

# Decomposition of Value Change in European Societies in 1995 – 2008: Test of Modernization Model and Socialization Hypothesis

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**Decomposition of Value Change in European Societies in 1995 – 2008: Test of Modernization Model and Socialization Hypothesis.** The research tests a modernization model (Welzel et al. 2003; Inglehart – Welzel 2009; 2010) applied to post-socialist societies in comparison with West European countries. The linear decomposition analysis of integrated World Values Survey (waves WVS1994-1999, WVS1999-2004, WVS2005-2007) and European Values Study (waves EVS1999-2001, EVS2008-2010) data showed that Inglehart's socialization hypothesis (Inglehart 1990), which is related to a fundamental emancipative shift in values, was true for both selected West European and post-socialist countries with minor exceptions. However, the study demonstrates that the observed variability in value change in different countries in Europe is due to specific country-level contextual effects and not the population turnover. This finding confronts the assumption of exclusiveness of socialization against historical period in forming value orientations. Nevertheless the study supports in part the tested modernization model and proves that post-socialist societies (including Post-soviet) can follow a path of development which is similar to advanced Western Europe if the economic security increases.

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## Problem Background and Research Question

Almost 25 years have passed since the Eastern Bloc collapsed ending the age of a bipolar world. This event in particular boosted globalization and eventually led to the contemporary global state of play. Those changes were immediately reflected by sociologists. At that time theories of neo-modernization of post-socialist societies became the mainstream idea along with an optimistic project of transformation of post-socialist countries into Western like democratic market economy society. Nevertheless, despite institutional and cultural similarity, a developmental track in the former Eastern Bloc region was apparently different which resulted into different economic levels and quality of life achieved by various countries. The case of post-Soviet societies raises a question of plausibility of modernization and possible ways towards modernity.

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Before the current Ukrainian crisis the governments of Ukraine and Russian Federation pursued the goal to develop more competitive economy to be successful in the global market appealing to the idea of modernization. (Modernizatsiya Ukraïny 2011; Poslanie Prezidenta 2011) However, their modernization discourse was limited to economic growth and technological innovations. These imply building a prosperous society (“Western prosperity”) but not necessarily with the corresponding democratic institutions and values (“Western” democracy and human rights). The current crisis demonstrates clearly that the vast majority of population in Russia and significant part of population in Ukraine do not share emancipative values that are common in democratic societies including a few of their neighbors in Central and Eastern Europe. The research problem is whether all former Eastern Bloc societies (especially non-EU) can achieve success on the way of modernization or are some confined to a different cultural program (specific core values). Consequently, can dominant values be an obstacle to modernity, efficient governance and prosperity?

Inglehart and Welzel (2009; 2010) argue that modernization has proved to be universal: economic development leads to a shift in values that in turn determines the rise of democratic institutions. On the contrary, “multiple modernities” theorists contend that there are different cultural interpretations or trajectories of modernity. (Eisenstadt 2000; Wagner 2010)

The previous research on Russia and Ukraine demonstrates some peculiarities in values and attitudes towards the state, private business, autonomy, freedom, etc. These aspects did not change along with economic development and growing prosperity over the last decade or create unique combinations which are far from Western patterns. (Tikhonova 2008; 2011; Magun – Rudnev 2007; 2010a; 2010b; Lebedeva – Tatarko 2011; Misutina 2011; Savelyev 2013) Based on the World Values Survey/European Values Survey (WVS/EVS) and European Social Survey (ESS) data, comparative research also persuasively shows the existing gap in value priorities and the structure of value classes between West European (especially Nordic), and post-socialist (including Russia) countries when either Schwartz’s or Inglehart’s approach to measuring values is used. (Magun et al. 2012; Magun – Rudnev 2012)

Therefore, it is clear that post-socialist societies and especially post-Soviet countries differ from more developed societies in terms of emancipative and self-expression values which are the prerequisite for their modernization. But does this imply that the modernization model is not applicable to this region? According to Inglehart and Welzel (2010: 562), on a global scale in 1990 the level of self-expression values of a society accounted “for over half of the change in levels of democracy from the mid-1980s to the mid-1990s” ( $R^2 =$

0.517). On the other hand, the validity of the value change thesis has been under discussion for over 30 years. (Abramson 2011) An important part of this model, namely Inglehart's socialization hypothesis (Inglehart 1990), was rarely directly tested and existing research provided mixed support for it. (Sangster – Reynolds 1996) In a study with retrospective questions, the impact of formative security was supported in five West European societies and in the USA. (Abramson – Inglehart 1996) In opposition to this claim, Duch and Taylor (1993), Davis (1996) and Warwick (1998) argued that education, rather than early socialization experience, was the main factor that affected the level of post-materialism. This hypothesis was also criticized based on theoretical grounds. (Swader 2008) Thus, further testing of the socialization hypothesis and the elaboration of the modernization model could unveil the existence of various paths to modernity or the plausibility of its multiple forms, and demonstrate the potential for future development in post-socialist societies from a comparative perspective.

### **Theoretical Framework and Research Goal**

The present research is rooted in theories of modernization and human development. In contrast to the classical theory of modernization, which was focused on "Third World" countries and appealed to the "Western model" as the ultimate goal development (Lerner 1958; Levy 1966; Inkeles – Smith 1974), contemporary social theorists contend that modernization is a "continuous, unstoppable, forever incomplete" process. (Bauman 2000: 28) Modernity, therefore, is "a time conception looking forward to this worldly future, open, novel, reachable or constructible". (Therborn 2003: 294) Although modernity was initially "crystallized in Western Europe" and spread to other parts of Europe and eventually to the rest of the world, its expansion did not lead to homogenization, but rather turned into "multiple modernities" or "trajectories", i.e. alternative interpretations of modernity and different responses to new challenges that are determined by a specific context of local civilizations. (Eisenstadt 2000)

Modernization is a multidimensional antinomic process that stretches beyond well-known invariant characteristics of development (differentiation, urbanization, social mobility, etc.) comprising specific value orientations and emancipative trends (Habermas 2003; Welzel et al. 2012); the permanence of change and innovation (Bauman 2000); effective institutions and the rise of productivity and competitiveness (Acemoglu et al. 2005); and improving the quality of life and increasing capabilities. (Nussbaum – Sen 1993) Despite the diversity of "trajectories of modernity" embodied in various institutions and cultural features, modernity is "a common global condition that now affects all our actions, interpretations and habits across nations" (Wittrock 2000: 59).

Consequently, the conception of modernization is relevant for any society. Previous comparative cross-national research shows that “pervasive massive cultural change” associated with economic growth is also path dependant, and “cultural zones with distinctive value systems” rooted in religious traditions persist despite “the effects of economic development”. (Inglehart – Baker 2000) On the other hand, it was demonstrated that the development path normally depends on the forms of institutions, e.g. institutions of private property vs. extractive institutions. (Acemoglu et al. 2001; Acemoglu et al. 2009) A challenging task for the social sciences is to reveal further invariant features – prerequisites and attractors for modernization – along with cultural and institutional specificity of particular societies and regions. As mentioned above, post-socialist (and in particular post-Soviet) countries present such an interesting trajectory of modernization case.

As a theoretical framework for the research, I use a modernization model (Welzel et al. 2003; Inglehart – Welzel 2009; 2010) which was developed based on WVS and EVS data and derived from the capability approach. (Anand – Sen 1994) According to this model, which links modernization to the concept of human development, emancipation and empowerment progress comprises three elements, namely: a) individual resources (objective means of choice); b) emancipative cultural values (motives of choice); and c) institutional rules (effective rights to human choice). Emancipative and self-expression values have to appear due to the growth of resources. In general, such transformations turn out to be a human empowerment process that boosts people’s capabilities.

To explain the mechanism of this value shift, Inglehart also suggested a socialization hypothesis. According to this, observed values of adults reflect the social and material conditions of their socialization process, and their youth experience of economic and physical security shapes enduring value orientations. (Inglehart 1990) Accordingly, a rising sense of existential security in recent decades leads to ‘intergenerational value change’. This hypothesis is linked to a theory of generations which was proposed by Mannheim in 1923 (Mannheim 1952) and a study of cohort replacement component in social change. (Ryder 1965) Consequently, the concept of socialization used in the research reflects possible differences between the cohorts with regard to the value orientations that have been shaped via personal experience under the condition of relative scarcity or security during one's early life or “formative years”. (Inglehart 1990) Of course, some values continue changing afterwards, especially “in times of rapid transition” (Swader 2008) or social unrest as a result of historic events (period effect). However, such a modification would impact approximately evenly on all cohorts. On the contrary, the socialization

concept captures the formation of the value core that distinguishes the cohorts regardless of the common influence of current historic events.

In this research, I focus on a particular part of the modernization model testing whether an emancipative values trend, namely the substitution of materialist priorities for post-materialist, exists in post-socialist societies compared to West European societies (old EU members) and whether Inglehart's socialization hypothesis is valid to explain such a trend.

### **Variables and Hypotheses**

The chosen theoretical framework determined the variables of the study and the research hypotheses. The response variable is the level of materialist/post-materialist values in a given society computed as proportions of people who are materialists or post-materialists. To test this hypothesis, it is necessary to have at least three time points for all countries included in the analysis. (Firebaugh 1989) That is why a four-item post-materialist index (EVS/WVS integrated data) is used as a measure of the response variable. (EVS 2011; WVS 2009) This index coincides with a larger number of waves and countries than other available measures of emancipative values. It allows the opportunity to compare more societies and over a broader period of time. Besides, recent studies have pointed to the lack of scalar invariance of the index, which implies the impossibility of meaningful comparisons of the country means. (Ippel et al. 2014) However, since metric invariance was found plausible, rank ordering of countries by a four-item post-materialist index is possible "if one is willing to except that the scale measures a single latent factor". (Ippel et al. 2014) To avoid a potential problem of cross-country comparability, instead of contrasting means of the index, I suggest comparing proportions of groups of people who share either materialist ('pure materialists') or post-materialist ('pure post-materialists') value priorities.

A criterion for verification of the socialization hypothesis derives from demographic (birth cohort) replacement in which "successive cohorts are differentiated by the changing content of formal education, by peer-group socialization, and by idiosyncratic historical experience". (Ryder 1965: 843) The hypothesis is true if a value shift occurs through cohort replacement when younger cohorts differ from the older ones in terms of shared values. (Inglehart 1990; Alwin 1990; Inglehart – Abramson 1994; Inglehart – Baker 2000) The alternative is intracohort (within-cohort) change that implies the prevalence of individual alterations over cohort differences due to socialization. (Ryder 1965; Firebaugh 1992) In order to estimate the effects in values change and test Inglehart's socialization hypothesis cohort variable (year of birth) – which considered a proxy for the socialization process – and time variable (year of survey) are included as predictors in the statistical model. (Savelyev 2015) Since

younger cohorts are usually more educated than elderly cohorts in contemporary European societies and the level of education is expected to be correlated with general support for liberal values, it is necessary to control for the influence of education on the response variable. (Voicu 2010) Hence, level of education is included as a predictor.

The hypothesis is that an observed change in materialist/post-materialist values in either West European or post-socialist societies is due to cohort replacement (demographic change) with control for education, and therefore Inglehart's socialization hypothesis is true. Alternative hypotheses are:

1. Observed change in materialist/post-materialist values in either West European or post-socialist societies is due to contextual social, political and economic transformations (intracohort change) and therefore Inglehart's socialization hypothesis is false.
2. Observed change in materialist/post-materialist values in either West European or post-socialist societies is determined by both cohort replacement and intracohort change and therefore Inglehart's socialization hypothesis is partly true, but should be amended to account for more complex patterns of values change.
3. Inglehart's socialization hypothesis is true only for West European societies and false for all or several (non-EU) post-socialist societies.

### **Data and Methods of Analysis**

The dataset consists of integrated World Values Survey data (waves 3, 5: WVS 1994 – 1999, WVS 2005 – 2007) and European Values Survey data (waves 3, 4: EVS 1999 – 2001, EVS 2008 – 2010) with matching questions covering the period from 1995 till 2008 in 16 European societies: 13 post-socialist countries (Bulgaria, Belarus, Czech Republic, Estonia, Latvia, Lithuania, Moldova, Poland, Romania, Russia, Slovakia, Slovenia, Ukraine – seven of them are post-Soviet states and four are still non-EU members) and three reference West European countries (Germany, Spain and Sweden). All countries were selected according to the formulated criteria and availability of the indicators. Hungary is omitted due to the lack of data in WVS 1994 – 1999 and WVS 2005 – 2007 waves. West European countries were added into the analysis as a point of reference to compare post-socialist with more developed European societies, for which previous research indicated a post-materialist values shift. (Inglehart – Abramson 1994; Inglehart – Welzel 2005) They represent various clusters the EU15: Germany is a continental West European country and is the largest in the EU; Spain is a Mediterranean country that was previously an authoritarian regime and among the EU15 member states is close by many indicators to Central and Eastern Europe; Sweden represents a group of advanced Scandinavian societies that are global leaders by development indicators. Only

those West European countries were included into analysis which have data available from four survey waves at least.

The design of research is repeated cross-sectional with four time points. The sample is representative for a population over 18 (overall 78,501 respondents). (EVS 2011; WVS 2009)

To achieve the research goals, I went beyond descriptive splits by cohorts (Abramson 2011) and used the method of linear decomposition of a trend. (Firebaugh 1989; 1992) This method allows differentiating two otherwise concealed components of social change – a component due to transformation of values on an individual level (intracohort change) and a component due to cohort replacement (population change). For instance, this analytical tool was efficient for sociological research in identifying mechanisms of changes in support for democracy in post-socialist countries (Voicu 2010), discovering factors of changes in family role attitudes (Kraaykamp 2012) and detecting variations in gender beliefs over time. (Voicu – Tufiş 2012) Thus, the method of linear decomposition can display profound patterns within observed social change.

Although it is not plausible to separate the effects of aging, cohorts, and time period as the linear additive effects, “one can decompose trend data reflecting social change into two orthogonal components: the between-cohort versus within-cohort part of the trend”. (Alwin – McCammon 2003) As Rodgers warned, often it may be confusing for interpretation and not clear what can be achieved by the decomposition of a trend. (Rodgers 1990) However, in this particular case such decomposition is justifiable and well interpretable because generational (between-cohort) differences are a proxy for socialization which is contrasted to overall changes due to other contextual factors. The latter within-cohort component can be interpreted either as a result of aging or in terms of historic effects. (Alwin – McCammon 2003) It is generally accepted that cohort-specific socialization crystallizes by (or following) the time of early adulthood into a relatively stable system of beliefs, values, and normative and sociopolitical orientations that persist throughout the life cycle of an individual. (Alwin 1990; Alwin – Krosnick 1991; Inglehart 1997; Alwin – McCammon 1999; Inglehart, Baker 2000; Kraaykamp 2012) Concurrently social development may influence personal opinions, attitudes and values across all cohorts due to alterations of ‘social structural conditions’ and within-cohort change is likewise as important as cohort replacement in the mechanism of social change. (Danigelis et al. 2007; Kraaykamp 2012) In this way, one can assume that the influence of aging on value change is not significant over a life span and the within-cohort component is ‘likely to represent period effects’. (Alwin 1996; Alwin – McCammon 2003; Brooks – Bolzendahl 2004) This makes the linear decomposition of value change into two orthogonal components tenable.

In contrast to other mathematical techniques, linear decomposition uses the most information to estimate cohort replacement effects. (Firebaugh 1989: 256) Employing a regression model Firebaugh designed “component-difference equations... to partition change in means over time in repeated survey data”. (Firebaugh 1992: 14) The initial step in modeling for decomposing social change is to regress the response variable on the survey year (that represents the first component of change) and cohort (respondent's birth year that represents the second component) for the pooled cross-sectional dataset with at least three time points (equation 1). Then the slopes from the equation (1) can be used “to estimate the intracohort change and cohort replacement components”. (Firebaugh 1989: 253)

$$y = b0 + b1\_survey\_year + b2\_cohort + \varepsilon \quad (1)$$

The linear decomposition of a trend based on regression is the key method in data analysis. However, descriptive statistics is also used for exploratory analysis in the paper.

To test the research hypotheses, regression models are estimated for each country separately. Since a four-item post-materialist index is used as a measure of the response variable with categorical outcomes, logistic regression is employed for statistical modeling. Such a solution to a categorical response variable was proposed by C. Brooks and J. Manza for decomposing the differences in voting choice. (Brooks – Manza 1997) Therefore, the equation for our decomposition model will be the following:

$$P(y) = \frac{1}{1 + e^{-(b0 + b1\_survey\_year + b2\_cohort + \varepsilon)}} \quad (2)$$

where  $P(y)$  is probability of binary outcome of belonging to a group of post-materialists (materialists),  $b0$  is log odds of belonging to a group without predictors in the model,  $b1$  is log odds ratio of belonging to the group for change in the survey year (time variable),  $b2$  is log odds ratio of belonging to the group for change in birth year (cohort variable),  $e$  is the base of natural logarithm, and  $\varepsilon$  is error term.

The statistical significance of the coefficients of the predictors (the slopes in regression equation) that represent a component of intracohort change and a component of cohort replacement will indicate whether the change in materialist/post-materialist values was due to any of these components. Although by using component-difference equations (Firebaugh 1989) in the OLS regression it is possible to estimate the relative effect size of both components based on the coefficients values, unfortunately, the coefficients are hardly comparable in different logistic regression models. (Mood 2010) Therefore, our



interpretation of the decomposition model is limited by the statistical significance of the coefficients and direction of the relationships. If the regression coefficient of cohort replacement is significant for the increase of post-materialist values, and if the regression coefficient of cohort replacement is significant for the decrease of materialist values, then Inglehart's socialization hypothesis is correct for a specific period of time in a given society.

Although in statistical modelling logistic regression is used to predict belonging to each of materialist or post-materialist groups but not to a mixed one, this does not mean that some respondents are omitted in the analysis. Information from all respondents who share materialist, post-materialist or mixed value orientations is included in all models to predict the outcome without reducing sample size. Effects of intracohort and intracohort components on the outcome are used as country characteristics for cross-national comparison.

### **Results of Analysis**

As an exploratory step of analysis, adverse tendencies of value change in different European societies (West European, post-socialist, EU members, and non-EU members) are indicated using descriptive statistics. As shown in Figure 1, West European societies, Sweden and Germany, led in the number of post-materialists as well as had the smallest number of materialists in 2008.

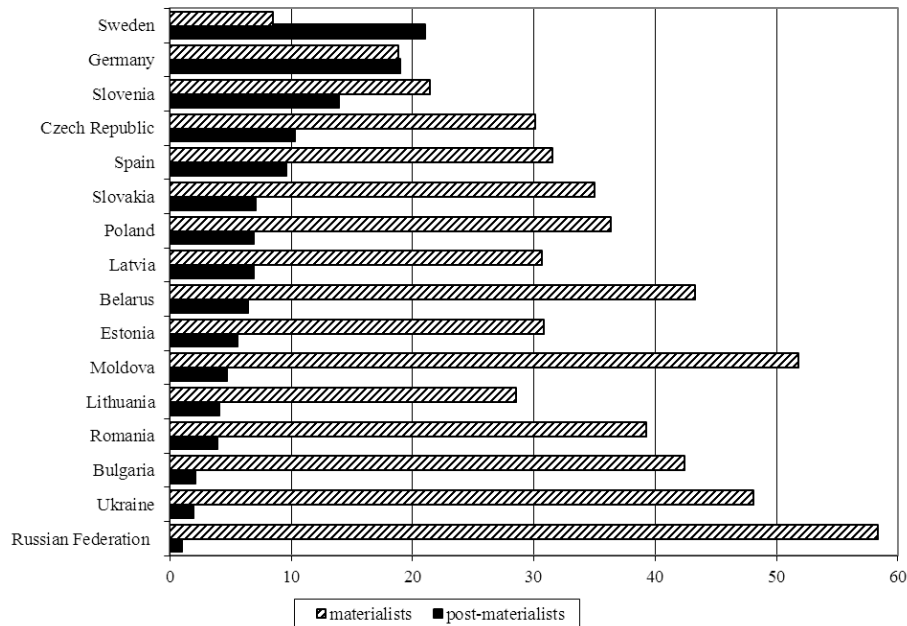
Slovenia, the Czech Republic – post-socialist countries and recent EU members – and Spain as a Mediterranean country (EU15) are close to the leaders but substantially behind. Lithuania, Estonia and Latvia have a group of materialists similar in size to the Czech Republic and Spain but differ from them by their smaller post-materialist group. Slovakia, Poland and Romania are behind Spain and the Czech Republic by both indicators. The lowest number of post-materialists is in two post-Soviet, non-EU countries, Ukraine and Russia, but also in Bulgaria. The other two post-Soviet countries, Belarus and Moldova, have a higher percentage of post-materialists comparable to most of post-socialist societies from EU10. However, all four non-EU countries have the largest number of materialists, exceeding 40%, and are have substantially higher rates than in the rest of the region of East Europe, except Bulgaria. Moldova and Russia have more than 50% materialist populations.

These results do not deviate from other comparative studies on values, including those which use more complex statistical techniques. (Magun et al. 2012; Magun – Rudnev 2012) Regularly it is reported that Scandinavian societies are the most advanced in terms of values and non-EU, post-Soviet countries are at the bottom of the ranking list in Europe.

However, if we look at the relative change across the waves, one could see an interesting dynamics from the mid-1990s till 2008. Figure 2 points out that

adverse tendencies exist in Europe. The number of post-materialists is quite stable. The exceptions surprisingly are West European countries Spain and Germany where the group declined significantly over the decade. The only country that demonstrated growth was Latvia, although a value is close to the margin of error.

**Figure 1: Percentage of post-materialists and materialists in 16 European countries in 2008 – 2009 (EVS wave 4)**

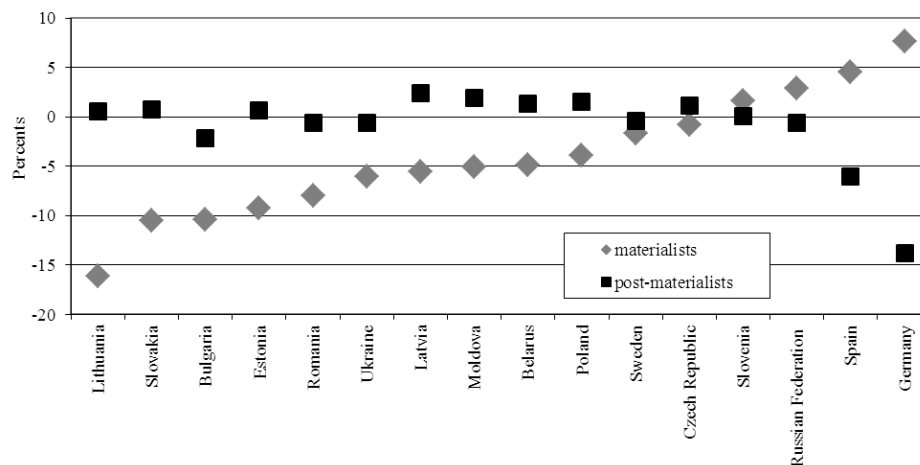


On the other hand, the change in the number of materialists was significant in most cases. Again quite unexpectedly, in two West European countries the number increased while in most of the Central and East European region it dropped, showing at least partial value shift. Only in the Russian Federation there was a slight growth of materialists between the waves. Notably, the most advanced West European society among the selected, Sweden, did change in either group of materialists or post-materialists. There was a stable situation also in the most prosperous East European countries, Slovenia and Czech Republic.

Thus, the initial findings imply that despite the predictions of Inglehart and his collaborators, there is no universal trend in values change and modernization in European societies specifically during this short period of time. In contrast, different groups of societies exist. Moreover, if in most post-socialist countries there was a sign of one-sided value transformation with a lower

proportion of ‘pure’ materialists and constant number of post-materialists, Germany and Spain were moving into opposite direction displaying clear materialist backlash in terms of both groups. This is unexpected for developed West European societies and contradicts the modernization model. (Welzel et al. 2003; Inglehart – Welzel 2009; 2010)

**Figure 2: Relative change in groups of materialists and post-materialists in 2008 compared to 1995 – 1997 (%) WVS wave 3, EVS wave 4**



Still, the difference between West European and post-socialist countries persists despite the recent materialist trend in Germany and Spain (see Figure 1).

Based on this exploratory analysis the question arises, what is behind the observed discrepant trend? The method of linear decomposition provides more accurate estimates of change going beyond descriptive statistics that will allow more substantial verification of the modernization model. By means of binary logistic regression, I contrasted cohort replacement effect and contextual effect as two components within the observed value change in each country (Table 1). The regression coefficients are the log odds ratios of belonging to the ‘pure’ post-materialist group. The response variable is regressed on the predictors: year of birth (cohort) and year of survey (time variable for contextual effects). The sign of the coefficients indicates the ascending (if positive) or descending (if negative) post-materialist trend.

Table 1: **Decomposition of contextual change and cohort replacement effects (post-materialist group) during 1995 – 2008** (Binary logistic regression, unstandardized coefficients)

Country	Change in group of post-materialists (%)	Intracohort change	Cohort replacement	Intracohort change with control for level of education	Cohort replacement with control for level of education
Belarus	1.33	-.014	.029***	-.028*	.023***
Bulgaria	<b>-2.13</b>	-.076***	.021***	-.082***	.018**
Czech Republic	1.16	-.006	.015***	-.014	.014***
Estonia	0.63	.015	.023***	.017	.021***
Germany	<b>-13.84</b>	-.063***	.025***	-.064***	.020***
Latvia	<b>2.4</b>	.034*	.007	.032*	.006
Lithuania	0.55	-.029	.022***	-.031	.018**
Moldova	1.89	.030	.018***	.029	.012*
Poland	1.55	-.007	.020***	-.015	.017***
Romania	-0.64	-.045**	.026***	-.032*	.018***
Russian Federation	-0.58	-.038	.027***	-.043*	.024***
Slovakia	0.76	.033*	.026***	.024	.019***
Slovenia	0.06	-.014	.018***	-.019*	.013***
Spain	<b>-6.08</b>	-.071***	.028***	-.070***	.019***
Sweden	-0.37	.0001	.009***	.015*	.004
Ukraine	-0.59	-.025	.017**	-.033*	.013*

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$   
Education is significant for all countries ( $p < 0.001$ )

The study of 16 European societies from 1995 – 2008 by linear decomposition method reveals a general shift from materialist to post-materialist values via socialization of younger cohorts, although this trend is obscured by opposite directions of intracohort values changes in some European societies. Even in Germany, Spain, Bulgaria, Romania and Lithuania, where the log odds ratios of belonging to the post-materialist group decrease significantly due to contextual change (increase year of survey). Still there is a significant effect of cohort replacement with growing odds of belonging to a post-materialist group for younger cohorts. The only exception is Latvia where cohort turnover is not significant, while the positive contextual change is. This is the extraordinary case of the growing number of people with post-materialist priorities in Europe. And it was found in a post-Soviet country! Surprisingly, non-EU, post-Soviet countries including Russia and Ukraine demonstrate a positive post-materialist trend via cohort replacement, although z statistics of the coefficients are less significant.

A similar pattern is also found for the materialist group via the decomposition method, while the regression coefficients are the log odds ratios of belonging to a ‘pure’ materialist group (Table 2). For these models, the sign of the coefficients should be interpreted reversely: negative coefficients stand for an ascending post-materialist trend because the log odds of belonging to a materialist group are lower for younger cohorts or later waves, and positive coefficients indicate an opposite materialist trend.

**Table 2: Decomposition of contextual change and cohort replacement effects (materialist group) during 1995 – 2008** (Binary logistic regression, unstandardized coefficients)

Country	Change in group of materialists (%)	Intracohort change	Cohort replacement	Intracohort change with control for level of education	Cohort replacement with control for level of education
Belarus	-4.83	.010	-.024***	.019*	-.019***
Bulgaria	-10.41	-.006	-.014***	-.001	-.009***
Czech Republic	-0.81	.020***	-.017***	.045***	-.015***
Estonia	-9.28	-.032***	-.014***	-.032***	-.012***
Germany	7.63	.027***	-.028***	.036***	-.022***
Latvia	-5.54	-.012	-.012***	-.011	-.011***
Lithuania	-16.17	-.033***	-.012***	-.032***	-.008**
Moldova	-5.1	-.013	-.017***	-.012	-.011***
Poland	-3.95	.001	-.017***	.010	-.012***
Romania	-7.99	-.015*	-.012***	-.023*	-.004*
Russian Federation	2.89	.033***	-.020***	.035***	-.017***
Slovakia	-10.53	-.048***	-.022***	-.040***	-.017***
Slovenia	1.66	.024**	-.017***	.026**	-.014***
Spain	4.53	.053***	-.025***	.053***	-.018***
Sweden	-1.68	-.013	-.010**	-.000	-.004
Ukraine	-6.03	-.007	-.011***	-.004	-.009***

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$   
Education is significant for all countries ( $p < 0.001$ )

In contrast to the post-materialist group, cohort replacement effect for materialist group is highly significant for all 16 countries. Hence, the trend direction supports Inglehart’s socialization hypothesis, for younger cohorts tend to be less materialist. This effect is also combined and boosted by period effect (contextual factors) in Estonia, Lithuania, Slovakia ( $p < 0.001$ ) and Romania ( $p < 0.05$ ). Vice versa, in West European Germany and Spain, in advanced post-socialist Czech Republic and Slovenia, as well as in post-Soviet Russia, contextual factors were negative for post-materialist value change.

Remarkably, if in Germany, Spain and Russia one would expect such a result because descriptive statistics clearly demonstrate an increase in the number of materialists (7.6, 4.5 and 2.9% accordingly), then in Czech Republic and Slovenia descriptive statistics were not helpful, for changes that occurred were within the margin of error. However, a decomposition analysis revealed the significance of contextual factors in these countries, the negative effect of which was offset by a positive cohort replacement effect.

Thus, for post-materialist as well as materialist group, the linear decomposition of a trend showed that Inglehart's socialization hypothesis (Inglehart 1990) on values change was true for both selected West European and post-socialist countries with the Latvia being a special case.

However, this finding is valid if only not control for education, which is an important factor of value priorities. In contemporary European societies, younger cohorts are more educated than the older cohorts and that is why for more accurate estimates, a model should "control for the influence of education on the target variable". (Voicu 2010) There has been a long discussion on the relationship between education and post-materialist values. (Abramson 2011) Inglehart and his collaborators considered education rather a proxy for economic security (Abramson – Inglehart 1994), however, many scholars have found evidence that such a relationship is significant. (Duch – Taylor 1993; Davis 1996; Swank 1996) In the data samples, the education level grew in 14 countries over the period, but stayed virtually constant in Estonia and Romania (Figure 3). Therefore, to avoid a possible substitution of a cohort replacement effect by effect of education, a variable that represents the level of education was included into the model.

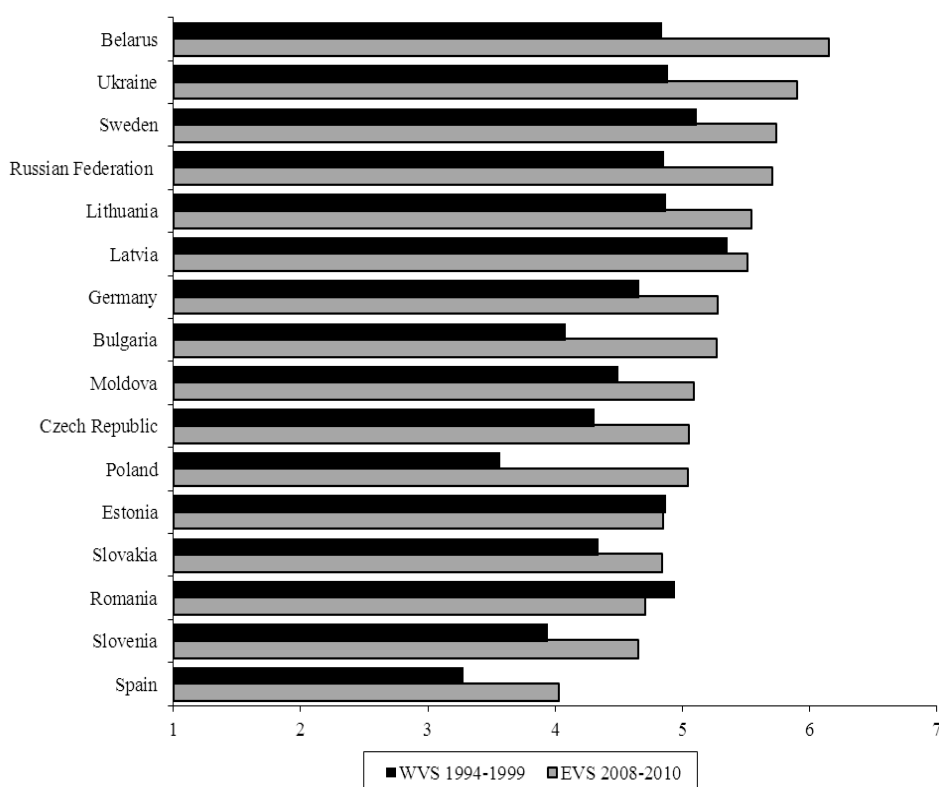
Education appeared to be a highly significant predictor ( $p < 0.001$ ) in all countries for both the post-materialist group (positive relationship) and for the materialist group (negative relationship). This is in compliance with a mentioned above theoretical assumption that education plays an important role in forming value priorities.

The interpretation of the coefficients is slightly modified: they are log odds ratios belonging to the group of post-materialists (or materialists) for unit change in cohort variable (or time variable) but for people whose level of education is identical. Hence, target effects are estimated beyond the influence of education on the response variable (Tables 1 & 2).

Intracohort change for the materialist group with control for education became significant in Belarus ( $p < 0.05$ ). This discloses the existence of eventually negative contextual effect on a post-materialist value trend in this country, which was counterbalanced by an increasing level of education (Table 3). Likewise, a negative relationship was identified for the post-materialist group in Belarus, Russia, Slovenia and Ukraine, meaning that education

compensated an actual decrease in odds of belonging to the post-materialist group toward the end of the period (Table 1). The amended model also showed that positive contextual impact on post-materialist values in Slovakia was in fact due to the growing education level.

**Figure 3: Change in level of education in 16 European countries in 1994 – 1999 – 2008 – 2010 (WVS wave 3 – EVS wave 4), country means (from 1 – inadequately completed elementary education to 8 – university with degree/higher education – upper-level tertiary certificate)**



The estimation of cohort replacement effect under the control of education level is crucial for the main purpose of our analysis. The most important outcome is that previously discovered patterns persisted in all cases but one. Cohort turnover effect became less significant in Ukraine and Moldova for the post-materialist group and in Romania for the materialist group ( $p < 0.05$ ). This points to a possible interaction of the education variable with other predictors in the models for these countries. The only country where the cohort replacement component lost its significance due to education was Sweden – both post-

materialist and materialist groups. This implies that log odds of belonging to the post-materialist group (.004,  $z = 1.71$ ,  $p = 0.086$ ) and log odds of belonging to the materialist group (-.004,  $z = -1.18$ ,  $p = 0.238$ ) for younger cohorts do not differ from older cohorts if people have the same level of education. Accordingly, the significance of the coefficients for year of birth variable in the initial model can be explained by the higher education level of younger cohorts which influenced value priorities but not cohort turnover, per se.

Table 3 summarizes the main findings of the study. While contextual factors are important and can be used for further meaningful interpretation, I primarily focus on cohort replacement effects as a proxy to test the socialization hypothesis.

**Table 3: Socialization hypothesis: cohort replacement effects on number of post-materialists and materialists in 16 European societies during 1995 – 2008 with control for level of education** (Binary logistic regression, unstandardized coefficients)

Country	Cohort replacement effect on post-materialist group	Cohort replacement effect on materialist group	Status of socialization hypothesis with a restriction of within-cohort effect
Belarus	.023***	-.019***	TRUE
Bulgaria	.018**	-.009***	TRUE
Czech Republic	.014***	-.015***	TRUE
Estonia	.021***	-.012***	TRUE
Germany	.020***	-.022***	TRUE
Latvia	.006	-.011***	PARTLY TRUE
Lithuania	.018**	-.008**	TRUE
Moldova	.012*	-.011***	TRUE
Poland	.017***	-.012***	TRUE
Romania	.018***	-.004*	TRUE
Russian Federation	.024***	-.017***	TRUE
Slovakia	.019***	-.017***	TRUE
Slovenia	.013***	-.014***	TRUE
Spain	.019***	-.018***	TRUE
Sweden	.004	-.004	FALSE
Ukraine	.013*	-.009***	TRUE

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$   
Education is significant for all countries ( $p < 0.001$ )

## Conclusion and discussion

This paper aimed at an in-depth investigation of a particular aspect of the modernization process that is related to a fundamental emancipative shift in



values. It attempted to answer the question of whether post-socialist societies follow a similar path of development to advanced Western Europe. The study supports the modernization model by Inglehart and his collaborators (Welzel et al. 2003; Inglehart – Welzel 2009; 2010) only if emancipative cultural values (motives of choice) are formed via the socialization process and remain relatively stable during the life course. (Inglehart 1990; Inglehart 1997; Inglehart – Baker 2000) There is a true, although not always obvious, generational replacement that brought post-materialist orientations in most of the selected countries from the mid-1990s to the end of 2000s. This is in line with the previous cross-national research that included West European societies. (Inglehart – Abramson 1994; Abramson 2011) Now such a pattern can be legitimately spread over post-socialist countries as well.

However, the main hypothesis that the observed change in materialist values towards post-materialist in either West European or post-socialist societies is entirely due to demographic turnover with control for education was not confirmed. Instead the alternative hypothesis that the existing tendency and mixture of materialist/post-materialist values in European societies are determined by both cohort replacement effect and within-cohort component was proved (with or without control for education). A discrepant trend was detected rather than a gradual substitution of values. Consequently the test of Inglehart's socialization hypothesis yielded contradictory results. It seems to be true – although with a restriction of within-cohort component of change – for two out of three chosen West European societies and for 12 out of 13 post-socialist countries regardless whether they are EU member states or not. Latvia represents a special case for which Inglehart's socialization hypothesis is true with the restriction only for cohort replacement effect on the materialist group but not for the post-materialist group. In other words, in terms of demographic turnover Inglehart's socialization hypothesis appeared to be a valid assumption in most cases. But its validity was constrained by the other component of value change. Apparently, even significant generational differences do not alone produce the expected general shift towards post-materialism.

Although the research results sustain the modernization model (Welzel et al. 2003; Inglehart – Welzel 2009; 2010) with regard to the dispersal of emancipative values due to the growth of resources and economic security, it should be amended to account for more complex patterns of value change. An important finding is that the model can be fully applied to post-socialist countries, which saw a transition from socialism to market economy and democracy, as it was previously used for West European societies. However, the model should be treated with caution for the most advanced societies. This is quite a surprising conclusion, for one would rather expect the inadequacy of the model from its application to the post-socialist region or at least to several

post-Soviet states. The reason for such an inference derives either from the 'multiple trajectories of modernity' assumption and the empirical evidence of peculiarities of modernization in Russia (Tikhonova 2008; 2011) or from path dependency that is shaped by religious and historical heritage. (Inglehart – Baker 2000)

However, the reality is quite the opposite. In Sweden, which is the most advanced society among the selected, there is no difference between younger and older cohorts in terms of post-materialist values if controlled for level of education. This suggests the possibility that value change due to the impact of socialization and population turnover is not a linear process. When society reaches a certain level of development and a critical number of people, who share post-materialist orientations, their proportion may stop growing. Every society is differentiated and it is reasonable to expect limits to the proportion of post-materialists. Sustainable economic development may not lead to a further boost of feeling existential security. The same curvilinear relationship, for instance, was found between income and happiness famously known as the Easterlin paradox. (Easterlin et al. 2010) On the other hand, growth in resources and sense of security during formative years at a particular point can stop converting into post-materialist values for a broad range of people with various social and cultural backgrounds.

The study also clearly demonstrates that the observed variability in value change in different countries in Europe is due to intracohort transformations and not population turnover. This finding confronts the assumption of exclusiveness of socialization against the period effect in forming value orientations. (Inglehart – Abramson 1994) Moreover, even in those countries where there was no major change in the post-materialist group size, cohort replacement effect appeared to be significant indicating that this deep tendency was offset by the other change trends. One can conclude that there are two components in the studied social change: a virtually universal steady trend based on cohort replacement, and various fluctuations in values during a historic period. Thus, distinctions in the modernization process are primarily caused by specific country-level contextual factors. Country particularity (institutional and cultural features) and changeability of historical context can explain why "modernization does not follow a linear path". (Inglehart – Baker 2000)

The limitation of the research is the lack of comparative analysis of the discovered period (contextual) effects in different countries. The current paper is focused on testing a hypothesis that generational value change from materialist towards post-materialist priorities exists in post-socialist societies as a comparable pattern against Western Europe. Therefore, the goal was to estimate and compare the cohort replacement component of social change

across countries while period effect was not critical per se important within the socialization hypothesis framework. However, within the broader framework of the modernization model, period effect clearly exhibited its tremendous importance in understanding the modernization route across Europe.

Nevertheless, the questions arise: why in some countries significant period transformation of values (intracohort change) was not detected while it did happen in others? Why in several societies was the trend positive in terms of post-materialist values and in others it was negative? The studied period from the mid-1990s to the end of the 2000s was diverse by the impact for different societies in terms of economic and social development. Post-socialist countries experienced deep transformations with various levels of success. The global financial crisis probably was not reflected in the data, for the fieldwork of the EVS fourth wave was performed in 15 out of 16 countries in 2008 (in Sweden in 2009). That said, the value change trend was consistent within the overall period. Even during the credit boom and economic growth the WVS wave of 2005 – 2007 indicates the same downward inclination in Germany and Spain when the group of pure post-materialists shrunk. Quite differently the majority of post-socialist countries experienced a fall in the number of pure materialists with statistically insignificant fluctuations in the group size of pure post-materialists.

Yet the most intriguing incident in the decomposed value trend is a combination of both effects in which historical period countervails generational socialization differences in terms of post-materialist values in most countries. The research confirms earlier evidence on the significant impact of population turnover along with within-cohort change on various social phenomena. (Danigelis et al. 2007; Kraaykamp 2012) Unfortunately, the type of the data analysis makes a relative comparison of the effect sizes problematic. Even though we can differentiate between the cases in which both components operate in the same direction (Danigelis et al. 2007) and in which in the opposite. Hence, further research on modernization either in post-socialist or advanced West European societies should be focused on distinguishing these two components of social change. Thus, the modernization model can be amended by incorporation of contextual change which has a strong effect on values and contrasts cohort differences due to socialization.

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