

Modeling of public trust in basic social and political institutions: a comparative econometric analysis

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Abstract. To what degree does trust in basic social and political institutions depend on the individual characteristics of citizens of different countries? To answer this question, three types of models have been estimated using the data of the fifth wave of the World Value Survey. The first model is based on the assumption of a generalized relationship for all countries, the second takes into account the heterogeneity of countries (using an introduction of the country-level variables), and the third applies a preliminary subdivision of countries into five clusters. The obtained results are used to suggest possible actions to increase public confidence in basic institutions.

Key words: institutions, trust, ordered logit models, cluster analysis, mixed logit models

JEL: C25, C38, P51

1. Introduction

A factor as important as the credibility of the main institutions of a country affects both the rate of economic growth (confirmed empirically in (Glaeser, 2004), (Acemoglu et al., 2005), (Asoni, 2008), and (Lee, 2009)) and the behavior of voters during elections (confirmed empirically in (Arendt, 2006) and (Scott, 2008)).

Numerous researchers have attempted to identify factors that influence the degree of trust of people of different countries in basic social, political, and financial institutions. The following presents a brief review of studies that are closest to the present work.

Bean C. (2003) compared the level of confidence in 14 different Australian institutions with the help of multiple regression analysis on several dimensions of confidence using ten independent variables: gender, age, education, occupational grade, trade union membership, subjective social class, religious denomination, church attendance, region of residence and political party identification. One of the interesting results is the lack of a general trend with regard to the institutions: the credibility of some of them turns out to be static, some decreased, and the credibility of the army has grown in recent years. Another interesting finding is the lack of confidence depending on such important socio-demographic characteristics as gender and educational level; however, age was significant in the study of almost all the dependent variables. Tranter and Skrbiš (2009) continued the study of the determinants of confidence in Australia, but according to youth. They note that the degree of confidence in parents, relatives,

friends, neighbors, teachers, politicians, religious leaders, police, and television depends on the sex, religion, and family characteristics of the respondent. Tao et al. (2010), using data from surveys of 2,005 residents of Chinese villages, showed that respondents' attitudes to local authorities depends on their age, membership in the party, and the operation of their own businesses, but not on education. Ivkovic S. (Ivkovic S., 2008) studied the determinants of public support for the police in 28 countries and found that the respondents' views of the police, regarding both general confidence and their specific ability to control crime, were affected by the respondents' gender and age and by the quality of governance in the country in which they lived.

Several researchers have noted that the inclusion of not only the socioeconomic characteristics of individuals but also the macroeconomic indicators of countries in which they live can significantly increase the explanatory power of models.

For this purpose, researchers often use multilevel models. Cammett and Lynch (2008) analyzed the 2006-2007 European Social Survey for 40,000 residents of Eastern and Western Europe, using variables such as the individual level of education, age, employment status, and nationality. They found that the private provision and financing of health services reduces the degree of trust in government (the relevant variables were used at the country level). What is most interesting is the research of Korbiel I. et al. (2009), who studied the relationship of trust in the police, the court system and parliament on the basis of the third wave of ESS for 25 European countries. As independent variables, they considered the education of the individual, the household income, gender and age. As second-level variables, the authors used the corruption index, the index of democratic development, the GDP at purchasing power parity and the crime rate. At the individual level, the coefficient on gender was non-significant, and at the country level, only the coefficient of the corruption index was significant. Kelleher C. et al. (2007) used an ordinal logit model with education, race, age, sex, and the representation ratio of women in the office and measure of income inequality as the independent variables for explaining public confidence in the branches of the state government. Again, the coefficient of the variable characterizing the level of corruption was significant in all models.

Many authors have engaged these questions on the citizens' opinions of political institutes and processes in Russia. V. Shlapentokh (2006) noted that "Russia is a country that, much more than any other, mistrusts its social institutions, political institutions in particular. There is no one institution that can garner more than 40 to 50 percent of the nation's trust". Denisova I. et al. (Denisova I., 2007) describe the perception of the Russian people on the transitional process and the role of the state. The authors conclude that, for Russians, believing in the necessity of deep government intervention in the economy is combined with a complete lack of confidence in some of the political institutions.

The current paper continues the theme of the relationship between the socioeconomic characteristics of citizens and their attitudes to the main political institutions, such as the government, the police, and the parliament. With the help of ordered logit models and mixed logit models using the data of the fifth wave of the World Value Survey for 46 countries, we consider the influence of the social and economic characteristics of individuals on their confidence in social and political institutions. This paper is organized as follows. Section 2 describes the data and variables used in this study. Section 3 describes the models used for data analysis, the results of their estimation and the interpretation of results. Section 4 concludes the paper with some suggestions for policy implications.

2. Data and Variables

The data for this study were taken from the fifth wave (2007-2008) of the World Values Survey (WVS). The WVS contains rich information on individual features such as age, sex, education, income, wage, and demographic characteristics. We use these features as independent variables in our empirical analysis. The WVS also contains a series of questions regarding the attitude of individuals to the main social and political institutions, such as armed forces, police, government, and parliament. Appendix 1 provides a list of the countries and the number of respondents in each.

In our estimated models, which are described in the next section, we have chosen as dependent variables `Armed_Forces`, `Police`, `Government`, `Parliament`, `Political_Parties`, `Justice`, `Press`, and `TV`. The questions were as follow: How much confidence do you have in (respectively for each question) the armed forces, police, government, parliament, political parties, the judicial system, the press, and television? The response options were 1 - A great deal, 2 - Quite a lot, 3 - Not very much, or 4 - Not at all.

In the mixed logit model, which will be discussed below, these variables were converted into binary variables. For example, the variable `Governmentbin` was 0 if the variable `Government` was 1 or 2, and it was 1 if the variable `Government` was 3 or 4. The variables `Armed_Forcesbin`, `Policebin`, `Parliamentbin`, `Political_Partiesbin`, `Justicebin`, `Pressbin`, `Tvbin` were defined similarly.

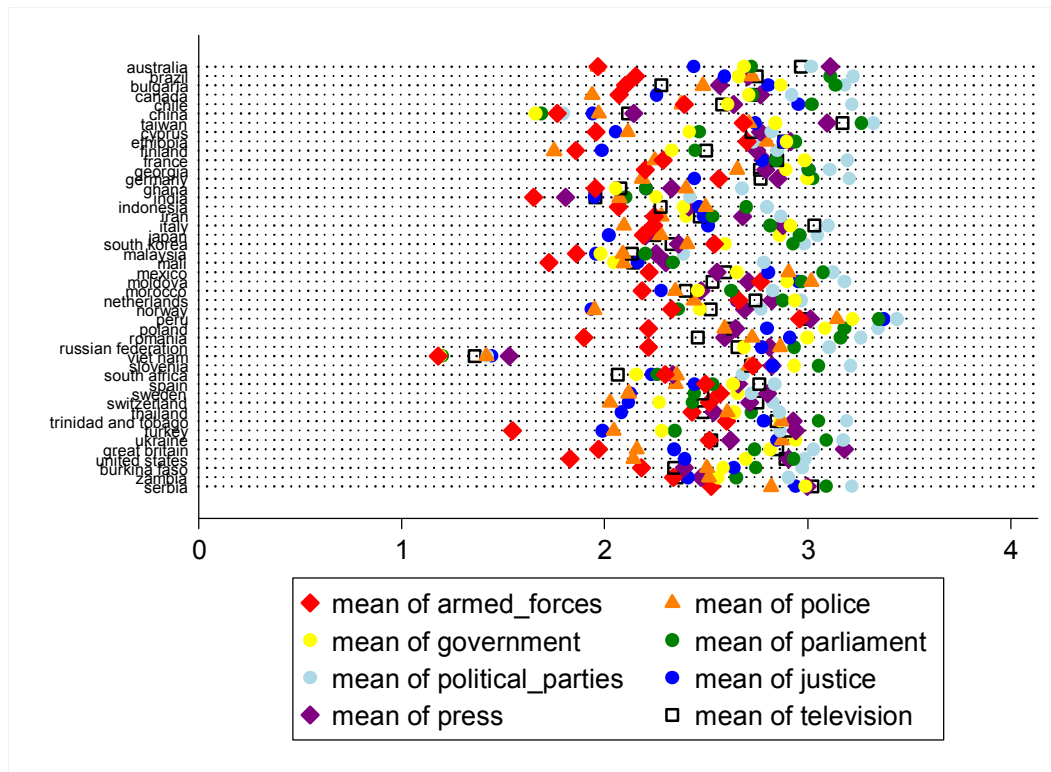
As independent variables, we used the following individual characteristics: age (variable `Age`), gender (variable `Sex`), indicators of the presence of secondary or higher education (variables `Educmid`, `Educhigh`), income (variable `Income`), indicators of marital status (variable `Marital`), managerial experience (variable `Supervisor`), and lack of work (variable `Unemployed`).

A description of the independent variables used in the models is presented in Appendix 2.

3. Estimated models

For each of the 46 countries, the average level of confidence of the residents in each of the eight institutions was calculated. Figure 1 shows the results. The abscissa scale contains responses to the question of confidence in the institutions; the value of 1 corresponds to the response "a great deal" and 4 to "not at all". Thus, the farther a point is to the right (characterizing the average level of trust in a specific institution), the less the citizens of the country trust in that institution.

Figure 1.



By studying Figure 1, we can note the following feature: virtually all of the points corresponding to the credibility of the political parties and parliament are located to the right of all other points, i.e., citizens trust the corresponding political institutions least of all.

In contrast, for many countries, the points characterizing the credibility of the army and the police are located to the left, where we see that law enforcement institutions are the most popular among the residents of most countries. However, the spread of the points differs greatly, and their order depends on the country. There is a suspicion that the use of fairly simple models with the hypothesis of the general pattern for all countries can lead to inappropriate conclusions.

A test of this hypothesis with the help of ordered logit models will be given in the following section.

3.1. Ordered logit models

The standard ordered logit model is as follows:

Let $-\infty = c_0 < c_1 < \dots < c_{m-1} < c_m = \infty$ be a set of points on \mathbb{R} ,

$$\{y_i = k\} \Leftrightarrow \{c_{k-1} < y_i^* < c_k\},$$

with y^* the latent variable that is linearly dependent on the explanatory factors. Then, let

$$\Pr(y_i = k | x_i) = F(c_k - x_i' \beta) - F(c_{k-1} - x_i' \beta), \quad k = 1, \dots, m \quad (1)$$

where F is a function of logistic distribution.

The estimations of the ordered logit models are presented in Table 1.

Table 1. Results of the estimation of the ordered logit models

Independent Variables	Dependent Variables			
	Armed forces	Police	Government	Parliament
Sex	0.147324***	-0.093739***	0.0353217*	0.0811336***
Age	0.0004226	-0.006195***	0.0027962***	0.0018176***
Educmid	0.237568 ***	0.2306308***	0.3125457***	0.3175888***
Educhigh	0.5131389 ***	0.2666512***	0.45621 ***	0.3921485***
Income	-0.041887***	-0.054581 ***	-0.068127***	-0.074095***
Marital	-0.1972835***	-0.089259***	-0.126802***	-0.144648***
Unemployed	0.2113642***	0.2133326***	0.159979***	0.0688441
Supervisor	-0.0149419	-0.0082065	0.1039435***	0.076668***
Independent Variables	Dependent Variables			
	Political Parties	Justice	Press	TV
Sex	0.0113875	-0.074797***	0.040057**	-0.0099065
Age	0.0030335***	0.0020832***	0.0039669***	0.0054123***
Educmid	0.3065385***	0.2941206***	0.2497431***	0.2971196***
Educhigh	0.4336011***	0.3495744***	0.4040989***	0.6480219***
Income	-0.069085***	-0.085450***	-0.043815***	-0.060098***
Marital	-0.117145***	-0.077891***	-0.148697***	-0.127373***
Unemployed	0.1267197***	0.1482033***	0.0347019	0.0084527
Supervisor	0.0760307***	-0.0310148	0.1227254***	0.159595***

*, **, *** - significant at 10%, 5%, and 1%, respectively

From the results of the estimation of the ordered logit models, one can conclude the following:

- Women trust the police and judicial systems more than men, but women trust the army less.
- The presence of higher or secondary education reduces the degree of confidence in major social and political institutions.
- Growth in income and having a family, on the contrary, increases confidence in these institutions.
- The impact of gender, age, and position in the labor market is not unique.
- Somewhat surprisingly, there are positive signs of the supervisor coefficients in the models with dependent variables Government and Parliament, meaning that the presence of subordinates reduces the credibility of the government and the parliament.

The results obtained confirm that it is necessary to take into account heterogeneity in the sample countries. One of the possible variants is the use of mixed logit models, except that the first-level variables relating to individuals are included along with the second-level variables that characterize the countries in which these individuals live.

3.2. Mixed logit models

In the mixed logit models, estimated in this section, the dependent variables are not categorical, but binary (this simplification is due to the presence of a special module for evaluating models in the STATA package). For each individual, the country of residence is taken into account. We add the country-level variables GDP and CPI (Corruption Perception Index, calculated by Transparency International, www.transparency.org) in our models. The coefficients of the country variables include both a deterministic part that is common to all countries and a random part that reflects the specific country. Thus, the estimated mixed logit models are as follows:

$$P(Y_{ij} = 1) = F(\beta_0 + u_{0j} + \beta_1 X_{1ij} + \beta_2 X_{2ij} + \dots + \beta_k X_{kij} + (\gamma_j + u_j) Z_j),$$

$$\begin{pmatrix} u_{0j} \\ u_j \end{pmatrix} \sim N\left(0; \begin{pmatrix} \sigma_0^2 & \rho \\ \rho & \sigma_1^2 \end{pmatrix}\right),$$

where i is the number of the individual, j is the number of the country, F is the logistic function, X_1, \dots, X_k are the individual characteristics (such as in the ordered logit models), and Z_j is GDP and CPI.

The inclusion of only one variable of the second level was for technical reasons. Even for these models, however, the corresponding likelihood functions were not always convex. For this reason, the random components of the coefficients of the second-level variables were omitted in some models. The results of the estimation of mixed logit models are presented in Table 2.

Table 2. Results of the estimation of the mixed logit models

Independent Variables	Dependent Variables			
	Armed_forcesbin	Armed_forcesbin	Policebin	Policebin
Sex	0.0909915***	0.103504***	-0.0881703***	-0.0818704***
Age	-0.0066581***	-0.0071085***	-0.005012***	-0.0047966***
Educmid	0.0478191	0.0351272	0.0823179**	0.0714808**
Eduhigh	0.2842594***	0.2808022***	0.1438407***	0.1346074***
Income	-0.0152082**	-0.0176893***	-0.0336636***	-0.0354265***
Marital	-0.1084515***	-0.107229***	-0.1482295***	-0.1380536***
Unemployed	0.1341572**	0.137989**	0.0819393	0.0833971
Supervisor	-0.0177753	-0.0177652	0.0022094	0.0096516
GDP	5.41e-06		-0.0000365***	
CPI		0.0202877		-0.2472329***
Const	-0.6339052	-0.5574443	0.8378427***	1.438479***
sd(const)	0.9068379	1.702223	0.9660494	1.316309

sd(GDP)			0.0000103	
sd(CPI)		0.2435692		0.1704364
Dependent Variables				
Independent Variables	Governmentbin	Governmentbin	Parliamentbin	Parliamentbin
Sex	0.0177515	0.0291716	0.0874588***	0.0939989***
Age	-0.0036408***	-0.0037781***	-0.0032963***	-0.0032696***
Educmid	0.0918749***	0.0893078***	0.0451945	0.0508109
Educhigh	0.0778092**	0.0812614**	-0.0601663	-0.0445442
Income	-0.0417098***	-0.0421827***	-0.0428803***	-0.0430739***
Marital	-0.089626***	-0.0868159***	-0.0970728***	-0.0879225***
Unemployed	0.046475	0.0469208	-0.0182245	-0.0242789
Supervisor	0.0139126	0.0234353	0.0204446	0.028484
GDP	0.0139126		-1.71e-07	
CPI		0.0674294		-0.0240805
Const	0.3970013	0.269975	0.8685591	0.97566**
sd(const)	1.44882	2.217857	1.647349	2.220356
sd(GDP)	0.0000441		0.0000457	
sd(CPI)		0.3066631		0.2732569
Dependent Variables				
Independent Variables	Political Partiesbin	Political Partiesbin	Justicebin	Justicebin
Sex	0.0134765	0.0183103	-0.0871017***	-0.074939***
Age	-0.0019606**	-0.002155**	0.0015498*	0.0019048**
Educmid	0.1425134***	0.1409889***	0.0429077	0.0413757
Educhigh	0.2005996***	0.2056582***	0.0180617	0.0075913
Income	-0.0367214***	-0.0360701***	-0.044463***	-0.0460554***
Marital	-0.0294647	-0.0281256	-0.109063***	-0.0975405***
Unemployed	0.0244051	0.0318035	0.0348933	0.0336325
Supervisor	-0.0110771	-0.0079958	0.0216709	0.0305772
GDP	0.0000188**		-0.0000242***	
CPI		0.0346154		-0.1613652***
Const	0.8975171***	1.212939***	0.6710853***	0.983865***
sd(const)	0.9376291	2.019804	1.169335	1.197683
sd(GDP)			0.0000232	
sd(CPI)		0.2445252		0.0941113
Dependent Variables				
Independent Variables	Pressbin	Pressbin	TVbin	TVbin
Sex	0.0351652	0.0343686	-0.039021	-0.0315245
Age	-0.002278***	-0.0020883**	-0.000406	-0.0004107
Educmid	0.0317363	0.0274856	0.1351891***	0.1402381***
Educhigh	0.0556035	0.040923	0.3682867***	0.375505***
Income	-0.0319155***	-0.0324276***	-0.0287109***	-0.0299162***
Marital	-0.0331145	-0.0266401	-0.043272*	-0.0394383
Unemployed	0.0516934	0.0558689	0.0377421	0.0353985
Supervisor	0.0434106	0.0491042*	0.0586196**	0.0671148**
GDP	0.0000238***		0.0000228***	
CPI		0.116888**		0.0842151*
Const	0.0816308	-0.0409871	-0.1877057	-0.1832416
sd(const)	0.7305995	0.7819034	0.9440234	10.151756
sd(GDP)			0.0000213	
sd(CPI)				0.0592453

*, **, *** - significant at 10%, 5%, and 1%, respectively

The results of the estimation of the mixed logit models are somewhat different from those obtained for the ordered logit models. The coefficients of the education variables became insignificant in the models with dependent variables Justicebin, Parliamentbin, and Pressbin. Major changes occurred in the estimation of the coefficients of age. The values became negative in all models, except those with the dependent variable Justicebin.

- Elderly citizens trust all political institutions, except the judicial system, more than younger citizens.

The coefficients of the variables unemployed and supervisor in almost all models are insignificant. However,

- Superiors are still less trustful of radio and television.

Some interesting results obtained from the analysis of the signs of the coefficients of the country-level variables are as follows:

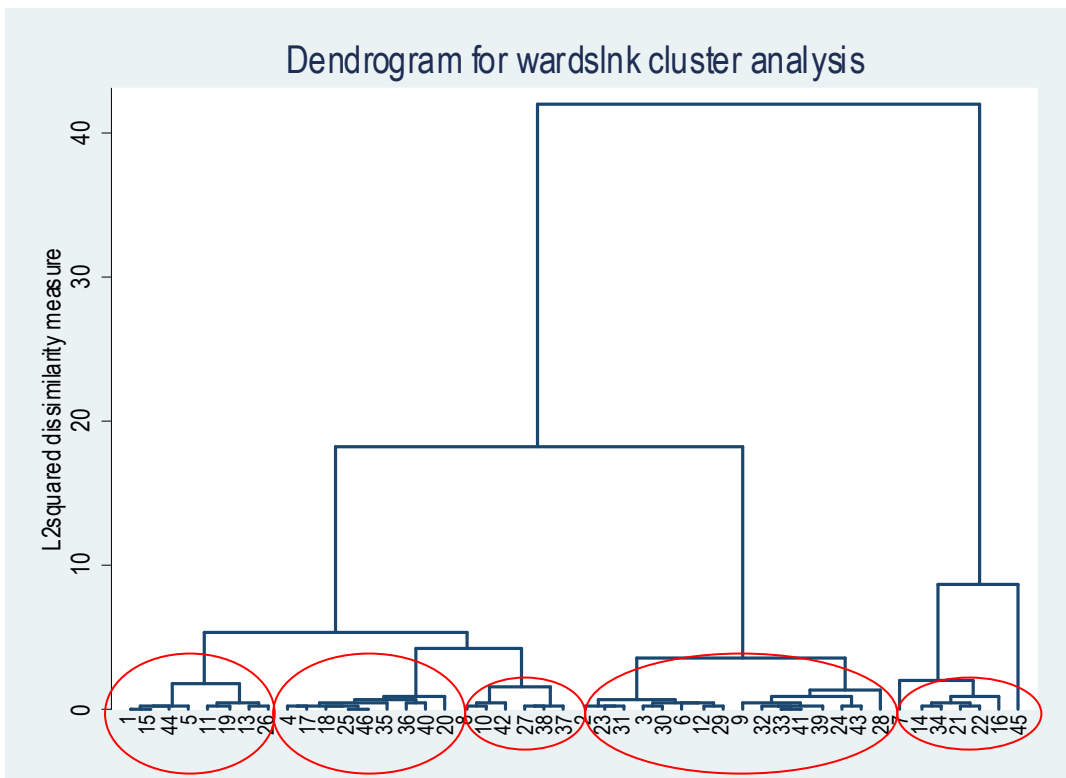
- Although the level of public confidence in major institutions grows with increasing personal income, increased per capita income in the country increases the degree of confidence in the police force and the judicial system, but at the same time reduces the degree of trust in political parties and media information.
- The less corrupt a country is, the higher the level of citizens' confidence in the police and the judicial system and the lower it is in mass media.

The results of the estimation of mixed logit models confirm that it is necessary to take into account heterogeneity in the sample of countries; one way to do this is to cluster the countries, which is done in the next section.

3.3. Clustering the countries

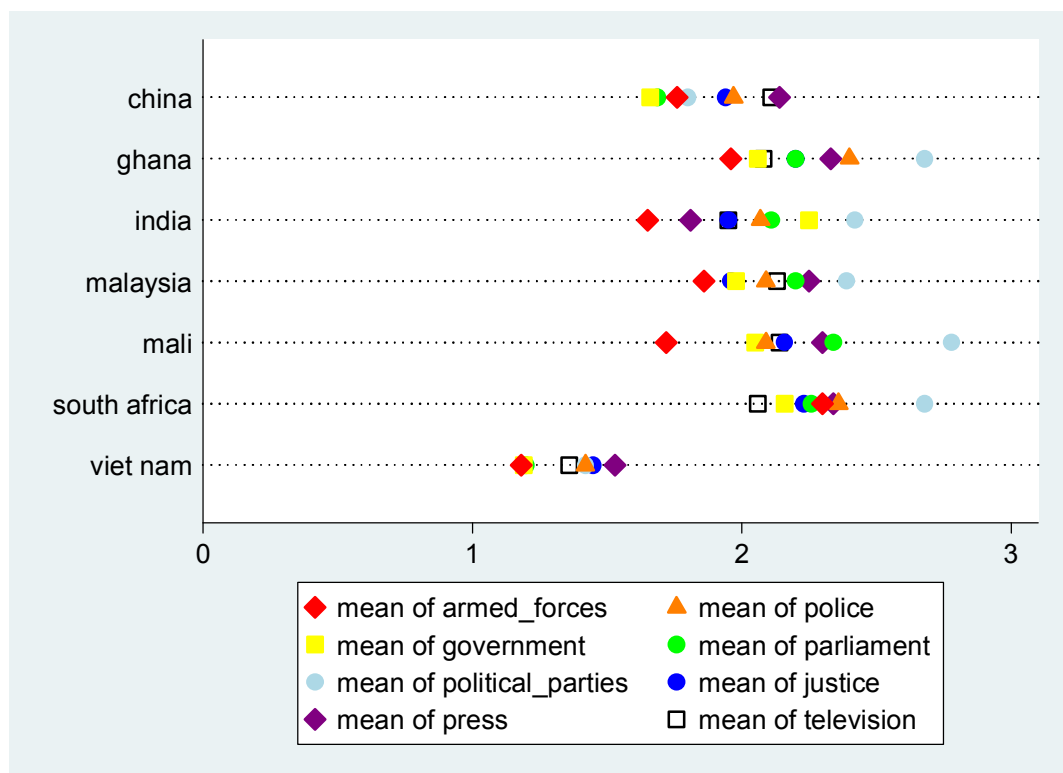
As mentioned in the analysis of Figure 1, the average levels of confidence in the basic political institutions is highly distinct for the residents of different countries. Nevertheless, we can attempt to identify groups of similar countries. The following separation of countries by 5 clusters was based on a dendrogram constructed by the Ward method (see Figure 2).

Figure 2. Dendrogram constructed by the Ward method



We provide brief characteristics for the countries of each cluster.

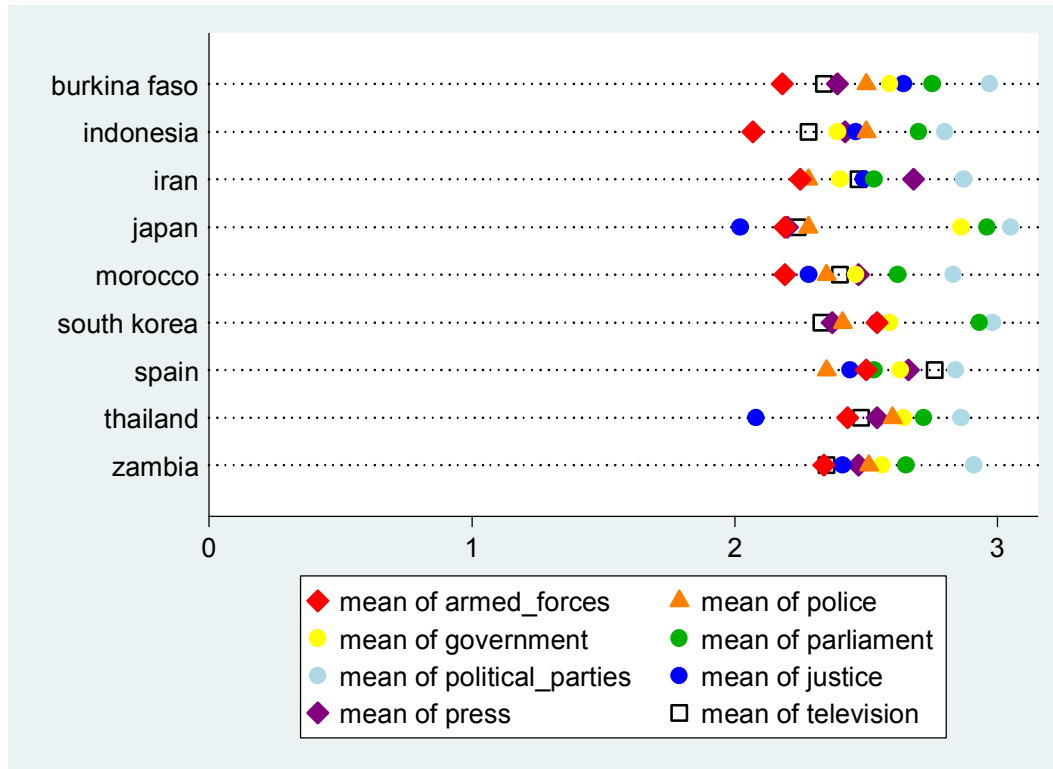
Figure 3. The first cluster



Countries belonging to the first cluster have the highest level of confidence. Most points for the countries of this cluster lie within the range of 1 to 2.5 (1 – a great deal, 2 – quite a lot), which corresponds to a high level of confidence. The highest level of confidence is in Vietnam.

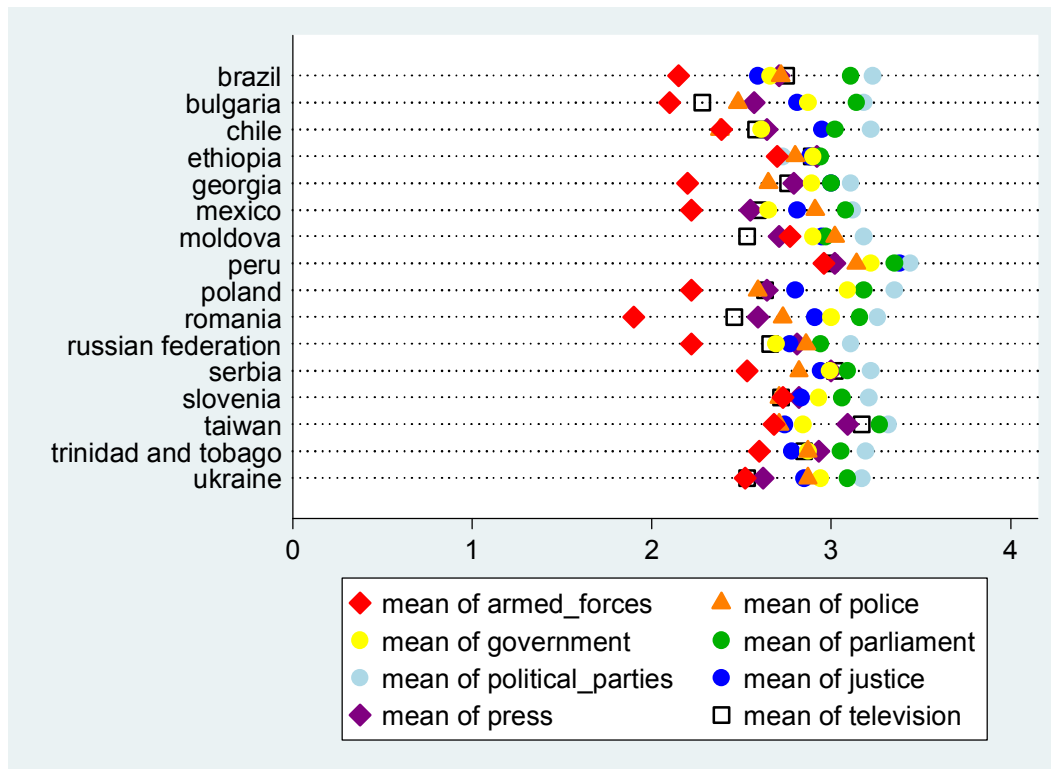
China is slightly different from the other cluster countries. In China, the citizens trust the government most of all and trust the press least of all (a similar attitude is found for the press in Vietnam). In the other countries of the cluster (Ghana, Mali, Malaysia, and India) the armed forces are trusted most, and political parties are trusted least. Note that in the countries of the first cluster, there is a high illiteracy rate, and a large part of the population lives in poverty.

Figure 4. The second cluster



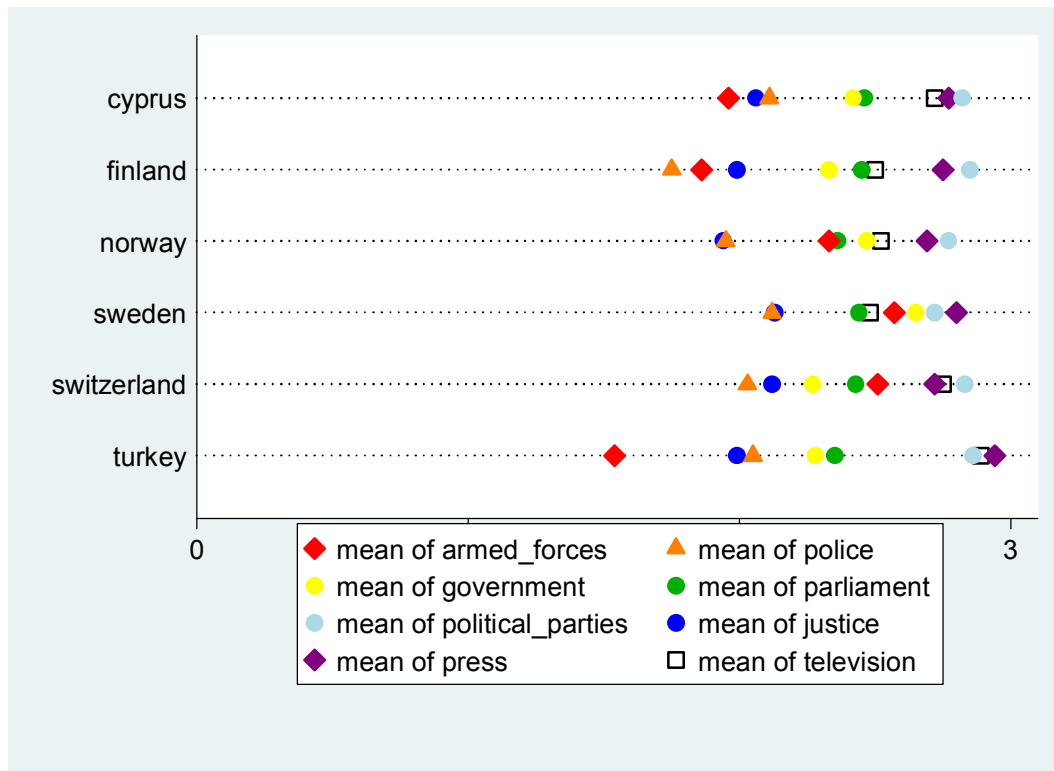
The geography of the nine countries of the second cluster is rather various. This cluster includes three African countries (Morocco, Burkina Faso, Zambia), several Asian countries (Japan, South Korea, Thailand, Indonesia, and Iran), and Spain as the European country. A similar feature for all countries included in the second cluster is the location of practically all the points in the interval 2-3 (2 - rather trust, 3 - rather not trust). In all the countries of the second cluster, people trusted political parties and parliament least of all. In the five countries, people trusted the armed forces most of all. In this cluster, the judicial system is highly respected (in Japan and Thailand, it is the most popular institution).

Figure 5. The third cluster



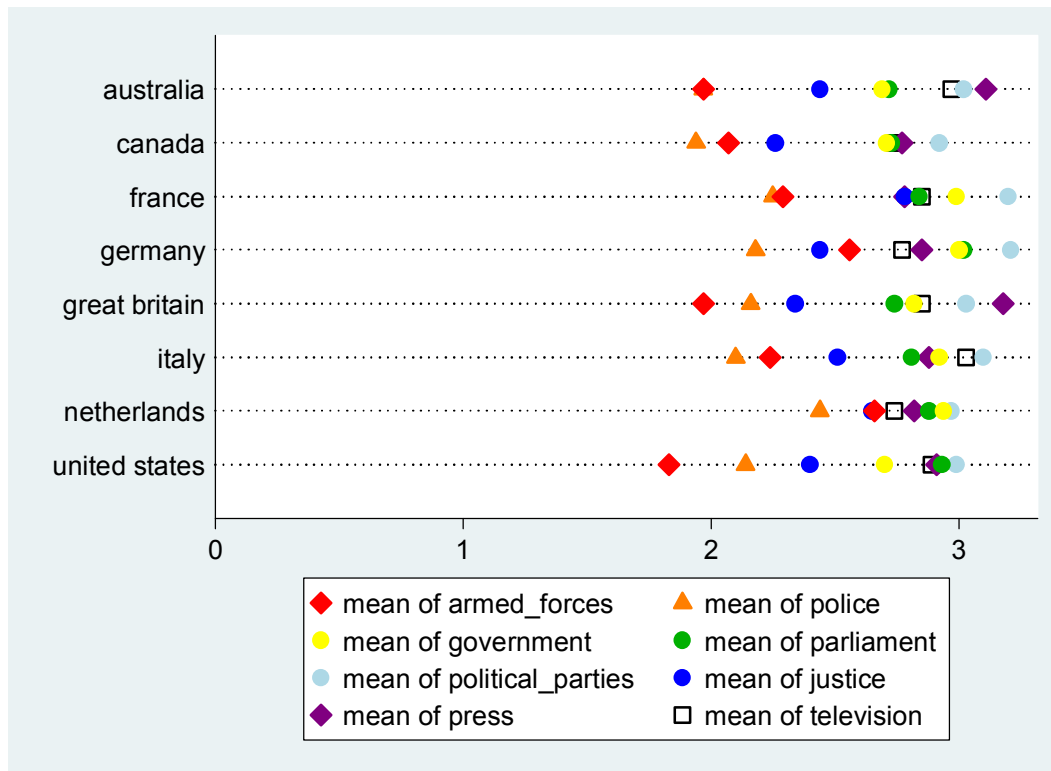
The most numerous third cluster includes countries of the former Soviet Union (Russia, Ukraine, Moldova, Georgia), Eastern European countries (Bulgaria, Poland, Romania, Slovenia, Serbia), Latin American countries (Brazil, Chile, Mexico, Peru), Taiwan, and two African countries (Ethiopia and Trinidad and Tobago). The points of this cluster are shifted more to the right than the first and second clusters, which corresponds to lower levels of trust. The countries of this cluster clearly outline the system of preferences: the army (in all countries except Moldova) is the most popular institution, which is trusted more than the police, then the government, then the parliament, and lastly the political parties. In almost all the countries of the third cluster, television is trusted more than press.

Figure 6. The fourth cluster



The fourth cluster includes the Scandinavian countries (Finland, Norway, Sweden), Switzerland, and Turkey and Cyprus. Almost all points are located, as in the second cluster, in the interval 2-3, but the order of the points is different. The most popular institutions in this cluster are the police and the judicial system, and the least trusted are political parties, the press and television.

Figure 7. The fifth cluster



The fifth cluster includes the economically developed countries: USA, Canada, Australia, Britain, the Netherlands, Germany, France and Italy. The points in this cluster are located slightly to the right compared with the fourth. In this cluster, the most popular are the force institutions (the army and police) as well as the judicial system. The least popular are the political parties and, in the UK and Australia, the press. For all the countries of this cluster, the government, parliament, political parties, press and television are very unpopular (the corresponding points are located in the area of 3 - rather not trust).

For the countries in each of the selected clusters re-estimated in model (1), the results are given in Appendix 3. The signs of significant coefficients are compiled in Table 3.

Table 3. The signs of significant coefficients

	Armed Forces	Police	Government	Parliament
Sex	I+, II+, III+, IV+	IV-, V-		IV+, V+
Age	I+, II-, III-, IV+, V-	II-, III-, V-	III-	III-, V-
Educmid	I+, III-, IV+, V-	I+, II-, IV+, V-	I+, IV+, V-	I+, II+, IV+, V-
Educhigh	I+, II+, IV+	I+, II+, IV+	I+, II+, III+, V-	I+, II+, III+, V-
Income	I-, III-, IV+, V-	I-, II-, III-, IV+, V-	I-, II-, III-, IV+, V-	I-, II-, III-, V-
Marital	II-, III-, IV-, V-	I-, III-, IV-	I-, IV-	I-, III-, IV-
Unemployed	I+, II+, V+	I+, II+, III+, IV+, V+	V+	V+
Supervisor	I+, II-, V-	I+, II+	I+, II+, III-, V-	I+, II+, III-,
	Political Parties	Justice	Press	Television
Sex	II-, V+	II-, III-	I+	I+, II-, IV-, V-
Age	II-, III-	I+, II-, III+, IV+, V+	II-, III-, IV-, V+	II+, III-, IV-
Educmid	I+, IV+, V-	I+, IV+, V-	I+, II-, III-, V+	I+, II-, III-, V+
Educhigh	I+, II+, III+, V-	I+, II+, V-	I+, II-, IV-, V+	I+, III+, IV+, V+
Income	I-, II-, III-, V-	I-, II-, III-, V-	I-, III-	I-, III-, IV-

Marital	I-, IV-	I-, IV-	I-	I-, II-, III-,IV-
Unemployed	V+	II-, III+, IV+,V+	V+	II-, V+
Supervisor	I+, III-	I+, II-	I+, III+, IV+, V+	I+, III+, IV+,V+

It should be noted that the division of countries into clusters revealed some interesting points.

- As noted earlier, the presence of higher or secondary education in general reduces the degree of confidence in many institutions. However, for the fifth cluster, which includes the most economically developed countries, this relationship takes place only with respect to the mass media. For other institutions, the dependence is the opposite: those with higher education have more trust in the government, the parliament, political parties and the judicial system.
- In general, an increase in income leads to increased confidence in the major institutions. However, for the fourth cluster (Finland, Norway, Sweden, Switzerland, Turkey, Cyprus), this is not so. In these countries, growth in income leads to a decrease in the degree of confidence in the armed forces, police and government.
- For the third cluster, which includes the former Soviet and Eastern European countries, the older generation has more confidence in all political institutions, except the judicial system.

4. Concluding remarks

The obtained results lead to the following conclusions and policy implications.

- In modeling the degree of public confidence in basic social and political institutions, it is necessary to take into account the specific characteristics of each country.
- The confidence of young people in the basic political institutions is lower than the older population, so the authorities should make special efforts to gain credibility in this group.
- Marital status contributes to greater confidence in the basic institutions; therefore, it makes sense to promote family values.
- The degree of confidence in major social and political institutions increases with income, thus creating favorable conditions for the growth of welfare (a decrease in the tax burden and help with the development of small and medium enterprises, providing affordable loans), could lead to an increase in public trust.
- The mindless transfer of the experience of economically developed countries to other countries is not wise. In developing countries, increasing the educational level of the

population without the simultaneous increase of its wealth will not help to raise the level of confidence in major institutions.

- Reducing corruption in the country would increase the credibility of law enforcement and the judiciary.

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Appendix 1. List of countries

№	Country	Number of the respondents	№	Country	Number of the respondents
1	Australia	1,338	24	Moldova	984
2	Brazil	1,429	25	Morocco	953
3	Bulgaria	845	26	Netherlands	839
4	Burkina Faso	1,056	27	Norway	1,003
5	Canada	1,812	28	Peru	1,389
6	Chile	919	29	Poland	815
7	China	993	30	Romania	1,447
8	Cyprus	1,033	31	Russian Federation	1,554
9	Ethiopia	1,257	32	Serbia	1,070
10	Finland	975	33	Slovenia	909
11	France	937	34	South Africa	2,661
12	Georgia	1,066	35	South Korea	1,191
13	Germany	1,737	36	Spain	1,068
14	Ghana	1,407	37	Sweden	910
15	Great Britain	831	38	Switzerland	1,083
16	India	1,084	39	Taiwan	1,182
17	Indonesia	1,770	40	Thailand	1,496
18	Iran	2,409	41	Trinidad and Tobago	932
19	Italy	912	42	Turkey	1,212
20	Japan	859	43	Ukraine	625
21	Malaysia	1,197	44	United States	1,159
22	Mali	1,008	45	Vietnam	1,309
23	Mexico	1,467	46	Zambia	1,246

Appendix 2. List of independent variables

Name of variables in the WVS	Values	New variables	Values
X003 – Age	Continuous	Age= X003	Continuous
X001- Sex	1 - male, 2 – female	Sex= X001	1 - male, 2 - female
X025r – Education level	1 – lower, 2 – middle, 3 – upper	Educlow(reference category)	1, if X025r =1 0, if X025r ≠ 1
		Educmid	1, if X025r =2 0, if X025r ≠ 2
		Educhigh	1, if X025r =3 0, if X025r ≠ 3
X028 – Employment status	1 - Full time, 2 - Part time, 3 - Self employed, 4 – Retired, 5 – Housewife, 6 – Student, 7 – Unemployed, 8 - Other	Unemploy	1,if X028 =7 0, if X028 ≠ 7
X007 – Marital status	1 - Married, 2- Living together as married, 3 - Divorced, 4 – Separated, 5 – Widowed, 6 – Single, 7 - Divorced, Separated or – Widowed, 7 – Living apart but steady relation	Marital	1,if X007 = 1,2; 0, if X007 ≠ 1,2
X047 – Scale of incomes	1 – lower step, ..., 10 – tenth step	Income = X047	1 – lower step, ..., 10 – tenth step
X031 – Are you supervising someone?		Supervisor =X031	0 – no, 1 – yes

Appendix 3. Results of the estimation of the ordered logit models for clusters 1-5

Armed Forces	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
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Sex	0.2323948***	0.1710356***	0.1860929***	0.1737499***	0.0019384
Age	0.0060825***	-0.004826***	-0.010037***	0.0147075***	-0.00448***
Educmid	0.5385829***	0.0064559	-0.082544*	0.6904258***	-0.19040***
Educhigh	0.4399897***	0.3035082***	0.0767768	0.988107***	0.1047339
Income	-0.044055***	-0.0013064	-0.077554***	0.0555002***	-0.05021***
Marital	-0.339296***	-0.0459809	-0.110138***	-0.452614***	-0.10921***
Unemployed	0.2243489**	0.3929221***	0.1314967	0.0046873	0.6001653***
Supervisor	0.1635862***	-0.1035887**	0.0095565	-0.0317608	-0.160922***
N	6728	7688	10870	4468	6716
Pseudo R2	0.0134	0.0048	0.0071	0.0267	0.0088
Police	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Sex	-0.0151602	-0.0594137	-0.0492574	-0.187561***	-0.181633***
Age	0.0002701	-0.008589***	-0.004143***	0.0010898	-0.007951***
Educmid	0.5218864***	-0.1186837**	0.0097435	0.3468173***	-0.1186305*
Educhigh	0.5481894***	0.1066686*	-0.0238705	0.3085499***	-0.0668615
Income	-0.070696***	-0.018321*	-0.027206***	0.0368549***	-0.048743***
Marital	-0.156318***	-0.0157648	-0.0884803**	-0.466270***	-0.0682537
Unemployed	0.1542706*	0.0027245**	0.1787102**	0.4992943**	0.4626407***
Supervisor	0.2153141***	0.0906478**	-0.0315071	0.0480008	-0.0700284
N	6728	7688	10870	4468	6716
Pseudo R2	0.0114	0.0033	0.0016	0.0094	0.0072
Government	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Sex	0.0084331	0.0065712	0.0193519	-0.0062382	0.0084327
Age	0.0013979	-0.0009112	-0.0088085***	0.0012456	-0.0010828
Educmid	0.4683224***	0.0623194	0.0551029	0.2074584**	-0.1915348***
Educhigh	0.7178917***	0.2129396***	0.1123112**	0.1225999	-0.3158643***
Income	-0.075099***	-0.0361103***	-0.0678914***	0.0325993**	-0.0725693***
Marital	-0.1311135**	0.0220581	-0.0214394	-0.380647***	-0.0211278
Unemployed	0.0942859	0.0777237	0.1049929	0.1972866	0.5476753***
Supervisor	0.4217816***	0.1703467***	-0.0714688*	0.0241742	-0.1252815**
N	6728	7688	10870	4468	6716
Pseudo R2	0.0154	0.002	0.0045	0.0045	0.0127
Parliament	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Sex	0.0197304	0.0517725	0.0323164	0.173766***	0.1055488**
Age	-0.0013777	-0.0006089	-0.0028595**	-0.0014807	-0.0031851**
Educmid	0.4041773***	0.1696738***	-0.0410068	0.2420176***	-0.624046**
Educhigh	0.4926858***	0.3653768***	0.1156852**	-0.008128	-0.624046***
Income	-0.0543516***	-0.0428713***	-0.0705492***	-0.0046546	-0.0731868***
Marital	-0.2017112***	-0.0152411	-0.0705492*	-0.3246576***	-0.0376164
Unemployed	0.0664157	0.1408941	-0.1075004	0.2127307	0.5048733***
Supervisor	0.4470923***	0.1045883**	-0.0883288**	0.037509	-0.0486191
N	6728	7688	10870	4468	6716
Pseudo R2	0.0126	0.0032	0.0027	0.0064	0.02
Political Parties	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Sex	-0.020345	-0.1144416**	0.0285722	-0.0058623	0.0898192*
Age	0.0003445	-0.0036667**	-0.0025981*	0.0002223	0.0008867
Educmid	0.40319***	0.0807581	0.0106804	0.1448407*	-0.188826***
Educhigh	0.551726***	0.3267448***	0.1024424*	-0.0245931	-0.437043***
Income	-0.0606472***	-0.0499952***	-0.0474547***	-0.0167227	-0.0652461***
Marital	-0.2916863***	0.0657028	-0.0244529	-0.1410721**	-0.0017135
Unemployed	0.1257991	0.1307479	0.0548236	-0.1011607	0.592446***
Supervisor	0.3895892***	0.0300578	-0.0695758*	0.0245622	0.0401873
N	6728	7688	10870	4468	6716
Pseudo R2	0.0127	0.0036	0.0018	0.0019	0.0136

Justice	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Sex	-0.0268279	-0.2014127***	-0.1005545***	0.0511533	-0.059581
Age	0.0030587*	-0.0089291***	0.002684**	0.0095304***	0.0029407*
Educmid	0.412245***	-0.0695696	0.0304336	0.2847277***	-0.1932875***
Educhigh	0.4468376***	0.3858729***	0.0571608	-0.0343933	-0.345178***
Income	-0.049056***	-0.0527273***	-0.0762948***	0.0006681	-0.0931139***
Marital	-0.170503***	0.060968	0.0206608	-0.3635899***	0.0172725
Unemployed	0.1131589	-0.3690212***	0.270906***	0.5643221***	0.3132581***
Supervisor	0.2989205***	-0.2914715***	-0.0043435	0.0415795	0.064665
N	6728	7688	10870	4468	6716
Pseudo R2	0.009	0.0112	0.0047	0.0089	0.0133
Press	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Sex	0.1457694***	-0.1580391***	0.0880412**	0.0109128	-0.0455667
Age	-0.0027626	-0.0053522***	-0.0048943***	-0.0056444***	0.0026984*
Educmid	0.3662082***	-0.3085175***	-0.0927994*	-0.0685761	0.2290788***
Educhigh	0.2004504***	-0.1740619***	-0.0392729	-0.1648403*	0.2577907***
Income	-0.0453133***	-0.0106146	-0.0772789***	-0.0204089	-0.003337
Marital	-0.1847914***	-0.0554475	-0.0576613	-0.0584077	-0.0077427
Unemployed	0.117481	-0.2887437**	0.014236	-0.0367914	0.4509104***
Supervisor	0.156651***	-0.0056504	0.0881823**	0.127665**	0.1780443***
N	6728	7688	10870	4468	6716
Pseudo R2	0.007	0.0038	0.0043	0.0021	0.0038
TV	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Sex	0.0843939*	-0.1197667***	-0.0050596	-0.1050119*	-0.1497835***
Age	0.0007042	0.0034632**	-0.0048263***	-0.0059062***	-0.0018123
Educmid	0.393328***	-0.2344503***	-0.0048263**	0.1062734	0.3449313***
Educhigh	0.5548627***	0.0426347	0.1608818***	0.1484893*	0.6858681***
Income	-0.0730415***	-0.0162992	-0.0915262***	-0.0498603***	-0.0159353
Marital	-0.1198387**	-0.1184583**	-0.0730684*	-0.0498603***	0.0263181
Unemployed	0.0435494	-0.2947148**	-0.0730684	0.2528109	0.1956241*
Supervisor	0.2550651***	-0.0115411	0.1407486***	0.1125249*	0.1994037***
N	6728	7688	10870	4468	6716
Pseudo R2	0.0094	0.0031	0.0062	0.0038	0.0115