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Public evaluation of health services across 21 European countries: The role of culture

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Abstract

Aim. This paper examines role of cultural values in understanding people's satisfaction with health services across Europe.

Methods. We used multilevel linear regression analysis on the 7th round of the European Social Survey (ESS) from 2014, including approximately 40,000 respondents from 21 countries. Preliminary intraclass correlation analyses lead us to believe that some explanations of variance in the dependent variable were to be found at the country level. In search of country-level explanations, we attempted to account for the role of national culture in influencing citizens' attitudes towards health systems. This was done by using Hofstede's dimensions of power distance (PDI), individualism (IDV), masculinity (MAS), and uncertainty avoidance (UAI), giving each country in the survey a mean aggregated score.

Results. In our first model with individual level variables, being female, having low or medium education, experiencing financial strain, and reporting bad health and unmet medical needs were negatively associated with individual satisfaction with national healthcare systems, with the latter variable showing the strongest effect. After including Hofstede's cultural dimensions in our multilevel model, we found that the power distance index variable had a negative effect on the dependent variable, significant at a 0.1 level.

Conclusions. It is possible that in national cultures associated with autocracy and hierarchy, citizens are likely to evaluate their national health system more negatively.

Keywords: Public evaluation of healthcare; satisfaction with healthcare; Hofstede's cultural dimensions; welfare typology; multilevel analysis; Europe; European Social Survey

Background

There is an increasing interest in measuring satisfaction with health services and health system performance [1–3]. Evaluation of health services by consumers is important since it might influence health outcomes, as it is the ‘voice’ of patients in expressing their preferences [4] and therefore essential to patient-orientation-driven healthcare. Furthermore, healthcare satisfaction is one of the alternative ways to measure healthcare quality and performance, and the results are typically used to identify whether a system is performing well enough and to identify areas where it can improve [2].

Differences in satisfaction with healthcare are most often attributed to individual consumer characteristics [5–9], healthcare system types [10–13] and healthcare delivery features and spheres [7,10,14–21]. However, potential differences between countries, cultures and values are rarely taken into consideration. This study aims to fill some of these gaps by examining the role of cultural values in understanding people’s satisfaction with health services across Europe.

The field of ‘satisfaction with healthcare’ has been rapidly developing since the 1960s [22]. Patient satisfaction with the service they receive has become part of healthcare quality assurance [23] and the evaluation of general healthcare services outcomes [24]. Studies on healthcare satisfaction can very broadly be classified into two separate categories: the first is *patient* satisfaction with (particular) healthcare services [6,7,9,17,25–29], and the other is often referred to as *public* satisfaction with or support for the healthcare system in general [30–34]. Studies in these two areas differ significantly in terms of conceptualisation, methodology, goals and aims. On the one hand, *patient* satisfaction is analysed most often on the basis of *patient surveys* administered after treatment or hospital stay. Hence, most of the subjects involved usually have some kind of health problem, which is being resolved. On the other hand, studies relating to *public* satisfaction with health services are primarily based on *population surveys*. In this case, very often the respondents have not had contact with healthcare institutions directly prior to the questionnaire, or even if they did, their conditions and reasons for seeking care are most probably very diverse. Thus, the latter kind of survey does not measure satisfaction with healthcare per se. Rather, it looks at what can be referred to as ‘public support’, ‘public opinion’ or ‘population evaluation’ of healthcare, and it is the main theme of the present paper.

There is a plethora of studies analysing the public support of welfare regimes, social policies and redistribution practices. Most of these studies document little change in the attitudes of the population towards the welfare states [35–38]. We also know that

universal healthcare is strongly supported by the public [39]. Characteristics such as institutional features (for example, number of GPs), overall performance of the healthcare system and, to some extent, respondents' individual characteristics (for example, health status, age, gender, ethnic groups) [4,40] also influence the public opinion of health services. However, research has not been able to link welfare regimes and healthcare classifications to the variation in these attitudes. With the expansion of the European Union and rapid political and economic transition of the former communist states, Europe is increasingly diverse. No longer can we rely, for instance, on the famous 'three worlds' typology of Esping-Andersen [41] in our understanding of regimes and country differences. Beyond that, textbook separation of healthcare systems into tax-based and social health insurance (SHI) ideal types becomes even less useful when we consider the healthcare systems of the Central and Eastern European (CEE) countries. The CEE health systems are often referred to as primarily 'hybrid' SHI systems, as they truly incorporate the features of both SHI and tax-based models [42].

There is also a causality dilemma of what comes first: people's attitudes or the institutional programs within each welfare state [43]. While it may be true that program structure influences attitudes toward welfare states, an equally plausible argument is that collective values are a motivating force in determining the institutional structure of welfare state [44]. For instance, social democratic welfare states typically build on an ideology emphasizing collectivism, de-commodification and minimal market dependency, while liberal welfare states, on the other hand, are characterized by an obsession with market efficiency and commodification, and the minimalist social policy of *laissez faire* is in keeping with their ideals [43].

Therefore, because most research on healthcare system evaluations fails to come to a conclusion about what influences those evaluations and to create a precise 'recipe' for policy-makers and other researchers, there is a need to investigate the cross-country and perhaps the cross-cultural differences in more detail. Moreover, the exact institutional setup and country characteristics of welfare and healthcare systems (such as the type of healthcare, culture of out-of-pocket payments) are inevitably influenced by a society's general cultural attitudes, which have been developed over centuries. Therefore, this paper sets out to explore the effect of cultural climate in a range of European countries on the public evaluation of healthcare services relying on Geert Hofstede's commonly used cultural dimensions [45,46] of power distance (PDI), individualism (IDV), masculinity (MAS), and uncertainty avoidance (UAI). The main research questions posed here are:

- *Does the public evaluation of healthcare services differ across European countries and Israel, and if so, are cross-country differences significant?*
- *Can the different cultural orientations explain some variation in public evaluation of health services across Europe and Israel?*

Data and methods

The study is based on the 2014 (7th) round of the European Social Survey (ESS). Our study included a total of 39,894 respondents from 21 countries of the European Union (EU), the European Economic Area (EEA) and Israel [1]. The ESS is funded by the European Commission, the European Science Foundation and academic bodies, and covers a broad range of social topics. The latest survey also contains a rotating module on the social determinants of health [47]. Data collection was based on face-to-face interviews with individuals aged 15 and above living in private households. Response rates ranged from 31% in Germany to 68% in the Czech Republic, and are overall similar to previous rounds of the ESS [48]. In this paper the individual-level ESS dataset is accompanied by the country-level datasets from the World Bank (WB), the World Health Organization (WHO), and Hofstede's cultural dimensions. All data manipulation and analysis was performed in Stata SE 14 [49].

Dependent variable

The dependent variable, the evaluation of healthcare as a whole, was derived from the following item: *'Please say what you think overall about the state of health services in [country] nowadays?'* The responses are distributed on a scale from 0 ('extremely bad') to 10 ('extremely good'). The variable was treated as numeric.

Country-level explanatory variables

Cultural climate

The main country-level explanatory variable is the cultural climate. Geert Hofstede has published seminal research on culture, measured across countries through 'cultural dimensions' [45,46]. Hofstede defines culture as 'the collective programming of the mind that distinguishes the members of one group or category of people from another' [46: 9]. To Hofstede, value systems are the core elements of culture, while the dimensions of culture make it possible to identify differences between cultures in a systematic, yet not overly simplified way.

Hofstede originally came up with the four main dimensions [2] of culture:

- ‘Power distance (index)’ (PDI) represents the perception of inequality of power distribution between the most and the least powerful; it also reflects how ready the least well-off are to fight against (or accept) inequality in the society [46]. This reflects how autocratic/hierarchic or democratic the society is: the higher the index, the more autocratic is the culture and people’s perceptions.
- ‘Individualism’ (IDV) vs. collectivism is a common typology in cross-cultural psychology[50] that reflects how much individuals identify themselves with others and groups (not the state). The higher the index, the more individualistic the culture is.
- ‘Masculinity’ (MAS) vs. femininity reflects the emotional gender roles in a society; but while ‘masculine’ refers to imposing a more assertive, competitive culture, it does not necessarily refer to ‘male’. At the same time, in feminine cultures’ relationships, caring behaviour and quality of life are valued [46]. In more masculine societies, the gap between men and women is rather big, hence the higher the score, the more materialistic and competitive the culture is, and the larger the gap is between male and female roles in the society.
- ‘Uncertainty avoidance (index)’ (UAI) reflects a society’s ability to accept, or its desire to avoid uncertainty – namely ambiguous, unstructured situations; it also reflects tolerance of new ideas and change [46]. Hence, the higher the score, the more emotional the culture might be, and the less pragmatic and less tolerant people tend to be.

The cultural dimensions scores for European countries are presented in Table 1. Hofstede’s dimensions are often used to create a compound summary index, which is relevant for comparative research but difficult to interpret when used in econometric analysis. Moreover, summarising the indices might dilute the peculiarities of culture (some countries score high on one dimension, but not on others). We therefore chose to include Hofstede’s four dimensions as separate variables in our analysis rather than using typologies of countries, since our goal is to uncover how each of the dimensions affects support for the healthcare system rather than to engage in the cultural typology debate.

(Table 1)

Other macro-level indicators

Other country-level explanatory variables and controls had to be taken into account as well. We follow the research of Wendt et al. [40] to identify country-level factors that might influence the evaluation of healthcare. The authors argue that total health

expenditures, out-of-pocket payments, and the number of physicians are just some of the healthcare institutional characteristics that explain some part of evaluation rates of healthcare services. The authors find that the institutional arrangements are indeed important, as they involve ‘individual experiences’ [40: 188]. Hence, we also include models with the national total health expenditure (THE) as a percentage of the gross domestic product (GDP), out-of-pocket payments as a percentage of THE, and the number of physicians per 1000 people [51–53]. Since the survey data was collected in 2014, we used the 2013 or the most recent available macro figures. Table 1 displays descriptive statistics for all country level variables, along with the country average score on the dependent variable. We observe that Hungary (3.35) has the lowest average healthcare satisfaction, while Belgium (7.48) has the highest.

Individual-level explanatory variables

All of the micro-level indicators have been taken from the ESS dataset. We start with the standard demographics (descriptive statistics for the variables are presented in table 2):

- *Gender*: a binary variable coded 1 for women and 0 for men.
- *Age*: a numerical variable coded into age groups separated by 10 years (from 24 and under, 25–34, and so on, up to 75 and above, with the latter being a reference category for analysis).
- *Education*: measured initially as the highest level of education in accordance with the International Standard Classification of Education (ISCED); further coded into three dummy educational groups: low (lower secondary education or less), medium (upper secondary or advanced vocational education), and high (tertiary education), with the latter being a reference category in the analysis.
- *Financial strain*: a binary variable with respondents finding it ‘difficult’ or ‘very difficult’ to manage on current income coded as 1, and those coping or living comfortably coded as 0.
- *Health (self-reported)*: a binary variable with respondents assessing their health to be ‘bad’ or ‘very bad’ coded as 1, and those reporting ‘very good’, ‘good’, and ‘fair’ health given the value 0.
- *Unmet needs*: a binary variable with respondents reporting having been unable to get a medical consultation or treatment for the last 12 months coded as 1, with the remaining group as a reference.

(Table 2)

Multilevel analysis

Multilevel analysis (MLA) was performed on the ESS data in three steps. First, the model without any explanatory variables – a so-called empty model – was run in order to calculate intraclass correlation and analyse the amount of variation present at the macro level. Second, level 1 control variables were added to the model to account for individual explanations and variations in healthcare satisfaction. Finally, country level variables were added in multiple steps: culture, healthcare financing, and healthcare availability. To facilitate the interpretation of coefficients, individual level variables were not assigned random effects; hence their association with the dependent variable is similar in different countries. Due to limitations of the sample (a relatively low number of countries), culture and other macro level indicators could not be analysed within the same model, and different sets of models were run and then compared. Bayesian information criterion (BIC) [54], likelihood ratio test and Snijders and Bosker [55] R-squared were used for comparing the models.

Results

The empirical results are presented in Table 3. After running the first empty model, we found that the intraclass correlation (ICC) for public evaluation of healthcare is 0.213, which means that 21.3% of the variation is attributed to the *country level*. This is quite a high ICC for cross-country research, and particular for a study on the perceptions of individuals (as opposed to objective data). Hence, MLA is clearly needed to account for the structure of the data.

(Table 3)

In our first model only individual level variables were included, and the results offer few surprises. The evaluation of healthcare by age group shows a slight curvilinear effect; all age groups are more negative about the healthcare system than the youngest and eldest groups, with the middle range 55–64 age group showing the strongest negative assessment. Men tend to evaluate healthcare services more positively than do women, but this is also true for other perception rates. The education variables included in the model show a significant negative impact, meaning that the low and medium educated tend to be more critical of healthcare systems than individuals with high (tertiary) education. The variable capturing financial strain has a significant negative impact: thus, respondents who experience difficulties with their present financial situation evaluate healthcare more negatively than those who are in a better financial situation. The individual level model also includes subjective health as an explanatory variable, which is significant and negative; hence, those who report better health also

evaluate healthcare more positively. Lastly, unmet need has a significant negative impact on healthcare satisfaction, implying that respondents who experienced that their medical needs were not met by the healthcare system during the last year assessed the system more negatively than those without that experience.

The individual level variables included in the models explain 8.4-12.1% of the total individual level variance, and we do not see substantial changes in the coefficients when expanding the individual level model with macro variables.

After including Hofstede's cultural dimensions in our multilevel model, we found that the power distance index variable had a negative effect on the dependent variable, significant at a 0.1 level. This means that in national cultures associated with autocracy and hierarchy, citizens are likely have a lower opinion of their national health system. Individuality and masculinity, with p-values of 0.109 and 0.105, are also worth mentioning. With the low number of level 2 observations (i.e., the number of countries included in the analysis), only very strong effects can be expected to have the highest levels of statistical significance, and country level effects with lower levels of significance also deserve our attention. Following from this, our results indicate that national cultures characterized by individualism are likely to assess their national health system more positively, while materialistic and competitive cultures with traditional gender role gaps are likely to assess healthcare negatively. The cultural dimension of uncertainty avoidance did not show significant results ($p=0.2$).

The other country level variables showed significant associations with healthcare satisfaction when added one-by-one. As expected, high physician density and a higher share of GDP spent on healthcare is positively associated with healthcare evaluation. A high degree of out-of-pocket payment is negatively associated, but with a coefficient of -0.053 and a p-value of 0.101, this association is somewhat weaker than for the other country level variables. When all institutional variables are included in one model, only physician density turns out to be significant, while both total health expenditures and out-of-pocket payments do not affect healthcare evaluations any longer.

When examining the fit and explanation power of the different models, we found the THE model to be the strongest one (lowest BIC and significant likelihood ratio test). Including the rate of total healthcare expenditure explained 41.2% of country-level variance, compared to 33.8% explained by the cultural dimensions. The overall fit of the last model (institutional, including physician density, THE and OOP) was worse than the THE model, even though it explained more second-level variation (47.5%). When we performed likelihood ratio tests in STATA and compared the macro level

expansions to both the ‘empty’ baseline model and the individual level model, the THE model proved to be the expansion with the highest level of statistical significance.

To sum up, we can note that while individual-level variables do explain some variation in healthcare evaluations, some country-level variables are also significant and create a reasonable model fit for the data at hand. In general, the ‘hard’ macro variables measuring healthcare availability and financing show somewhat stronger associations with positive healthcare evaluations than the ‘soft’ cultural dimensions.

Discussions and conclusions

This article set out to analyse satisfaction with healthcare by applying a cross-cultural paradigm instead of looking into the details of institutional setup, while controlling for the main individual-level characteristics of the respondents. We found that the individual-level characteristics, such as gender, age, education and financial strain, as well as subjective health and unmet need of healthcare, do predict the evaluations of healthcare as expected. These results are in line with those of previous studies on public evaluation of healthcare [4,40].

When it comes to the country level effects, several findings need to be discussed. First, consistent with other studies, we do find that healthcare characteristics at the country level have an impact on healthcare evaluation [4,39,40]. In our analysis, physicians density, total health expenditures and out-of-pocket payments all turned out to be significant predictors of healthcare evaluations. These findings are expected, as easier access to physicians (due to increased physician density) would indeed make people more satisfied with the quality of healthcare services overall. Smaller out-of-pocket payments would also generally increase positive evaluation of health services. Overall spending on healthcare provision is also an important factor in establishing a positive regard for health services and, at the end of the day, health services quality assurance [24]. Still, consistent with other studies [17,21], physicians density seem to be of primary importance for establishing a positive regard towards healthcare, when the other factors are also controlled for.

Second, the effects of culture on healthcare evaluations need to be addressed. The results of this study indicate that cultural dimensions do indeed explain some of the variation in the public support for healthcare. We found that the strongest cultural dimension relevant for healthcare evaluations is the power distance index (PDI), which refers to the hierarchy and distribution of power. In societies with lower PDI, people perceive the distribution of power to be more equal between those on the ‘top’ and the ‘bottom’ of the power hierarchy. We found, therefore, that people from countries with

stronger anti-hierarchical and egalitarian cultures tend to evaluate healthcare services more positively. This relationship may partly be explained by the fact that people from these countries tend to view institutions as equal and not domineering, even though the institutions do possess power. Hence, the evaluations of said institutions are more positive.

Other cultural dimensions might not be particularly important for explaining support for healthcare services. While the effects are weak, they could still point in the direction that in more caring and gender-egalitarian societies, people tend to evaluate health services more positively.

Overall, this paper contributes to the literature on satisfaction with healthcare in several ways. First, it introduces culture into the discourse on healthcare evaluations, so that we can account for it when analysing the public evaluation of healthcare. Second, we include a wide range of countries across all of Europe, including the new EU member states, and Israel. Third, the methods used in this paper (MLA) are rarely used in the literature on satisfaction with healthcare.

There are some limitations to this study as well. First, exploring the potential effects of culture on healthcare is limited to the instruments measuring culture. Culture is a broad, multidimensional and qualitative concept. Therefore, using Hofstede indices as an attempt to ‘quantify’ culture also faces a lot of criticism [56]. Nevertheless, while the options are limited, certain links and relations identified through quantitative studies could point in the direction of further – perhaps qualitative – analysis of culture and healthcare evaluations. Second, methodologically we were limited to only 21 units (countries) at the second level of our analysis. This is a relatively low number; hence, we could not test cultural dimensions and other institutional characteristics within the same models. This could be an idea for future research.

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Declaration of conflicting interests

Authors declare that there is no conflict of interest related to this study.

Notes

(1) Israel was included to provide bigger cultural diversity, as well as for methodological reasons. List of countries included: Austria (AT), Belgium (BE), Czech

Republic (CZ), Denmark (DK), Estonia (EE), Finland (FI), France (FR), Germany (DE), Great Britain (GB), Hungary (HU), Ireland (IE), Israel (IL), Lithuania (LT), Netherlands (NL), Norway (NO), Poland (PL), Portugal (PT), Slovenia (SI), Spain (ES), Sweden (SE), Switzerland (CH).

(2) In recent years, a fifth and sixth dimension have also been developed: ‘long-term orientation’ and ‘indulgence’. However, these are not addressed here because of substantial and methodological considerations: first, neither of the new dimensions is considered to be of much relevance to our research question; and second, since it is not possible to include all six dimensions as level 2 variables in the same model we elected to use the original four dimensions.

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Tables

Table 1. Descriptive statistics for country level variables

Country	PDI	IDV	MAS	UAI	Phys.	THE	OOP	HC mean	HC SD	N
AT	11	55	79	70	4.8	11.1	16.2	6.61	2.18	1765
BE	65	75	54	94	4.9	10.6	17.9	7.48	1.46	1747
CH	34	68	70	58	4.0	11.7	25.8	7.31	1.84	1498
CZ	57	58	57	74	3.6	7.5	14.5	6.09	2.25	2010
DE	35	67	66	65	3.9	11.2	13.2	5.86	2.25	2983
DK	18	74	16	23	3.5	11.2	12.9	6.58	2.08	1472
EE	40	60	30	60	3.2	6.5	20.3	4.82	2.27	2007
ES	57	51	42	86	4.9	9.1	23.5	5.28	2.54	1887
FI	33	63	26	59	2.9	9.5	18.2	6.84	1.96	2067
FR	68	71	43	86	3.2	11.6	6.3	6.31	2.09	1894
GB	35	89	66	35	2.8	9.3	9.5	6.01	2.32	2154
HU	46	80	88	82	3.1	7.5	27.3	3.35	2.40	1635
IE	28	70	68	35	2.7	8.0	17.4	4.09	2.44	2251
IL	13	54	47	81	3.3	7.9	26.5	6.23	2.24	2416
LT	42	60	19	65	4.1	6.6	30.9	4.98	2.21	2138
NL	38	80	14	53	2.9	11.0	5.2	5.96	2.03	1869
NO	31	69	8	50	4.3	9.4	13.9	6.83	1.95	1422
PL	68	60	64	93	2.2	6.4	23.5	3.51	2.38	1568
PT	63	27	31	104	4.1	9.6	26.4	4.62	2.55	1239
SE	31	71	5	29	3.9	12.0	14.1	5.77	2.10	1719
SI	71	27	19	88	2.5	9.3	12.1	4.59	2.37	1183

Abbreviations:

Hofstede Cultural dimensions: power distance (PDI), individualism (IDV), masculinity (MAS), and uncertainty avoidance (UAI);

Phys. – physician density (per 1000 people)

THE – total health care expenditure (% of GDP)

OOP – out-of-pocket health expenditure (% of THE)

HC mean, HC SD – mean score and standard deviation of the dependent variable (HC evaluation)

N – number of observations

Countries: Austria (AT), Belgium (BE), Czech Republic (CZ), Denmark (DK), Estonia (EE), Finland (FI), France (FR), Germany (DE), Great Britain (GB), Hungary (HU), Ireland (IE), Israel (IL), Lithuania (LT), Netherlands (NL), Norway (NO), Poland (PL), Portugal (PT), Slovenia (SI), Spain (ES), Sweden (SE), Switzerland (CH)

Table 2. Descriptive statistics for all individual level variables

Variable	Proportion of the sample (%)	Mean satisfaction with health care within each group
Age		
24 and under	11.2	6.29
25-34	14.0	5.72
35-44	16.1	5.54
45-54	17.1	5.52
55-64	17.2	5.45
65-74	14.7	5.69
75 and above	9.8	5.96
Gender		
Male	46.9	5.89
Female	53.1	5.52
Education		
Low (primary)	26.9	5.58
Medium (secondary)	50.2	5.64
High (tertiary)	22.9	5.94
Financial strain		
Difficult or very difficult	21.5	4.99
Comfortably or coping	78.5	5.89
Self-reported health		
Very good, good, or fair	92.3	5.76
Bad or very bad	7.7	4.89
Unmet need		
Yes	12.2	4.91
No	87.8	5.80

Table 3. Stepwise multilevel regression analysis. Dependent variable: public evaluation of national health care

	Empty model	Indiv. level model	Culture model	Physicians model	THE model	OOP model	Inst. model
Intercept	5.673***	6.500***	5.088***	4.257***	3.113***	7.456***	3.437
Age 24 and under		0.140***	0.140***		0.140***		
Age 25-34		-0.340***	-0.340***		-0.340***		
Age 35-44		-0.483***	-0.482***		-0.483***		
Age 45-54		-0.539***	-0.539***		-0.539***		
Age 55-64		-0.543***	-0.543***		-0.543***		
Age 65-74		-0.334***	-0.334***		-0.334***		
Female		-0.237***	-0.237***		-0.237***		
Low education		-0.081**	-0.080**		-0.081**		
Medium education		-0.253***	-0.253***		-0.253***		
Financial strain		-0.410***	-0.410***		-0.410***		
Bad health		-0.429***	-0.430***		-0.429***		
Unmet need		-0.766***	-0.766***		-0.766***		
PDI			-0.032*				
IDV			0.032				
MAS			-0.017				
UAI			0.023				
Physician density				0.628**			0.570**
THE					0.361***		0.190
OOP						-0.053**	-0.042
Observations	38924	38924	38924	38924	38924	38924	38942
Units	21	21	21	21	21	21	21
LL	-86036	-85176	-85173	-85173	-85171	-85174	-85169
Variance explained individual level		8.7%	11.3	10.8%	12.1%	10%	12.9%
Variance explained country level		11.3%	33.8%	29.9%	41.2%	22.7%	47.5%
BIC	172103.7	170509.6	170546.1	170515.7	170511.5	170517.7	170529

Note: * = 0.1 significance level, ** = 0.05 significance level, *** = 0.01 significance level; only coefficients are reported, other statistics available on request.