

POLITICAL AND ECONOMIC ATTITUDES

KATERYNA GRYNIUK
Polish Academy of Sciences

Education and Support for Democracy in Poland: Attitudinal, Structural, and Cognitive Mechanisms

Abstract: While it is well-known that education is positively connected to support democracy (competitive elections, a multi-party system, and the belief that political leaders must obey the law) in the countries of Central and Eastern Europe, we have few empirical tests of how attitudinal, structural, and cognitive mechanisms mediate that connection. I use the Polish Panel Survey (POLPAN) for 2008–2013, a crucial period that captures the Polish political experience after acceding to the European Union and before the massive political change of the 2015 elections, to empirically test how these different mechanisms impact the link between education and democratic values. I find empirical support for the hypotheses that (a) in terms of attitudes, higher levels of education are associated with lower authoritarian attitudes, which in turn correlate with stronger pro-democratic values; (b) in terms of structure, individuals with higher levels of education, who are more likely to belong to privileged social classes, are more pro-democratic; (c) in terms of cognitive mechanisms, higher educational attainment is associated with higher cognitive abilities, which in turn correlate with stronger support for democracy.

Keywords: Democratic values, education, authoritarianism, social class, cognitive abilities.

Democratic values of citizens, aided by mass education, have led to the positive development of democratic polities (Almond and Verba 1963; Dahl 1971; Inglehart 1990). Scholars such as Lipset (1959: 79) recognized education as one of the basic requirements to create and sustain a strong and informed polity—thus, education is seen as an important prerequisite of democracy. Better educated citizens, it has been argued, are more eager to support democratic rights, liberties, and institutions (Gibson et al. 1992; Finkel and Ernst 2005). Since the 1990s, empirical studies featuring social surveys in Central and Eastern Europe have shown that education is one of the strongest predictors of democratic values (Gibson et al. 1992; Pełczyńska-Nałęcz 1997; Gołębiowska 2006; see also Finkel and Ernst 2005). Recently, Evans and Rose (2012) found that educational level dominates other socio-demographic variables, such as age, gender, occupation, religion, language, and support for the ruling party. While many scholars argue that education has a connection to democratic values, considerably fewer empirical studies explore mechanisms that enable this connection. I focus on three major theories that posit attitudinal, structural, and cognitive mechanisms: authoritarianism theory, class theory, and cognitive theory.

Authoritarianism theory posits that authoritarian attitudes decrease support for democracy. According to this theory, individuals with higher levels of education have lower authoritarian attitudes, which correlate with higher level of support for democracy (Adorno et al. 1950). *Class theory* posits that the experience of schooling contributes to the repro-

duction of hegemonic democratic values in the more privileged classes (Bowles and Gintis 1976; Meyer 1977). Privileged classes with high levels of education attainment, therefore, have incentives to be pro-democratic because they are the “winners” of the democratic system. According to the third, *cognitive theory*, higher levels of education correlate with higher cognitive abilities, which may be seen as another possible explanation for the link of education with the advancement of democratic values. (Hillygus 2005; Rindermann 2008; Rindermann et al. 2012).

I test these three theories—authoritarian, class, and cognitive—that link education to democratic values using two waves of the Polish Panel Survey, POLPAN, in 2008 and in 2013. The analysis of how these theories fare within the Polish situation is of value in two ways. First, it examines one of the largest former state socialist countries that achieved a rather stable democracy. The time period of this study captures the Polish political experience after acceding to the European Union and before the massive political change of the 2015 elections. Second, given elements of Poland’s shared history with its Central and Eastern European neighbors, this research can improve our general understanding of the attitudinal foundations of democracy in the region.

Theories and Hypotheses

Scholars agree that education is crucial for individuals to turn into effective democratic citizens and for nations to become more democratic. Bryce (1912) recognized the role of education in broadening the outlook of citizens and helping them to become more tolerant, and therefore, more democratic, and Dewey (1916) emphasized that the mission of schools is to develop a healthy democracy. I concentrate on the meaning of education as a contributor to a stronger, more stable democracy via democratic values by cultivating citizens who act as drivers of social and political change.

Many political scientists have underlined the importance of education for democratic change (Bryce 1912; Dewey 1916; Lipset 1959; Almond and Verba 1963; Bendix 1964; Tyack 1966; Dahl 1971; Meyer et al. 1979; Boli, Ramirez, and Meyer 1985; Kamens 1988; Inglehart 1990; Gibson et al. 1992; Pełczyńska-Nałęcz 1997; Welzel et al. 2003; Finkel and Ernst 2005; Gołębiowska 2006; Evans and Rose 2012 etc.). Education influences individuals who make democratic political systems possible (Kamens 1988). In the context of structural theory of democratization, Lipset (1959: 79) claimed that education is the most important prerequisite for democracy, far more important than the other structural factors such as social class. Other representatives of the structural theory of democratization, Welzel, Inglehart and Klingeman (2003) included education as an important component in their theory of human development. Moreover, Almond and Verba (1963) have claimed that education is a major source of support for democracy, as well as the major source of civic attitudes. Educational level was found to be among the strongest predictors of support for democracy in Russia (Gibson et al. 1992). Finkel and Ernst (2005) have found that civic education has a significant positive influence on the development of democratic values. Evans and Rose (2012) examined how different levels of education are associated with support for democracy, and controlling for various

socio-demographic characteristics they found that educational level is the most influential.

Most studies of the link between education and democratic values featuring Central and Eastern Europe were conducted in the 1990s when the democracies of the region were “new” and there was a great concern for democratic backsliding. Perhaps by the 2000s, scholars considered the issue as settled; in any case, there are few studies in the region featuring post-1990s data. Thus, we know little about the current impact of the attitudinal, structural, and cognitive mechanisms on the link between education and democratic values in what now appears to be a new era of challenge to liberal democracy.

Authoritarian Theory

The first theory I test is attitudinal and focuses on authoritarianism. The dichotomous nature of the concepts “dictatorship” and “democracy” (Alvarez et al. 1996) entails a logical assumption that there is a strong negative relationship between the attitudes toward them. In case of Poland, Gołębiowska (2006) showed that controlling for the other factors authoritarian attitudes have the strongest and negative link with democratic attitudes toward the support of political dissenters.

According to the studies of Theodor Adorno (1950; 2003), education has an important role in decreasing authoritarian attitudes such as obedience to authority, desire to conform to reality and unwillingness to change it. Adorno (2003) argued that education is a revolutionary practice that teaches not to adapt to the world, but to reconstruct it. Thus, the link between education and democratic attitudes may be mediated by the fact that education decreases authoritarian attitudes. I hypothesize that *higher levels of education are related to the lower authoritarian attitudes, which in turn correlate with the higher pro-democratic attitudes of individuals*. This would mean that attitudinal authoritarianism partly explains why education has an impact on democratic values.

Class Theory

According to Meyer (1977), education is the knowledge base for various social roles that accomplish particular types of activities. He argues that education does not only allocate people in the social structure, but it also creates a certain culture within social classes. Thus, some argue that education contributes to the reproduction of the unequal class and stratification system (Collins 1971; Bowles and Gintis 1976; Meyer 1977; Bourdieu and Passeron 1990; Nie 1996). Within these social classes people have different democratic values. In Poland, the members of the privileged class are more eager to defend their rights and to protest against the non-democratic system (Pełczyńska-Nałęcz 1997); this happens because members of the privileged classes in Europe have the economic means and the level of education that can allow them to be active citizens with a loud political voice (Domanski 2015). The fact that education contributes to the allocation of people in the class system *partly* explains why education is connected with the development of democratic values. I test the class theory hypothesis that *individuals with the higher levels of education are*

allocated to the privileged classes, the members of which are more pro-democratic than the members of the disadvantaged ones.

Cognitive Theory

According to Simpson (1997: 157), democracy relies on those who are able to “process complex information and actively participate in politics.” Rindermann (2008) found that there is a positive correlation between cognitive abilities and democratic values both on the individual and on the national levels. He argues that such relationship may exist because people with higher abilities of abstract reasoning have better competences to process political information. According to Rindermann, Flores-Mendoza and Woodley (2012), higher cognitive abilities lead to the development of the habit to question dogmas and other sources of traditional authority. The observation that higher levels of education are associated with higher cognitive abilities of the individual may in part explain the mechanism through which education is linked with the development of democratic values.

The cognitive theory hypothesis is that *higher abilities of abstract reasoning mediate the positive link between education and democratic values*. This would mean that higher levels of education are associated with higher cognitive abilities, which may *partly* explain why education has an impact on democratic values.

Education and Democracy in Poland

The case of Poland presents an interesting puzzle. In the 1990s, Słomczyński and Shabad (1998), studying post-socialist Poland, showed that the civic education in Poland that teaches democratic principles did not have a strong impact on support of those principles. Yet, according to Pełczyńska-Nałęcz (1997), the most active citizens among voters in Poland in the 1990s were the ones who possessed a higher educational background. She suggested that the educational level of Poles can have an impact on their belief in fundamental pillars of democracy, such as elections. In the 2000s, Gołębiowska (2006) acknowledged the positive effect of education on the Poles’ support for the rights of political dissenters.

Educational attainment, contributing to the division of individuals into social groups, has an influence not only on the support for democracy, but also on the partisan preferences of Poles (Słomczyński and Shabad 2002). The division into classes in the Polish context still plays an important role, especially with regard to differences in political behavior (see Słomczyński and Shabad (2000), challenging the ‘death of class’ thesis).

Data and Variables

To conduct my research, I used POLPAN, a nationally representative panel dataset of adult Poles who were interviewed every five years since 1988. The survey collects data via face-to-face interviews in several different spheres of a participant’s life, including those pertinent to this study: educational attainment, democratic and authoritarian attitudes, social class, cognitive abilities, along with demographics such as gender and age. POLPAN is the rare panel survey in Central and Eastern Europe that follows the representative sample

of adult population on the topics of social structure, democracy, and cognitive abilities. It gives a possibility to capture changes in social structure, class, and stratification, as well as changes in political biographies, including the changes in democratic attitudes of individuals.

For my analysis I focus on the two most recent waves, 2008 and 2013. The sample in 2008 consisted of 1825 respondents, out of whom 1244 individuals belonged to the strict panel, while 581 respondents were newly added individuals (aged 21–25). During 2013 wave, the total number of interviews conducted among Poles aged over 21 was 2780, out of which 2581 respondents were interviewed face-to-face with a use of full, standardized questionnaire. 497 new respondents were added in 2013, and all the rest took part in at least one of the previous waves (Słomczyński, Tomescu-Dubrow and Dubrow 2015). In order for the POLPAN samples in 2008 and 2013 to be representative, the appropriate post-stratification weights, which were created by the researchers who designed the sample, are applied here.¹

Measuring Democratic Values

In order for democracy to function properly and be sustainable long-term, it is important for citizens to believe in its main principles. As observed by political theorists (Almond and Verba 1963; Dahl 1971; Inglehart 1990) and proven by empirical evidence pertaining to the fall of the authoritarian regimes in the 20th century and recent pro-democratic revolutions, when the citizens believe in democratic principles, they force the regimes to change toward more democratic ones. Their beliefs are manifested through democratic values, which I approach in this article as a set of attributes, via survey items that measure different aspects of the concept. I concentrate on such important aspects of democracy as participation (through voting in elections), competition (in form of the existence of the multiparty system), and legitimacy of leader.

In academic circles the belief in competitive elections has long been recognized as a fundamental condition for the stability of democracy (Dahl 1971; Słomczyński and Shabad 2002; Bielasiak 2001). The belief in the legitimacy of public participation as an institution of democracy provides legitimacy to the political system as a whole (Dahl 1971). Central and Eastern Europe has been long considered an area of high political and voter volatility (Shabad and Słomczynski 2004). The stability of the democratic model is thus closely linked to the creation and enforcement of the electoral rules (Bielasiak 2001).

Yet, although elections play an instrumental role in the introduction of changes into the system, researchers conclude that even successful electoral revolutions alone can hardly guarantee the success of the transition to democracy (Kalanadze 2009). Therefore, it is important to take into account factors looking at support for democracy from a broader perspective. For elections to be supported by the society as an instrument of democracy, we should also examine the nature of leadership in modern politics to assess the role of a multiparty system for the success of democratization.

¹ For a comprehensive overview of the intellectual foundations, major research topics, sample structure and other methodological details, see the article of Słomczyński, Tomescu-Dubrow and Dubrow (2015).

A multiparty system is one of the key components of what Offe (1996) decided to call ‘normal politics’, that is: instituting a political system for actors to be able to compete with relatively stable and transparent ‘rules of the game’, as well as letting all the political players know who can get what, when, and how in terms of political influence and economic gains. Even if one asserts that political leadership plays a critical role for the stability of certain democratic models, it becomes clear that only through dynamic party system there is a possibility to balance interest representation with the power of decision-makers to induce successful reforms (Higley 2008; Pakulski 2014). Moreover, a multiparty system is a crucial requirement to ensure the successful institutionalization of the political system, especially at the early stages of the transformation process. With a particular emphasis on post-communist states, the success of a democratization process is based on the possibility to maintain an institutionally stable multiparty system (Mainwaring 1990).

Political leadership occupies one of the central roles in the democratization process (Bunce 2000). Pareto, Mosca, Schumpeter, Ortega y Gasset emphasized that average citizens are governed effectively by a small circle of individuals, who are able to obtain high status in the society due to their skills, status, knowledge or even heritage (Delican 2000; Pakulski 2014; Higley and Pakulski 2007). When we look back at the transformation process in post-communist states such as Poland, we find evidence of the central role of political leadership in guaranteeing the success of the transition to democracy (see Higley and Burton 1989). The famous round tables and variety of negotiations among leaders secured the success of socio-economic reforms, which further encouraged the society to link the process of democratization with leader-driven politics. Yet, most importantly, a foundation of stable democracy is that political leaders obey the same laws that apply to all the citizens. Thus, pro-democratic attitudes are those that argue that political leaders are not “above the law.”

Using POLPAN, I combined the attitudes toward these three attributes of democracy into one latent construct, using principal component analysis. Each of the three questions was formulated in a form of the statement, disagreement with which meant that a person was more pro-democratic. The range of possible scores was from 1 to 5, where the higher was the score, the more disagreement the person expressed, and therefore, the more support for democracy he (or she) showed. I have recoded all the “don’t know” answers into the mid-point (score 3). The wording of the three questions, the proportion of the pro-democratic answers to each of them and the factor loadings, used for the construction of the latent construct “democratic values” are presented in table 1.

Measuring Authoritarian Attitudes

I have measured authoritarian attitudes of the individual with the help of the latent construct based on three variables, measuring the attitudes toward obedience, respect for authorities and conformism (the unwillingness to do things differently from the previous generations). In order to create the latent construct “attitudinal authoritarianism,” I have used the principal component analysis.

The decision to focus on the abovementioned three aspects of authoritarian attitude has been made to reflect the main principles of most important authoritarianism theo-

Table 1

Measurement of Democratic Values

The Concept	Wording of Question as in Database	Recoded Variable Measurement	Recoded Label List of the Variable as Used in this Paper	2013	
				Proportion of Pro-Democratic Answers	Factor Loadings ^a
The Support for Multiparty System	One good political party would make other parties unnecessary	Ordinal treated as metric	1 Strongly agree 2 Somewhat agree 3 Neither agree nor disagree + Don't know	42.37	0.46
The Support for Competitive Elections	Elections are not necessary if leaders represent the interests of citizens		4 Somewhat disagree 5 Strongly disagree	40.54	0.46
Legitimacy of Political Leader	Good leader need not obey the law		74.87	0.39	
Democratic Values	Latent Construct	Metric	Measured in z-scores	54.53	

Construction of the latent constructs was based on the Principal Component Analysis.

^aEigenvalue 1.75; proportion 0.58.

ries, which predominantly are interested in interaction between a specific social environment and individual. Such decision was to the large extent dictated by the fact that the research community had not yet come to a universal conclusion on how to define authoritarianism. The most famous attempt arguably had been made by Adorno et al. (1950), who together with his colleagues proposed to use nine different traits of authoritarianism, which however were later criticized on methodological grounds. More recently, Aldemeyer (1996) embarked on an enormous challenge of understanding why ordinary citizens are predisposed to antidemocratic attitudes, and Duckitt (1992) presented his view on authoritarianism as a certain psychological predisposition to obedience.

Taking the abovementioned observations into account, I apply 'obedience' and 'respect for authority' as two core components in my analysis of authoritarianism. Weber (1948) emphasized that the authority (power, domination) can be legitimized through traditions (even if these are irrational) which are linked to a sense of conformity. Thus, I include in my model an element of conformism: whether it is wrong for children to act against the traditional principles to which their parents adhere.

Each of the three questions, used for the creation of latent construct "authoritarian attitudes," was formulated in a form of the statement, agreement with which meant that a person had higher authoritarian attitudes. The range of possible scores was from 1 to 5, where the higher was the score, the more disagreement the person expressed, and therefore, the less authoritarian attitude he (or she) showed. I have recoded all the three variables in a way that the highest score (5) meant the highest agreement with the statement, and therefore, the highest authoritarian attitude. I have also recoded all the "don't know" answers into the mid-point (score 3).

Table 2

Measurement of Authoritarian Attitudes

The Concept	Wording of Question as in Database	Recoded Variable Measurement	Recoded Label List of the Variable as Used in this Paper	2008	
				Proportion of Pro-Authoritarian Answers	Factor Loadings ^a
Obedience	Obedience is the most important issue to teach children	Ordinal treated as metric	1 Strongly disagree	60.22	0.45
Respect for Authorities	One should always show respect to authorities		2 Somewhat disagree		
			3 Neither agree nor disagree + Don't know	54.91	0.49
Conformism	It is wrong to do something differently than our fathers did		4 Somewhat agree	12.19	0.45
			5 Strongly agree		
Authoritarian Attitudes	Latent Construct	Metric	Measured in z-scores	56.07	

Construction of the latent construct was based on the Principal Component Analysis.

^aEigenvalue 1.56; proportion 0.52.

The wording of each of the three questions, as well as the proportion of the pro-authoritarian answers to each of them and the factor loadings, used for the construction of the latent construct “attitudinal authoritarianism,” are presented in [table 2](#).

Measuring Social Class

Social class is measured, based on the characteristics of the occupation, including skills, the degree of autonomy and supervision within their occupations ([Domański, Sawiński and Słomczyński 2009](#)). High level officials and managers, professionals, and technical specialists are considered to belong to the privileged class. Manual workers in elementary occupations, unskilled workers in services and trade, as well as laborers in agriculture, forestry, and fishing belong to the disadvantaged class. Administrative, office workers, as well as skilled manual workers, foremen, technicians, business and farm owners are considered to be part of reference category. Those individuals who are not part of the labor force are included into analysis under the category “not working.”

Measuring Cognitive Abilities

In this article, I use the results of the Raven’s test (also referred to as Raven’s Standard Progressive Matrices), an essential IQ component, as a tool to compare the abilities of the abstract reasoning of the respondents. The test consists of the tasks, each of which contains a set of related figures, whereas one is missing and should be chosen out of the proposed options. It was originally developed in England in 1936 by Lionel Penrose and John C. Raven ([Fletcher and Hattie 2011](#)), designed in order to measure cognitive abilities of the respon-

dents, the abilities of individuals to identify relationships and to solve problems (Raven et al. 2000).

Measuring Education

Education is one of the variables that are the most frequently used in sociological research (Smith 1995). I measure educational attainment as the number of years of schooling, following what is regarded a traditional sociological approach.²

Control Variables

For control variables I have chosen gender and age, socio-demographic characteristics³ that are frequently used in the sociological studies and are expected to have an influence on democratic values of individuals (Gibson et al 1992; Arnot and Dillabough 1999; Evans and Rose 2012).

Results

In order to check the impact of education on the changes in the democratic values of Poles and to test the three abovementioned theories that may partly explain the mechanism of this impact, I have run a multivariable regression analysis, the results of which are presented in table 3.

The Link between Education and Democratic Values

As presented in table 3 (the model, considering the effect of education), the educational attainment of the respondents has a rather strong positive connection with the democratic values of the individuals. The beta coefficient is rather high for the educational attainment (0.39).

According to the results of the multivariable regression analysis, all the hypotheses of the mechanism of connection between education and the change in democratic values have empirical support.

Authoritarian Theory

As it is presented in table 3, the authoritarian attitudes have a statistically significant negative correlation with democratic values of Poles. This correlation is also the strongest of all the predictors. The hypothesis about the decrease of attitudinal authoritarianism

² The approach to the measurement of education as a number of years is being increasingly contested (Braun and Muller 1997), and more attention is paid to the levels of educational attainment (see for example Evans and Rose 2012). When I have conducted an analogous research, using the levels of education (primary, secondary and tertiary) instead of years of education, the results of the models were very similar to the ones presented in the table 3.

³ The descriptive statistics for education and other independent variables (class, cognitive abilities, gender and age) in 2008 are presented in the appendices, table 6.

Table 3
 Multivariable Regression of the Democratic Values on Education, as well as Attitudinal, Structural and Cognitive Factors

Dependent Variable: Democratic Values in 2013	The Effect of Education (n = 1047)		Authoritarianism Theory (n = 1047)		Class Theory (n = 1006)		Cognitive Theory (n = 959)		All (n = 922)	
	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta
Independent Variables (2008):	0.39***		0.27***		0.34***		0.32***		0.18***	
Highest Level of Education in Years										
Authoritarian Attitudes				-0.43***						
Privileged Class (1,0)					0.08**					
Disadvantaged Class (1,0)					-0.07**					
Not Working (1,0)					0.02					
Cognitive Abilities (Raven's Test Score)								0.17***		
Gender (1 = male)	0.16***		0.13***		0.17***		0.17***		0.15***	
Age in 2008	0.02		0.03		0.01		0.05		0.03	
Adjusted R ²	0.16		0.26		0.17		0.18		0.29	

*** p < 0.01; ** p < 0.05; * p < 0.1.

Beta—standardized coefficients.

2013 weights were applied in course of calculations.

as the partial explanation for the positive connection between education and democratic values has empirical support: if we compare the beta coefficients for the level of educational attainment (in years), we will see that they decrease with introduction of the “authoritarian attitudes” variable. This gives an evidence for the empirical support of the authoritarian theory, explaining the linkage between education and the change in democratic values.

The fact that attitudinal authoritarianism has the strongest relationship with democratic values is embedded in the dichotomous nature of the concepts “dictatorship” and “democracy” (Alvarez et al. 1996). Such results of the multivariable regression analysis are consistent with the results of the research made by Polish sociologist Ewa Gołębiowska. She has found that while education is a statistically significant factor in the model, explaining the reasons for the Poles’ support of the political minorities’ rights, still, the most important factor in her model was the authoritarian attitude (Gołębiowska 2006).

One may also argue that the authoritarian attitudes in Polish society were especially strong in 2008, as it was a turbulent year, taking into account both global and regional developments which could have had an impact on the attitudes of Polish society. First of all, that was the time of the global financial crisis and the year when ratification process of Lisbon treaty was at the full speed. Moreover, the armed conflict between Russian Federation and Georgia, which led to the refugee inflow to Poland, as well as the tightening of bilateral military cooperation between Poland and the USA, could have contributed to the strengthening of the authoritarian attitudes in the society.

Class Theory

Similarly to the hypotheses of the authoritarian theory, the hypothesis of the class theory also finds its empirical evidence. The link between education and democratic values of individuals becomes weaker when controlling for social class. This means that the fact that education puts people in different classes with rather homogenous democratic views may partly explain the mechanism, through which education influences democratic values. As one can notice from table 3, the mediating impact of the individuals’ classes on the link between education and democratic values is the weakest (among the three theories discussed in this article).

Cognitive Theory

As in case of both theories mentioned above, the cognitive theory also has found its empirical evidence. The link between education and democratic values is weaker when controlling for the results of Raven’s test. The value of adjusted R squared is larger in the model, where both Raven’s test scores and education in years are introduced (than in the models, where these variables are introduced separately). This means that the possible explanation of the connection between education and the democratic values may be due to the connection between education and cognitive abilities, measured by Raven’s test. It is worth mentioning that the impact of Raven’s test scores on the change in the democratic values is higher than the impact of social class.

Age and Gender

According to the results of the multivariable regression analysis, age does not have any impact on the changes in democratic values of Poles, when other factors (such as gender, education, authoritarian attitudes, class, and intellectual flexibility) are taken into account.⁴ This is rather interesting finding as it is different from most of the studies, trying to tackle the issue of explaining the factors, influencing changes in democratic values (Gibson et al. 1992; Arnot and Dillabough 1999; Evans and Rose 2012). The gender, similarly to other studies, has a statistically significant positive correlation with democratic values.

Discussion and Future Studies

Beyond a doubt, the research pertaining to the link between education and democratic values can lead to a broad range of additional research questions. Thus, a broader range of theories explaining the link between education and democratic values could be used to explain the studied phenomena. Among others, scientists often pay attention to the differences in the content of education. Moreover, it is worth studying the role of the expansion of higher education, which happened during the last decades, on the link between education and democratic values. Finally, although this article concentrates on the differences between individuals, one could also be interested in the evolution of individual's democratic values in course of getting subsequent levels of education. In the following part of the paper, I discuss the results of my analysis of the abovementioned topics based on the POLPAN data, which may enhance a more in-depth research in these areas in the future.

The Content of Education

Students with the same level of educational attainment can attend different types of schools, and such different educational experiences may lead to the different results. Max Weber (1948) emphasized that education may lead either to the development of the cultivated or of specialized types of people. Dore (1976: 11) suggests that not all schooling provides liberal education that leads to critical thinking; some schooling is merely the earning of qualifications. Inkeles and Smith (1974), who studied the socializing influences of education, claimed that the experience of individuals at schools produces certain patterns of attitudes. According to Parkin (1970), political activism of the students is related to their fields of studies. Students exposed to the critical debate of certain political and social values develop different mental 'sensitivity' than their peers, that is why there is a substantial difference between those who major in social sciences and humanities and those who major in engineering and technology.

POLPAN has the data on the fields of studies. In order to check whether they are connected with the differences in democratic attitudes of individuals, I have divided the fields

⁴ The results are similar when the variable "Age" is squared.

of studies into three groups: technical specializations (engineering, manufacturing and processing, computing), liberal specializations (arts, humanities, social sciences, education, journalism, law), and other (the reference category, including life sciences, physical sciences, architecture, agriculture, personal services, transport services, health and environmental protection). The results of the analysis on the connection between the democratic attitudes and the abovementioned groups of fields of studies are presented in [table 4](#).

Table 4

Multivariable Regression of Democratic Values on the Levels of Education, Content of Education, Age and Gender

Dependent Variable: Democratic Values in 2013	n = 1045
Independent Variables (in 2008):	Beta
Highest Level of Education in Years	0.39***
Liberal specializations: arts, humanities, social sciences, education, journalism, law	0.06*
Technical specializations: engineering, manufacturing and processing, computing	-0.05
Gender (1 = male)	0.19***
Age	0.03
Adjusted R ²	0.17

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Beta—standardized coefficients.

2013 weights were applied in course of calculations.

According to the [table 4](#), there is a rather weak positive connection between a group of liberal educational specializations and democratic attitudes, and there is no statistically significant connection between the group of technical educational specializations and democratic attitudes, controlling for the levels of educational attainment measured in years. One should consider the fact that capturing the differences in the content of education may not be possible with the help of the quantitative data. This happens because, except for the field of study, we do not really know anything about the actual content of the education, which includes the methods of teaching, courses, included in the program, correspondence of the actual content of courses to the planned programs, quality of education etc. Therefore, further qualitative research would be beneficial to analyze deeper the role of the content of education in the formation of democratic values of individuals.

Expansion of Higher Education

According to the data from the Main Statistical Office in Poland, while in 1990 there were 440 thousand students in Poland, by 2005 this number has grown almost 5 times, and the number of students constituted almost 2 million. After that, due to demographic changes, the number of students started to go down—to 1,8 mln in 2010 and 1,4 mln in 2015. Still, it is clearly visible that the higher education should no longer be attributed only to an elitist class as it is, but is available on a mass scale.

It is therefore possible to assume that such changes have affected the connection between levels of education and democratic values. Particularly, I assumed that those indi-

viduals who were getting education when it was still elitist, would experience a stronger influence of the differences in educational levels on the differentiation of their democratic values. In order to check this assumption, I have separated the sample into the two age cohorts: those individuals who were 40 and older than 40 in 2008 (and finished their tertiary education before the educational expansion of the 90th), and those who were younger than 40 in 2008 (who finished their higher education after 1991) and did separate analyses for these two groups. The results are presented in [table 5](#).

As we can see from the [table 5](#), there is a visible difference between beta-coefficients in the two age groups. In order to check whether the difference between these coefficients is statistically significant, I have run multivariable regression models with the interaction terms. As one can see from the [table 5](#), the beta-coefficients for the interaction terms of age groups with education and mediating variables (except for privileged class) are statistically insignificant. This means that there is no evidence of statistically significant differences in two age groups in terms of the connection between education and democratic values.

Even though I did not find clear evidence of the connection between educational expansion and the link between education and democratic attitudes, this question deserves attention and could be explored more in course of a qualitative study.

Evolution of Individual's Democratic Attitudes

I have also tried to look for the supplementary evidence in the data in order to statistically probe whether respondents change their attitudes toward democracy with the completion of new educational levels. In order to do so, I have run the fixed effects model. As 1998 was the first year when the questions for the construction of the variable “democratic values” were used, in this model I was verifying whether the changes in years of educational attainment in the years 1998–2013 correlate to the changes in democratic values of individuals during this time period.

As suggested by the results of fixed effects model, when the differences between people are not taken into account, the correlation between the change in the democratic values of particular individuals and the change in the levels of education turned out to be positive, but weak ($B = 0.03$), statistically significant on the level 0.05.

When the similar fixed effects model was estimated for the three waves, 2003–2013 (the only time periods when variables, measuring authoritarian attitudes and cognitive abilities are available), the correlation between the changes in educational attainment of individuals and changes in their democratic attitudes turned out to be statically insignificant. I assume that this may happen due to the fact that not many people (250) changed their level of educational attainment during that period. It is also possible to assume that the choice of higher educational path by an individual already has a certain influence on his or her level of democratic values, whether he or she is the middle or at the end of this path. Finally, probably the changes in democratic attitudes of the individual do not happen immediately but take time. Therefore, with such statistical experiments, it may be difficult to grasp the evolution of attitudinal trajectories on the level of each individual.

Table 5
Multivariable Regression Models of the Democratic Values on Education, as well as Attitudinal, Structural and Cognitive Factors for Two Age Groups and with the Interaction Terms of Independent Variables with Age (≥ 40)

Dependent Variable (2003): Democratic Values	The Effect of Education			Authoritarianism Theory			Class Theory			Cognitive Theory		
	younger than 40 y.o., n = 520	40 y.o. or older, n = 527	all with interaction terms (n = 1047)	younger than 40 y.o., n = 520	40 y.o. or older, n = 527	all with interaction terms (n = 1047)	younger than 40 y.o., n = 497	40 y.o. or older, n = 509	all with interaction terms (n = 1006)	younger than 40 y.o., n = 484	40 y.o. or older, n = 475	all with interaction terms (n = 959)
Highest Level of Education in Years	0.34***	0.41***	0.40***	0.24***	0.28***	0.28***	0.27***	0.42***	0.32***	0.27***	0.36***	0.32***
Interaction Terms of Age (≥ 40) with Education in Years			-0.05			-0.05			0.17			0.01
Authoritarian Attitudes				-0.37***	-0.30***	-0.37***						
Interaction Terms of Age (≥ 40) with Authoritarian Attitudes						0.05						
Privileged Class (1,0)							0.13***	-0.03	0.13***			
Interaction Terms of Age (≥ 40) with Privileged Class												
Disadvantaged Class, 2008 (1,0)							-0.08*	-0.02	-0.09**			
Interaction Terms of Age (≥ 40) with Disadvantaged Class									-0.10***			
No Work							0.06	0.00	-0.05			
Raven Test Score									0.02		0.19***	0.19***
Interaction Terms of Age (≥ 40) with Raven Test Score												
Gender (1 = men)	0.12***	0.17***	0.16***	0.10***	0.15***	0.13***	0.15***	0.18***	0.17***	0.12***	0.20***	0.17***
Age (≥ 40)			0.07	0.03	-0.03	0.08	0.04	-0.07	-0.13	0.04	-0.04	0.08
Adjusted R ²	0.12	0.18	0.16	0.25	0.25	0.26	0.14	0.18	0.17	0.15	0.20	0.18

*** p < 0.01; ** p < 0.05; * p < 0.1.

Beta—standardized coefficients.

Weights 2013 were applied for models with interaction terms; no weights were applied for other models.

Conclusions

In this article I tested three theories of the link between educational attainment and democratic values: authoritarianism as the measure of attitudinal theory, social class for structural theory, and Raven's test for cognitive theory. I used the 2008 and 2013 data from the Polish Panel Survey (POLPAN) to show a statistically significant and rather strong positive connection between levels of education (measured in years) and the democratic values of Poles. The positive relationship exists when education is introduced as an independent variable together with other socio-demographic variables, such as age and gender. Such results of the research are consistent with the scientific literature on the topic.

In terms of attitudes, higher levels of education are connected with lower authoritarian attitudes, which are connected with higher democratic values. Moreover, one would also find structural reasons for such an occurrence: education is connected to social classes, and people who belong to these classes have different democratic values. Members of the privileged classes, who tend to have higher levels of education, are more pro-democratic than those who belong to the other classes. Finally, higher levels of education are associated with higher cognitive abilities of individuals which, in turn, are correlated with stronger democratic values.

It is worth mentioning that even though all the three theories tested in the article have found their empirical support, there are differences in their explanatory power. Thus, authoritarian attitudes have the strongest connection with democratic values (even stronger than education), while attribution to the different social classes has the weakest mediating power over the link between education and democratic values. According to the results of the analysis, age does not have an impact on the changes in democratic values of Poles, when other factors (such as gender, education, authoritarian attitudes, class, and intellectual flexibility) are taken into account.

The study finds no clear evidence of connection between educational expansion and the link between education and democratic attitudes or between individual's changes in democratic attitudes and changes in his or her educational attainment. Still, these topics are interesting for the future qualitative research, as well as the role of educational content in the development of democratic values. Moreover, exploration of causality and a greater range of theories may be worth of additional scholarly attention. POLPAN is a valuable dataset, but it has limitations in these regards.

In the last two decades, Poland has been able to overcome the legacies of authoritarian socialism and economic uncertainty to create a relatively stable democracy. Compared to its less successful Eastern neighbors, Poland acceded relatively early to the European Union in 2004 and weathered the global economic crisis of 2008. However, in the recent years, Poland has faced several challenges in a climate of increasing challenges to liberal democracy (Arak and Żakowiecki 2016). It would be beneficial to compare the Polish results with the results of the similar studies, made in other Eastern European countries, as well as in other regions of the world.

Acknowledgements

I would like to thank the members of the CONSIRT Program, and especially Joshua Kjerulf Dubrow, Kazimierz M. Słomczyński and Irina Tomescu-Dubrow for their advice and support in the preparation of this article. I am grateful to Małgorzata Mikucka for assistance with the methodology. I thank two anonymous reviewers for their time and valuable comments.

References

- Adorno, T., Frenkel-Brunswik, E., Levinson, D. J., and Sanford, R. N. 1950. *The Authoritarian Personality*. New York: Harper.
- Adorno, T. 2003. *Can One Live after Auschwitz?: a Philosophical Reader*. Stanford: Stanford University Press.
- Almond, G. A., and Verba, S. 1963. *The Civic Culture: Political Attitudes and Democracy in Five Nations*. Princeton: Princeton University Press.
- Arak, P., and Zakowicki, P. 2016. *Poland: Executive Summary*. Freedom House. Accessed on September, 20th, 2016 at: https://freedomhouse.org/sites/default/files/NIT2016_Poland_0.pdf
- Arnot, M., and Dillabough, J. 1999. Feminist Politics and Democratic Values in Education, *Curriculum Inquiry* 29 (2): 159–189.
- Bendix, R. 1964. *Nation Building and Citizenship*. New York: John Wiley & Sons.
- Bielasiak, J. 2001. *On the Institutionalization of Party Regimes in Emerging Democracies*. Studies in Public Policy, vol. 351, Glasgow: University of Strathclyde.
- Boli, J., Ramirez, F. O. and Meyer, J. 1985. Explaining the Origins and Expansion of Mass Education, *Comparative Education Review* 29: 145–170.
- Bourdieu, P. and Passeron, J.-C. 1990. *Reproduction: in Education, Society and Culture*. London: SAGE Publications.
- Braun, M. and Muller, W. 1997. Measurement of Education in Comparative Research, *Comparative Social Research* 16: 163–201.
- Bryce, J. 1912. *South America: Observations and Impressions*. New York: MacMillan.
- Bunce, V. 2000. Comparative Democratization. Big and Bounded Generalizations, *Comparative Political Studies* 33 (6/7): 703–734.
- Collins, R. 1971. Functional and Conflict Theories of Educational Stratification, *American Sociological Review* 36: 1002–1018.
- Dahl, R. A. 1971. *Polyarchy*. New Haven: Yale University Press.
- Delican, M. 2000. Elite Theories of Pareto, Mosca and Michels, *İktisat ve İktimaiyat Enstitüsü (İstanbul)* 43: 323–346.
- Dewey, J. 1916. *Democracy and Education: An Introduction to the Philosophy of Education*. New York: Macmillan.
- Domanski, H. 2015. Social Class and Contentious Politics in Contemporary Europe, in: *Political Inequality in an Age of Democracy: Cross-national Perspectives*, edited by J. K. Dubrow. London: Routledge Publishers, pp. 110–123.
- Domański, H., Sawiński, Z. and Słomczyński, K. M. 2009. *Sociological Tools Measuring Occupations: New Classification and Scales*. Warszawa: IFIS Publishers, p. 332.
- Dore, R. P. 1976. *The Diploma Disease*. Berkeley, CA: University of California Press.
- Duckitt, J. 1992. *The Social Psychology of Prejudice*. New York: Praeger.
- Evans, G. and Rose, P. 2012. Understanding Education's Influence on Support for Democracy in Sub-Saharan Africa, *Journal of Development Studies* 48 (4): 498–515.
- Finkel, S. E., and Ernst, H. E. 2005. Civic Education in Post-Apartheid South Africa: Alternative Paths to the Development of Political Knowledge and Democratic Values, *Political Psychology* 26 (3): 333–364.
- Finkel, S. E., Humphries, S., and Opp, K.-D. 2001. Socialist Values and the Development of Democratic Support in the Former East Germany, *International Political Science Review* 22 (4): 339–361.
- Gibson, J. L., Duch, R. M., Tedin, K. L. 1992. Democratic Values and the Transformation of the Soviet Union, *The Journal of Politics* 54 (2): 329–371.
- Gołębiowska, E. 2006. Poles' Commitment to the Rights of Political Dissenters, *Polish Sociological Review* 3(154): 231–242.
- Higley, J. 2008. *Elite Theory in Political Sociology*. IPSA 2008 International Conference. Montreal.

- Higley, J., and Burton, M. 1989. The Elite Variable in Democratic Transitions and Breakdowns, *American Sociological Review* 54 (1): 17–32.
- Higley, J., and Pakulski, J. 2007. Elite and Leadership Change in Liberal Democracies, *Comparative Sociology* 6: 6–26.
- Higley, J., and Pakulski, J. 2012. Elites, Elitism and Elite Theory: Unending Confusion? Paper prepared for the 2012 Research Committee on Political Elites (RC02) panel “Elite Dilemmas and Democracy’s Future,” World Congress of the International Political Science Association.
- Hillygus, S. 2005. The Missing Link: Exploring the Relationship Between Higher Education and Political Engagement, *Political Behavior* 27 (1): 25–47.
- Huntington, S. 1968. *Political Order in Changing Societies*. New Haven–London: Yale University Press.
- Inglehart, R. 1990. *Culture Shift in Advanced Industrial Societies*. Princeton, NJ: Princeton University Press.
- Inkeles, A., and Smith, D. H. 1974. *Becoming Modern*. Cambridge, MA: Harvard University Press.
- Fletcher, R. B., and Hattie, J. 2011. *Intelligence and Intelligence Testing*. London: Routledge.
- Kalanadze, K., Orenstein, M. 2009. Electoral Protests and Democratization. Beyond the Color Revolutions, *Comparative Political Studies* 42 (11): 403–425.
- Kamens, D. H. 1988. Education and Democracy: A Comparative Institutional Analysis, *Sociology of Education* 61 (2): 114–127.
- Lipset, S. M. 1959. Some Social Requisites of Democracy: Economic Development and Political Legitimacy, *American Political Science Review* 53 (1): 69–103.
- Mainwaring, S. 1990. Presidentialism, Multiparty Systems, and Democracy: The Difficult Equation. Working Paper #144—September 1990. Accessed on September, 25th, 2016 <https://www3.nd.edu/~kellogg/publications/workingpapers/WPS/144.pdf>
- Meyer, J. W. 1977. The Effects of Education as an Institution, *The American Journal of Sociology* 83 (1): 55–77.
- Meyer, J. W., Tyack, D., Nagel, J., and Gordon, A. 1979. Public Education as Nation Building in America, *American Journal of Sociology* 85: 978–986.
- Nie, N. H., Junn, J. and Stehlik-Barry, K. 1996. *Education and Democratic Citizenship in America*. Chicago, IL: University of Chicago Press.
- Offe, C. 1996. Capitalism by Democratic Design? Democratic Theory Facing the Triple Transition in East Central Europe, in: *Varieties of Transition*, edited by C. Offe. London: Polity Press.
- Pakulski, J. 2014. *Modern Elite Theory*. Handbook of Elites. Elite Theory—Adapted reading for Graduate School for Social Research Course.
- Parkin, F. 1970. Adolescent Status and Student Politics, *Journal of Contemporary History* 5 (1): 144–155.
- Pełczyńska-Nałęcz, K. 1997. Civic activity in Poland. Trend Report. *Polish Sociological Review* 3 (119): 285–302.
- Raven, J. C. 1936. Mental tests used in genetic studies: The performance of related individuals on tests mainly educative and mainly reproductive. MSc Thesis, University of London.
- Raven, J., Raven, J. C., and Court, J. H. 2000. Raven Manual: Section 3. Standard Progressive Matrices. Oxford: Oxford Psychologists Press.
- Rindermann, H. 2008. Relevance of Education and Intelligence for the Political Development of Nations: Democracy, Rule of Law and Political Liberty, *Intelligence* 36: 306–322.
- Rindermann, H., Flores-Mendoza, C., Woodley, M. 2012. Political orientations, intelligence and education, *Intelligence* 40: 217–225.
- Shabad, G., and Słomczyński, K. M. 2004. Inter-Party Mobility among Parliamentary Candidates in Post-Communist East Central Europe, *Party Politics* 10: 151–176.
- Simpson, M. 1997. Informational Inequality and Democracy in the New World Order, in: *Inequality, Democracy, and Economic Development*, edited by M. Midlarsky. Cambridge: Cambridge University Press, pp. 156–176.
- Słomczyński, K. M., and Shabad, G. 1998. Can Support for Democracy and the Market Be Learned in School? A Natural Experiment in Post-Communist Poland, *Political Psychology* 19 (4): 749–779.
- Słomczyński, K. M., and Shabad, G. 2000. Structural Determinants of Political Experience: A Refutation of the ‘Death of Class’ Thesis, in: *Social Patterns of Being Political: The Initial Phase of the Post-Communist Transition in Poland*, edited by K. M. Słomczyński. Warszawa: IFiS Publishers, pp. 187–209.
- Słomczyński, K. M., and Shabad, G. 2002. Partisan Preferences and Democratic Commitments, in: *Social Structure: Changes and Linkages: The Advanced Phase of the Post-Communist Transition in Poland*, edited by K. M. Słomczyński. Warszawa: IFiS Publishers, pp. 127–155.
- Słomczyński, K. M., Tomescu-Dubrow, I., and Dubrow, J. K. 2015. Changes in Social Structure, Class, and Stratification: The Polish Panel Survey (POLPAN), *ASK: Research & Methods* 24 (1): 19–37.

- Smith, T. W. 1995. Some Aspects of Measuring Education, *Social Science Research* 24 (3): 215–242.
- Tyack, D. 1966. Forming the National Character, *Harvard Educational Review* 36: 29–41.
- Weber, M. 1948. *From Max Weber: Essays in Sociology* (H. H. Gerth and C. W. Mills, eds. and trans.). New York: Oxford University Press.
- Weil, F. D. 1985. The Variable Effects of Education on Liberal Attitudes: A Comparative-Historical Analysis of Anti-Semitism Using Public Opinion Survey Data, *American Sociological Review* 50: 458–474.
- Welzel, C., Inglehart, R., and Klingemann, H.-D. 2003. The Theory of Human Development: A Cross-Cultural Analysis, *European Journal of Political Research* 42: 341–379.

Biographical Note: Kateryna Gryniuk is a PhD candidate at the Graduate School for Social Research in the Institute of Philosophy and Sociology, Polish Academy of Sciences, Warsaw, Poland. She is interested in a broad range of sociological problems, including the role of education and its connection with the development of market economy and democratic values. She obtained her MA degrees with distinction in International Economic Relations from Kyiv National Taras Shevchenko University and in Economy and Society from Lancaster University.

E-mail: kgrinyuk@gmail.com

Appendices

Table 6
Descriptive Statistics (2008)*

The Concept	Initial Logic of the Variable in Dataset	Recoded Variable Measurement	Recoded Label List of the Variable as Used in this Paper	Number of Observations	Mean Value / Proportion	Standard Deviation
Privileged Class	Occupation	Dummy	1—privileged class; 0—other	1741	5.00	—
Disadvantaged Class	Occupation	Dummy	1—disadvantaged class; 0—other	1741	5.57	—
Not Working	No Occupation	Dummy	1—not working, 0—working	1741	48.14	—
Cognitive Abilities	Raven's Test Score	Metric	—	1585	5.21	2.6
Education in Years	Highest Level of Respondent's Education	Metric	—	1805	11.96	3.09
Tertiary Education	Highest Level of Respondent's Education	Dummy	1—tertiary; 0—other	1805	20.12	—
Secondary Education	Highest Level of Respondent's Education	Dummy	1—secondary; 0—other	1805	35.92	—
Age	Respondent's Year of Birth	Metric	—	1805	46.76	16.8
Gender	Gender	Dummy	1—male; 0—female	1805	47.62	—

*2008 weights applied.

Table 7
Correlations Matrix

	Democratic Values in 2013*	Democratic Values in 2008	Authoritarian Attitudes in 2008	Highest Level of Education in Years in 2008	Tertiary Level of Education in 2008	Secondary Level of Education in 2008	Privileged Class in 2008 (1,0)	Disadvantaged Class in 2008 (1,0)	Raven's Test Score in 2008	Gender	Age in 2008
Democratic Values in 2013*	—	0.46	-0.44	0.37	0.32	0.06	0.26	-0.17	0.29	0.07	-0.04
Democratic Values in 2008	0.46	—	-0.87	0.36	0.30	0.06	0.23	-0.16	0.26	0.15	-0.09
Authoritarian Attitudes in 2008	-0.44	-0.87	—	-0.39	-0.32	-0.08	-0.21	0.17	-0.27	-0.07	0.17
Highest Level of Education in Years in 2008	0.37	0.36	-0.39	—	0.80	0.14	0.46	-0.22	0.40	-0.06	-0.26
Tertiary Level of Education in 2008	0.32	0.30	-0.32	0.80	—	—	0.49	-0.18	0.31	-0.05	-0.11
Secondary Level of Education in 2008	0.06	0.06	-0.08	0.14	—	—	-0.18	-0.03	0.09	-0.06	-0.15
Privileged Class in 2008 (1,0)	0.26	0.23	-0.21	0.46	0.49	-0.18	—	—	0.24	-0.04	0.00
Disadvantaged Class in 2008 (1,0)	-0.17	-0.16	0.17	-0.22	-0.18	-0.03	—	—	-0.08	-0.04	-0.07
Raven's Test Score in 2008	0.29	0.26	-0.27	0.40	0.31	0.09	0.24	-0.08	—	0.02	-0.3
Gender (1 = male)	0.07	0.15	-0.07	-0.06	-0.05	-0.06	-0.04	-0.04	0.02	—	-0.05
Age in 2008	-0.04	-0.09	0.17	-0.26	-0.11	-0.15	0.00	-0.07	-0.30	-0.05	—

* For correlations between democratic values in 2013 and other variables 2013 weights are applied, for other correlations 2008 weights applied.

Table 8

Mean Democratic Values by Authoritarian Attitudes, Class and Raven's Test Scores (in 2008)

Authoritarian Attitudes in 2008			RAVEN's Test Score in 2008*		
Deciles	Number of Observations	Mean Democratic Values (z-scores)	Test Score	Number of Observations	Mean Democratic Values (z-scores)
1	181	1.46	0	42	-0.42
2	181	1.07	1	96	-0.35
3	181	0.61	2	130	-0.28
4	181	0.25	3	161	-0.12
5	181	0.08	4	184	-0.18
6	180	-0.16	5	218	-0.02
7	180	-0.34	6	216	0.06
8	180	-0.59	7	191	0.12
9	180	-0.85	8	173	0.36
10	180	-1.55	9	100	0.54
			10	74	0.56
Total	1805		Total	1585	

Class (Occupations) in 2008*		
Name of Occupation	Number of Observations	Mean Democratic Values (z-scores)
1 High level officials and managers	18	1.01
2 Professionals	50	0.63
3 Technical specialists	19	0.65
4 Technicians	41	0.44
5 Administrative workers and middle-level specialists	114	0.39
6 Office workers	51	-0.01
7 Sales and service workers	149	-0.07
8 Foremen	12	0.57
9 Skilled manual workers	201	-0.03
10 Manual workers in elementary occupations	62	-0.30
11 Unskilled workers in services and trade	28	-0.43
12 Laborers in agriculture, forestry, and fishing	7	0.18
13 Farm owners	107	-0.35
14 Business owners	82	0.37
Total	941	

*2008 weights applied.

Table 9
Mean Democratic Values by Specialization of Higher Education

Specialization of Higher Education, 2008	Number of Observations	Mean Democratic Attitudes, 2013
Teacher training and education science	42	0.38
Arts	3	0.45
Humanities	20	0.39
Social and behavioral science	15	0.65
Journalism and information	5	0.92
Business and administration	44	0.31
Law	13	0.92
Life sciences	3	-0.40
Physical Sciences	11	0.68
Mathematics and Statistics	3	-0.31
Computing	3	0.89
Engineering	35	0.90
Manufacturing and processing	8	0.82
Architecture and construction	10	1.19
Agriculture, forestry and fishery	9	0.98
Health	11	0.53
Personal services	3	0.57
Transport services	2	-0.03
Environmental protection	4	0.77
Security services	3	0.53
Total	247	

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Beta—standardized coefficients. 2013 weights were applied in course of calculations.

Table 10
Multivariable Regression Model of Democratic Values on Content of Tertiary Education, Age and Gender

Dependent Variable: Democratic Values in 2013	n = 213
Independent Variables (in 2008):	Beta
Liberal specializations of higher education: arts, humanities, social sciences, education, journalism, law	0.06
Technical specializations of higher education: engineering, manufacturing and processing, computing	0.13*
Gender (1 = male)	0.21***
Age	-0.01
Adjusted R ²	0.05

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Beta—standardized coefficients. 2013 weights were applied in course of calculations. Only individuals with tertiary education were included into the model.

Table 11

Multivariable Regression Model of Democratic Values on the Levels of Education, Content of Education, Age and Gender

DDependent Variable: Democratic Values in 2013	n = 1045
Independent Variables (in 2008):	Beta
Tertiary education (1,0)	0.45***
Secondary education (1,0)	0.27***
Liberal specializations of higher education: arts, humanities, social sciences, education, journalism, law	0.02
Technical specializations of higher education: engineering, manufacturing and processing, computing	-0.03
Gender (1 = male)	0.18***
Age	0.04
Adjusted R ²	0.18

*** p < 0.01; ** p < 0.05; * p < 0.1.

Beta—standardized coefficients. 2013 weights were applied in course of calculations.