 85 regions of Russia.

Hypothesis 1: In harsh climatic conditions, a regional population with a *sufficient* level of monetary resources to satisfy its needs has a lower level of collectivism.

Hypothesis 2: In harsh climatic conditions, a regional population with an *insufficient* level of monetary resources to satisfy its needs has a higher level of collectivism.

Methodology

Research design. Data were selected from 85 regions of Russia which make it possible to distinguish them from each other in terms of the level of climatic demand, monetary resources, and collectivism. The region was taken as the unit of analysis. The time interval in

these data is two decades from 1996 to 2016. This relatively wide time interval was chosen because the formation of some socio-psychological characteristics is slow, and the results become noticeable only after sufficient time (Welzel, 2018).

The level of collectivism in the regions was taken as the dependent variable. The data for creating the index of collectivism were retrieved from the state information resource "EMISS" for 2016. The index of collectivism was based on 5 indicators: overall coefficient of the natural growth of population[4], the average percentage of multi-generational households[5], the marriage to divorce ratio[6,7], the population's distribution by the size of the average per capita income: <7000[8], population's distribution by the size of the average per capita income: 7000-10000[5]. The index of collectivism is operationalized as the average of these five indicators, each of which was initially reduced to a single standardized scale by Z-score. The reliability of the scale was tested on the basis of Cronbach's alpha: $\alpha = 0.739$. This coefficient indicates the consistency of the scale. The results of calculating the collectivism index for each region of Russia are presented in Table 1.

Table 1

Indexes of collectivism, climatic demand, and monetary resources for each region of Russia

Region name	Collectivism index	Climatic demand index	Monetary resources index
Rep. Ingushetia	3.13	65	107
Rep. Tuva	2.637	109	165
Chechen Rep.	2.367	66.5	119
Rep. Dagestan	1.377	68.2	197
Rep. Kalmykia	1.294	80	201
Karachay-Cherkess Rep.	1.154	61	157
Kabardino-Balkarian Rep.	1.076	59	154
Rep. Altai	0.944	93	213

[4] EMISS. Overall coefficient of natural growth of population (updated information) [Online source]. 2016. Retrieved from: https://fedstat.ru/indicator/34147 (viewed at 03.03.2019).

[5] Federal state statistics service. All-Russian Census. Volume 6. The number and composition of households. Private households consisting of two or more people, by type, size, household, and the number of children under 18 years of age in the regions of the Russian Federation [Online source]. 2010. Retrieved from: http://www.gks.ru/free_doc/new_site/perepis2010/croc/Documents/Vol6/pub-06-04.pdf (viewed at 03.03.2019).

[6] EMISS. The number of registered marriages (updated information) [Online source]. 2016. Retrieved from: https://fedstat.ru/indicator/33553 (viewed at 03.03.2019).

[7] EMISS. The number of registered divorces (updated information) [Online source]. 2016. Retrieved from: https://fedstat.ru/indicator/33554 (viewed at 03.03.2019).

[8] EMISS. Population distribution by the size of average per capita nominal monetary income [Online source]. 2010. Retrieved from: https://fedstat.ru/indicator/31399 (viewed at 03.03.2019).

Rep. North Ossetia - Alania	0.762	50	178
Chuvash Rep.	0.62	74	212
Rep. Mari El	0.554	81	234
Rep. Mordovia	0.533	79	245
Rep. Buryatia	0.459	107.5	203
Astrakhan region	0.378	77.2	332
Transbaikal region	0.222	101.5	243
Irkutsk region	0.221	95.8	443
Saratov region	0.22	85.6	264
Rep. Khakassia	0.206	94	340
Orenburg region	0.164	106	388
Rep. Tatarstan	0.162	96	500
Udmurt Rep.	0.161	102.3	356
Tyumen region	0.139	98.8	632
Rep. Bashkortostan	0.137	104.9	330
Omsk region	0.134	92.8	317
Rep. Adygea	0.097	46	202
Ulyanovsk region	0.08	57	262
Tomsk region	0.053	102.1	452
Altai region	0.033	100	210
Perm region	0.025	95.7	414
Novosibirsk region	0.015	115	391
Volgograd region	-0.014	55	293
Penza region	-0.025	59	252
Kurgan region	-0.042	106	226
Kemerovo region	-0.048	83	316
Krasnoyarsk region	-0.069	86	616
Chelyabinsk region	-0.085	114.8	360
St. Petersburg	-0.086	76.7	712
Krasnodar region	-0.095	66.8	364
Rep. Saha	-0.114	140.1	904
Kirov region	-0.132	96	225
Jewish Autonomous Region	-0.147	101.1	284

Samara region	-0.173	85.3	398
Vladimir region	-0.174	98.7	281
Rostov region	-0.202	76.9	300
Rep. Crimea	-0.22	65.4	165
Kaliningrad region	-0.223	73.1	390
Oryol region	-0.23	95.5	282
Ivanovo region	-0.233	78.5	175
Ryazan region	-0.237	87.2	299
Kostroma region	-0.251	88.8	247
Novgorod region	-0.271	96.9	398
Nizhny Novgorod region	-0.273	87.7	363
Khanty-Mansi AO - Ugra	-0.278	101.1	1852
Yaroslavl region	-0.285	74	370
Vologda region	-0.295	78.4	410
Moscow	-0.302	91.6	1157
Sverdlovsk region	-0.31	86.7	457
Voronezh region	-0.334	101.8	360
Lipetsk region	-0.352	104.4	407
Tambov region	-0.354	84.7	298
Kursk region	-0.368	101.8	325
Kaluga region	-0.371	102.8	369
Bryansk region	-0.373	95.9	234
Belgorod region	-0.375	98.7	471
Pskov region	-0.38	80.2	224
Primorsky Krai	-0.382	82.1	383
Amur region	-0.387	97.1	358
Tver region	-0.393	108	276
Yamal-Nenets AO	-0.406	126.8	3670
Smolensk region	-0.446	75.7	274
Moscow region	-0.455	56	484
Rep. Komi	-0.485	86.3	641
Rep. Karelia	-0.486	84.1	371
Tula region	-0.501	69	344
Khabarovsk region	-0.541	106.3	478

Stavropol region	-0.564	101.3	233
Arkhangelsk region	-0.571	127.7	380
Nenets AO	-0.577	102.1	5822
Sevastopol	-0.639	65	152
Leningrad region	-0.657	57	512
Sakhalin region	-0.68	76	1576
hukotka AO	-0.757	111.1	1323
Murmansk region	-0.777	80.7	560
Kamchatka krai	-0.789	99.4	628
Magadan region	-1.141	88.9	1007

Note. AO – autonomous okrug, Rep. – republic.

Climatic demand and the monetary resources of regions are regarded as basic factors that influence the level of collectivism in the regions of Russia. Based on previous research (e.g. Van de Vliert, 2009, 2011), regional climate was considered more demanding to the extent that temperatures in the coldest and hottest months deviate from 22°C. Thus, the index of climatic demand of regions was operationalized as the sum of four absolute deviations from 22°C for average values for the hottest and coldest temperature in January and July. For example, in the The Republic of Sakha, January temperatures in 1996 ranged from -44.9°C to -22°C, while July temperatures ranged from 5°C to 34.2°C. According to the formula and the available data, the climatic demand of The Republic of Sakha in 1996 was 140.1=|-44.9–22.0|+|-22.0–22.0|+|5.0–22.0|+|34.2–22.0|. The temperature data was taken from geoinformation system "Meteo-measurements online"[9] and the information resource "Atlas-Yakutia"[10] for 1996. The index of climatic demand for each Russian region are presented in Table 1.

The index of monetary resources of the region is based on GRP per capita for 2016. The gross regional product data for each region were taken from the state information resource "EMISS"[11]. The monetary resources for each Russian region are given in Table 1.

Data processing. The data analysis was carried out using the statistical software package IBM SPSS and the PROCESS plugin for moderation analysis. The following data analyses were applied: Z-transform, Cronbach's alpha, correlation analysis and moderation analysis.

[9] Geoinformation system «Meteo-measurements online» [Online source]. 1996. Retrieved from: http://thermo.karelia.ru/weather/w_history.php?town=arh&month=1&year=1995 (viewed at 03.03.2019).

[10] Atlas-Yakutia [Online source]. 1996. Retrieved from: http://www.atlas-yakutia.ru/weather/2017/temp/barnaul_temp_2017.php (viewed at 03.03.2019).

[11] EMISS. Gross domestic product per capita [Online source]. 2016. Retrieved from: https://fedstat.ru/indicator/42928 (viewed at 03.03.2019).

Results

The results of correlation analysis are presented in Table 2.

Table 2

Correlation analysis results

Variables	Collectivism	GRP per capita	Climatic demand
1. Collectivism	-	-0.255*	-0.216*
2. GRP per capita	-0.255*	-	0.268*
3. Climatic demand	-0.216*	0.268*	-

Note. *p < 0.05, **p < 0.01, ***p < 0.001.

The results of moderation analysis, where climatic demand is a predictor, GRP per capita is a moderator, and regional collectivism is the dependent variable, are given in Table 3.

Table 3

Moderation analysis results (β – unstandardized regression coefficient)

Variables	Collectivism	
	β	SE
Climatic demand	-0.013*	0.0050
GRP per capita	-0.002*	0.0008

Note. *p < 0.05, **p < 0.01, ***p < 0.001.

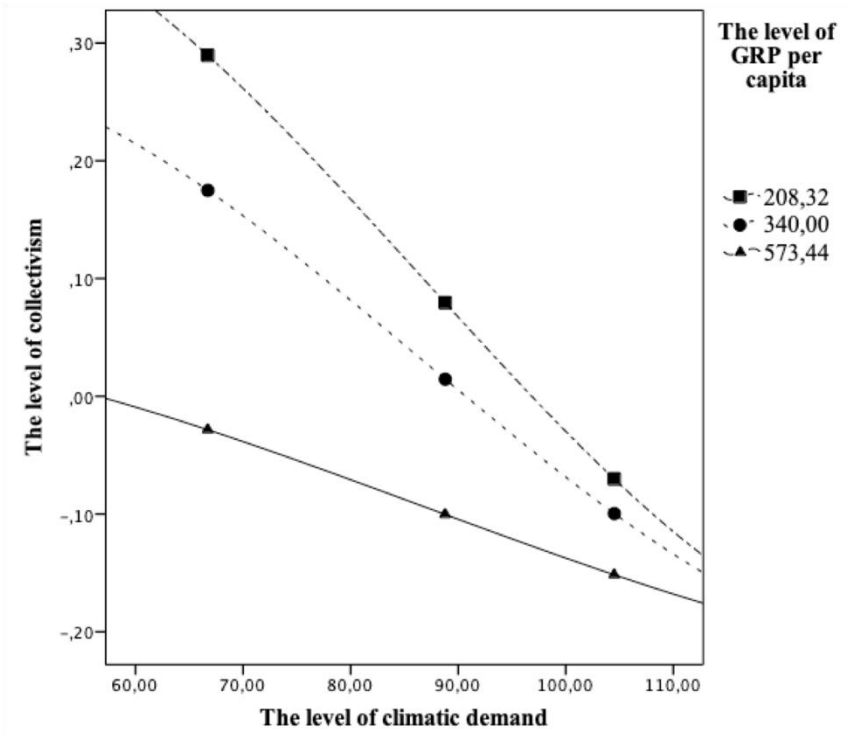

Figure 1. The change of the level of collectivism depending on climatic demand and GRP per capita in the regions

Climatic demand explains 15% of the dispersion of collectivism in regions $F(3, 81) = 4{,}6765$, $p = 0{,}0046$. The percentage of the dispersion of collectivism in regions increases by 6% due to the interaction of predictors, $F(1{,}81) = 5{,}6187$, $p = 0{,}0201$ (see Figure 1). That is, the moderation effect of GRP per capita is statistically significant.

In Figure 1, we can see the negative relation between climatic demand and the level of collectivism. According to climato-economic theory, this relation should be positive.

For the role of GRP per capita, the graph shows that the level of collectivism is higher in regions with a lower level of GRP per capita, which is consistent with the results of previous research, showing the negative relation between monetary resources and collectivism.

In this case, the moderating role of GRP per capita is as follows. The more demanding climate, the lower the role of GRP per capita (see Figure 1: all three lines are closely located), while in a more favorable climate the role of GRP per capita increases. In regions with a more favorable climate, we observe the classical result – the poorer the population, the higher the level of collectivism and the richer the population, the lower the level of collectivism.

The model shows that the results of the study are consistent with the suggestion that in Russian regions with a sufficient level of monetary resources to satisfy the population's needs that arise due to the higher level of climatic demand, the level of collectivism is lower (Hypothesis 1). However, the assumption that in Russian regions with an insufficient level of

monetary resources to satisfy the population needs that arise due to the higher level of climatic demand, the level of collectivism is higher, was not confirmed (Hypothesis 2).

Thus, based on Russian data, we obtained results which confirmed the idea of climato-economic theory that climate and the interaction of climate and monetary resources can be related to the socio-psychological characteristics of regions. On the other hand, these results contradicted climato-economic theory in terms of the role of the GRP per capita in the formation of a collectivistic orientation, which was insignificant in harsh climatic conditions and significant in favorable climatic conditions.

Discussion

In this study, the role of the climato-economic characteristics of 85 Russian regions in the formation of collectivism among their population was investigated. The results indicated that the climatic conditions of a region and the monetary resources of its population can be predictors of the level of collectivism. Moreover, as climato-economic theory suggests, monetary resources can be a moderator of the relationship between climatic demand and collectivism.

The results showed that regional populations are more inclined to demonstrate a collectivistic orientation with lower climatic demand than in harsh climatic conditions. This fact demonstrates the negative relation between climatic demand and the level of collectivism in the regions and diverges from one of the basic ideas of climato-economic theory: in harsh climatic conditions, the population sees the climate as threatening and adapts to these conditions, taking the needed resources in social groups and therefore demonstrating a collectivistic orientation (Van de Vliert, 2011).

It is logical to assume that the result is determined by the structure of settlements in Russia, which is a multiethnic country. Collectivism is characteristic of the regions which demonstrate the highest level of single ethnicities. For example, the Republic of Ingushetia and the Chechen Republic demonstrate one of the highest level of collectivism in the country (see Table 1) and one of the lowest level of climatic demand (see Table 1) despite the fact that in these regions the ethnic majority (represented by Ingush and Chechens respectively) is 94% of the total population of the region[12].

An additional explanation could be the water autonomy of some regions (Welzel, 2018). Water autonomy allows the population to feel greater independence and leads to autonomy in other areas of life, in particular, it contributes to industrial autonomy, which involves autonomous access to markets, the disposition of property, and the profit and the distribution of

[12] Federal state statistics service. All-Russian Census. Volume 4. National composition of the population and language skills, citizenship. The population of the most numerous nationalities by age group and gender among the regions of the Russian Federation [Online resource]. 2010. Retrieved from: http://www.gks.ru/free_doc/new_site/perepis2010/croc/Documents/Vol4/pub-04-10.xlsx (viewed at 03.03.2019).

labor (Welzel, 2018). For example, Arkhangelsk Oblast and the Yamalo-Nenets Autonomous Okrug demonstrate one of the lowest levels of collectivism (see Table 1) and the highest level of climatic demand in the country (see Table 1), even though they have constant access to external water resources – the Pechora, Barents and Kara Seas.

The results reveal a greater collectivistic orientation in less economically wealthy regions in Russia than in the wealthier regions. These results are consistent with previous studies, showing that the populations of less wealthy regions adapt to harsh habitat conditions, relying on the social groups to which the population belongs and therefore demonstrate the collectivistic orientation (Van de Vliert, 2011). For example, the Republic of Ingushetia and the Chechen Republic demonstrate one of the highest level of collectivism (see Table 1) and the lowest level of GRP per capita in the country (see Table 1), while Nenets Autonomous Okrug demonstrates one of the lowest level of collectivism (see Table 1) and the highest level of GRP per capita (see Table 1). In addition, returning to the structure of settlements in Russia, in the Nenets Autonomous Okrug, the ethnic composition includes 63% of Russians and only 17% of Nenets, the level of ethnocultural homogeneity is significantly lower compared to the Republic of Ingushetia and the Chechen Republic which also contributes to the formation of a less collectivistic orientation of the population[9].

The study also examined the moderating role of the region`s economic wealth in the relation between regional climatic conditions and the level of collectivist orientation among the population. It allowed us to identify both the specific and universal relationships of the indicators. For example, it became clear that in more demanding climatic conditions, the role of the region's economic wealth in the formation of the collectivist orientation of the population decreases and, conversely, increases in more favorable climatic conditions. The universal relationship of the indicators is seen in the greater tendency of populations to demonstrate a focus on collectivism in more favorable climatic conditions and in less wealthy regions than in more wealthy regions (Van de Vliert, 2011).

It can be assumed that GRP per capita is not enough for the assessment of the economic wealth of regions. This indicator is a common indicator of the development of a region's economy and does not reflect its material and financial parts which are formed by trade with other regions or inter-budget transfers. Annually, each region makes tax deductions from the federal budget, from which the consolidated budget of the region is formed. The percentage of tax deductions from the region's budget and deductions from the federal budget to the budget of the region are often unequal. Regions with a higher level of GRP per capita play the role of donors to regions with lower levels; regions which need to be supported in making socio-economic decisions by conducting budget transfers and untargeted distribution donations.

Mostly, regions which have a predominantly rural population and specialize in agricultural production demonstrate a low level of GRP per capita. The total cost of production of such regions does not significantly exceed the cost of their products and does not allow them to achieve a higher level of GRP. However, as agriculture is a subsidized activity in Russia, the percentage of deductions to the budget of the region may exceed its tax deductions to the federal budget by several times. Thus, the subsidized lifestyle of some agrarian regions may be another explanation for the high level of collectivism among their population. Previously, we also noted that water autonomy plays a large role in determining the specialization of the region, which allows the population to feel more independent and leads to the autonomy of other areas, in particular, production autonomy (Welzel, 2018).

Regions with a higher GRP per capita, which are donors for less wealthy regions, are industrial and get smaller tax deductions from the federal budget. Federal budget transfers are mostly spent on the needs of privileged categories of population (e.g. industrial employees). Thus, we can assume that budget transfers which are not included in GRP per capita, tend to support the already established cultural orientation of population – towards collectivism or individualism – in the regions of Russia and impact on its wealth.

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Ekaterina V. Maklasova

National Research University Higher School of Economics. Centre for Sociocultural Research. Research Intern;

E-mail: emaklasova@hse.ru