IDEAS FOR GLOBAL DEVELOPMENT

TOWARDS NEW MAPS OF GLOBAL HUMAN VALUES, BASED ON WORLD VALUES SURVEY

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This short research note reports about a new approach to the study of global values, based on a statistical analysis of the freely available data from the World Values Survey, sixth wave of global opinion surveys which has now been made public. We provide a short overview of the research results, reported in (Tausch 2016), especially our Overall Open Personality Index, based on twelve factors of the promax factor analytical model based on the WVS data. But while some countries, like Libya, Tunisia, Algeria, Yemen, and Peru had a very poor performance on both the Overall Open Personality Index and the University of Maryland Polity IV Democracy Measure at the same time, and Trinidad and Tobago, Sweden, Australia, Netherlands, the United States, and Japan had a very high performance on the Overall Open Personality Index and on the Democracy Measure, it is clear that in a Hayekian perspective Economic Freedom explains 46 per cent of the variance of the mismatch between the Overall Open Personality Index and the Democracy Measure.

We also calculate performance indices for the countries and the nine main global religious denominations, answering an old query raised by Huntington (1996). On this account, the 5775 year old religion of Judaism and Protestantism emerge as the role models for other religions how to combine religion and the traditions of the Enlightenment.

Keywords: global values, human value, Open Personality Index.

1. Background

The discipline of global value research made enormous methodological developments over the last decades and is now an integral part of global sociology (see our survey of the literature in Tausch 2016, based on Davidov, Schmidt, and Billiet 2011; Davidov, Schmidt, and Schwarz 2008). Inglehart initiated the repeated and constant standard surveys over time in the *Eurobarometer*¹ project and later in the *World Values Survey*. Regional coverage of the *World Values Survey* project quickly transcended the developed Western democracies to already include South Korea and Mexico in Wave 1 (from 1981 to 1984); and in Wave 2 (between 1990 and 1994) – already a number of former communist and also developing countries. *World Values Survey* data are now available from some 100 countries which contain some 90 per cent of the world's population, still

using a largely common and stable questionnaire with almost 400,000 representative respondents.³ There was also a growing inclusion of representative Muslim publics in these surveys (Tausch and Moaddel 2009; Tausch, Heshmati, and Karoui 2014). Never before in human history have we known as much about the different values and cultures across the globe, and never before have we known as much about the changes of values and cultures over time. It should be stressed at the outset that here we are dealing only with the subjective views of representative populations around the globe regarding core values of an 'Open Society'. We are not saying that, say, country X or Y are more 'open societies' than, say, country Z. But what we are saying is that the World Values Survey data suggest that according to the combined results for the values under scrutiny here

- rust in the state of law;
- > no shadow economy and violence;
- > post material activism;
- > support for democracy;
- ➤ non-violent society;
- ➤ no xenophobia and racism;
- > trust in transnational capital and Universities;
- ➤ Hayek/Max Weber;
- > supporting gender justice;
- > not staying away from environmental activism;
- > caring for democracy;
- > supporting the army and sports.

The populations in several transition countries and developing countries today are already more characterized by a higher 'Overall Open Personality Index' than the leading Western countries and the undisputed successful cases of transition and democratization in Eastern Europe, South and East Asia, and Latin America.

Thus, the rankings, presented in this article, surely are based on legitimate factor analytical procedures, applied to the *World Values Survey* data, reflecting opinions of the respective populations. We are well aware that some of the results, presented here, could be regarded by many as paradoxical, counter-intuitive or even misleading.

But apart from the fact that any analyst with access to the statistical software used here – or in fact to any version of alternative advanced statistical software programmers – will come to the same or very similar conclusions: that the openly accessible *World Values Survey* data, reflecting opinions of the respective populations, suggest exactly or something very similar to the results structure, achieved by applying promax factor analysis procedures to the *World Values Survey* data.

The main theoretical connections of the present new approach to global value studies could then be summarized as follows.

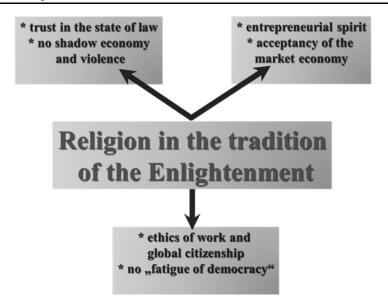


Fig. 1. Religions in the tradition of the Enlightenment and global values – the causal connections

2. Data and Methodology

Human value data collections now include data from much of the Americas, Europe and the former USSR, East and South-East Asia and several countries in Sub-Saharan Africa, and also from twenty majority Muslim countries of our globe, now participating in the last wave of the *World Values Survey* project.

Our present attempt to map anew the structure of global values is based on an extensive and ehaustive approach of the 78 best documented variables in the *World Values Survey (6)*, based on 41,178 global representative citizens with complete data who reside in none the less than 45 countries. Our multivariate analysis thus covers roughly some 47 per cent of the total global population of 7.303 currently billion people and it also comprises some 580 Muslim inhabitants of our globe, that is around 36 per cent of the global Muslim population of more than 1.6 billion people. The fifteen member countries of the Organization of Islamic Cooperation, covered by our final multivariate analysis are: Algeria, Azerbaijan, Iraq, Jordan, Kazakhstan, Kyrgyzstan, Lebanon, Libya, Malaysia, Nigeria, Pakistan, Tunisia, Turkey, Uzbekistan, and Yemen. The full list of countries, entered into the final analysis emerges from Table 1.

Our variables include a wider array of values than in any previous encompassing analysis on the subject. We also include necessary background data such as age, education, gender, and income of the respondents. The fifteen categories of values and activities measured now include

- Active/Inactive membership in seven types of *voluntary organizations*;
- ➤ Attitudes on *gender issues*;
- ➤ Basic attitudes on the *market economy*, on *inequality* and on *wealth*;
- ➤ Confidence in key national and international institutions (nine indicators);
- Eleven indicators of the *values* which are *important in* the *education* of a child;
- Feeling of *happiness*;

- ➤ Indentification with democracy (several indicators);
- ➤ Indicators of positions on *environmental protection*;
- ➤ Indicators of *trust*;
- ➤ Indicators of work ethics;
- ➤ Nine *indicators of what is justifiable* and what is not in a society, including the shadow economy;
 - Seven indicators measuring the *scales* proposed by Shalom Schwartz;
 - > Several indicators of *religiosity*;
 - Three indicators of *xenophobia* and racism;
 - ➤ What democracy should be all about (seven indicators).

The IBM-SPSS version of the *World Values Survey* data were downloaded from the official website of the research project: http://www.worldvaluessurvey.org/WVSO nline.jsp. *We worked with listwise deletion of missing values. Our used statistical program was the IBM-SPSS XXII*. Factor analysis also allows the researcher to construct combined indices, in our case a combined Open Personality Index (trust in the state of law; no shadow economy and violence; post material activism; support for democracy; non-violent society; no xenophobia and racism; trust in transnational capital and Universities; support for the market economy, described in the works of Hayek and Weber; supporting gender justice; not staying away from environmental activism; caring for democracy; supporting the army and sports (weighted by the *Eigenvalues* of the Promax factor analytical model)).

3. Results

In all brevity, we would like to present now the results of our research endeavor. Interested readers are being referred to our website at https://uibk.academia.edu/Arno Tausch/Documentation-for-books-and-articles where they will find not only the factor loadings of the promax factors, but also the full correlation matrix between the factors and also a second order factor analysis, based on the factor scores between the 22 oblique factors, which again corresponds the main findings of this analysis. The presentation of all these new materials in this article, all substantially qualifying hitherto established *World Values Survey* research, would by far beyond any word limit for scientific journals nowadays, including the present one.

In our re-analysis of the latest *World Values Survey* data, we show that the contemporary landscape of global values is indeed very different from the logic, described by Inglehart and his so-called self-expression values, associated by Inglehart with high levels of subjective well-being, good health, and high interpersonal trust, as well as tolerance of outgroups, support for gender equality, postmaterialist values, and environmental activism.

We show by contrast that a very large array of negative phenomena, which cannot be overlooked anymore by contemporary social science, are clearly associated with the loss of religion. This holds for the majority of nations around the world, irrespective of the predominant religious denominations. Negative phenomena are on the rise especially in Western countries and in the former communist countries of Eastern Europe, where they spread most rapidly, and where they endanger, in the end, the very existence of the Open Society, such as the growth of distrust in the state of law; the shadow economy and violence; the distance to altruistic values; the growing fatigue of democracy, the lack of entrepreneurial spirit, the careless rejecting of work and global

citizenship, and the dislike of sports and also the armed forces which are there to protect our societies against external threats. Our empirical analysis shows that while contemporary parents in the early twenty-firsty century hold dear such educational values as independence and imagination, ecological responsibility and acceptancy of societal rules are on the retreat as the loss of religion progresses.

We should emphasize at this point that there is nothing arbitrary in our results based on the investigation of the relationships between the 78 variables. Factor analysis does nothing but brings the structure, which is underlying the correlation matrix between the variables, to the surface. There were twenty-two promax factors, whose statistical benchmark, the so-called Eigenvalue, was above 1, as required by the statistical analysis textbooks.

We present an *Open Personality Index*. Originally, we were inclined to speak about a 'Global Value Development Index' or even an 'Open Society Index', but we are grateful to state here that the editors of the present journal convinced us during the peerreview process of this article to speak instead, in a more value-free fashion, about an 'Open Personality Index'.

According to the standard statistical analysis textbook recommendations, we multiplied the original factor scores by the *Eigenvalues*. For factors, which originally present a socially negative phenomenon, like 'no trust in the state of law', we also multiplied the factor scores by the number -1. So the final weights applied to our original factors scores to arrive at the results in Table 1 were:

no trust in the state of law	-4.729
shadow economy and violence	-4.652
postmaterial activism	+3.761
support for democracy	+2.034
the violent society	-1.898
xenophobia and racism	-1.612
distrust in transnational capital and Universities	-1.227
anti-Hayek/anti-Max Weber	-1.219
supporting gender justice	+1.163
staying away from environmental activism	-1.096
'fatigue of democracy'	-1.086
hating the army and sports	-1.013

If we assume that the *World Values Survey* data are correct and that trust in the state of law; no shadow economy and violence; post material activism; support for democracy; non-violent society; no xenophobia and racism; trust in transnational capital and Universities; Hayek/Max Weber; supporting gender justice; not staying away from environmental activism; no democracy fatigue; and supporting the Army and sports are the twelve factors best representing the social values necessary for an Open Personality, which might be conducive to an Open Society, then we must recognize that today Sweden, Uzbekistan, Australia, the Netherlands, Ghana, Taiwan, Trinidad and Tobago, Rwanda, the United States, and China are the societies, whose populations most support these social values. On the other hand, it also emerges from the *World Values Survey* data that the populations in Lebanon, Algeria, Russia, Yemen, the Ukraine, Iraq, Peru, Libya, Tunisia, and the Philippines least support these twelve core social values, deemed necessary for the good functioning of an Open Society in the long run.

Table 1

Open Personality Index

Country	trust in the state of law	no shadow econ- omy and violence	post material activism	support for de- mocracy	non-violent socie- ty	no xenophobia and racism	trust in transna- tional capital and Universities	Hayek/Max We- ber	supporting gen- der justice	not staying away from environmen- tal activism	caring for de- mocracy	Supporting the Army and sports	Overall Open Personality Index
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Sweden	-0.078	-0.048	2.760	2.941	0.538	0.927	0.400	-0.160	0.729	0.809	-1.363	0.517	7.972
Uzbekistan	7.932	0.242	-1.339	-0.354	-0.059	0.358	0.250	0.651	-0.336	0.021	0.957	-0.783	7.540
Australia	-0.437	0.734	2.528	1.995	0.627	0.805	0.003	0.198	0.712	0.569	-0.876	-0.078	6.780
Netherlands	-1.556	1.824	1.358	2.024	0.543	0.590	0.035	-0.434	0.602	0.610	-0.688	0.398	5.306
Ghana	1.309	2.266	0.601	0.188	-0.616	0.132	1.024	0.298	0.041	-0.419	0.393	-0.128	5.089
Taiwan	-1.559	0.516	3.672	0.936	-0.337	0.574	0.732	0.216	0.071	0.005	-0.429	0.310	4.707
Trinidad and Tobago	-2.434	2.467	1.031	0.764	-0.124	0.989	0.284	0.574	0.554	0.164	-0.042	0.300	4.527
Rwanda	1.542	1.758	2.558	-0.920	-2.303	0.916	-0.104	0.300	0.029	-0.017	0.413	0.155	4.327
United States	-0.775	0.308	1.366	1.144	0.450	0.705	-0.189	0.349	0.573	0.312	-0.165	-0.028	4.050
China	3.743	-0.050	-1.211	-0.262	-0.502	0.627	0.273	0.201	-0.025	-0.221	0.432	0.422	3.427
Japan	0.100	2.046	-0.425	1.196	0.878	-0.341	0.109	-0.045	0.088	0.233	-0.641	-0.266	2.932
Cyprus	-0.116	1.224	-0.180	1.265	0.746	-0.369	-0.134	-0.184	0.364	0.279	-0.432	-0.218	2.245
Estonia	-0.109	-0.128	-0.684	0.925	0.733	-0.454	0.680	-0.342	0.540	-0.104	0.010	0.053	1.120
Zimbabwe	-0.051	0.094	0.588	0.558	-1.246	0.666	0.695	0.189	0.110	-0.427	0.242	-0.341	1.077
Turkey	2.059	2.017	-2.014	-0.242	0.814	-0.666	-0.544	-0.192	-0.294	-0.195	0.055	0.023	0.821
Nigeria	-0.570	0.541	2.170	-0.616	-1.039	-0.022	0.644	-0.220	-0.340	0.052	0.221	-0.134	0.687
Chile	-1.514	-0.036	0.050	0.698	1.039	0.737	-0.320	-0.310	0.514	0.484	-0.641	-0.099	0.602
Colombia	-1.800	0.019	0.877	-0.329	0.496	0.943	0.189	-0.106	0.435	0.494	-0.947	0.234	0.505
Uruguay	-1.433	1.179	-0.743	0.803	0.489	0.966	0.071	-0.545	0.431	0.159	-1.205	0.020	0.192
Malaysia	3.176	-1.027	-0.705	-0.578	-0.169	-1.061	0.131	0.150	-0.254	0.004	-0.004	0.297	-0.040
Romania	-2.423	1.516	-1.298	0.805	0.915	-0.136	-0.199	0.310	0.022	0.161	0.260	0.015	-0.052
Singapore	2.378	-1.152	-0.205	-0.640	-1.037	0.013	0.428	-0.313	0.173	0.097	0.109	0.097	-0.052
Korea, South	-1.199	0.419	-0.096	-0.061	0.849	-0.945	0.533	-0.306	0.156	0.085	0.277	-0.121	-0.409
Poland	-2.431	0.087	-0.558	0.657	0.847	0.667	0.161	-0.675	0.105	-0.104	-0.620	0.505	-1.359
Kyrgyzstan	0.834	-1.033	0.419	-1.378	0.336	-0.488	-0.253	0.001	-0.222	0.036	0.745	-0.361	-1.364
Slovenia	-4.346	0.392	0.673	0.672	0.468	0.489	0.078	-0.147	0.707	0.246	-0.668	0.046	-1.390
Jordan	3.224	1.769	-1.744	-0.882	0.321	-0.728	-1.242	0.060	-1.043	-0.595	-0.565	-0.079	-1.504
Kazakhstan	0.667	-1.010	-1.264	0.005	-0.002	0.133	-0.136	-0.604	-0.002	-0.293	0.750	-0.120	-1.876
Mexico	-2.475	-2.598	1.196	-0.370	0.638	0.534	0.004	0.304	0.488	0.512	-0.497	0.232	-2.032
Belarus	-0.458	-1.315	-0.890	-0.076	0.477	-0.330	0.163	-0.208	0.002	-0.331	0.843	0.082	-2.041
Pakistan	-0.010	1.494	-1.988	-1.318	0.598	0.062	-0.360	0.273	-1.041	0.036	0.059	-0.062	-2.257
Azerbaijan	1.931	2.533	-2.175	-1.023	0.373	-1.314	-0.397	-0.749	-0.929	-0.659	0.563	-0.442	-2.288
Ecuador	-0.759	-0.311	-1.289	-0.500	0.711	-0.607	-0.378	0.201	0.377	0.083	-0.238	0.380	-2.330
Armenia	-1.124	1.167	-2.136	0.125	0.628	-0.704	-0.625	0.146	-0.491	-0.213	0.550	-0.441	-3.118
Philippines	2.131	-5.169	2.016	-1.229	-1.363	0.293	0.109	0.024	-0.322	0.196	0.187	-0.015	-3.142

Table 1 continued

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Tunisia	-0.581	1.348	-2.255	0.006	0.020	-0.048	-1.050	0.592	-0.823	-0.676	0.004	-0.156	-3.619
Libya	0.049	0.720	-0.217	-0.590	-0.292	-1.933	-0.427	0.609	-0.806	-0.294	-0.487	0.000	-3.668
Peru	-3.908	-0.826	-0.587	0.016	0.509	0.573	-0.220	0.172	0.315	0.516	-0.630	0.069	-4.001
Iraq	0.875	-0.199	-1.964	-0.777	-0.683	-0.487	-0.732	0.532	-0.821	-0.486	-0.104	0.031	-4.815
Ukraine	-2.915	-0.872	-1.546	0.051	0.426	0.089	-0.244	-0.567	0.122	-0.229	0.697	-0.036	-5.024
Yemen	-2.379	1.428	-1.587	-0.215	-0.675	-0.450	-1.014	1.213	-0.900	-0.413	-0.313	0.112	-5.193
Russia	-1.830	-2.266	-1.451	-0.293	0.244	-0.228	-0.342	-0.545	0.129	-0.175	0.616	-0.132	-6.273
Algeria	0.487	-3.385	-1.903	-0.224	-0.688	-0.585	-0.461	-0.040	-0.635	-0.396	-0.089	-0.011	-7.930
Lebanon	-2.377	-2.635	-0.300	-0.882	-0.479	-1.148	-0.560	-0.272	-0.288	0.081	-0.152	-0.201	-9.213



Fig. 2. Open Personality Index

Source: author's calculations.

Valuable, as interfaith research and dialogue, comparisons and a mutual better understanding between the different global denominations may be, such activities as yet do not tell us which values, say, guide inhabitants in the rural regions of the Philippines in comparison to the people in Bihar, India, or in the Punjab in Pakistan just across the Indian border, or for that matter in the Nigerian city of Lagos or in Brooklyn, New York or in Amsterdam in the Netherlands. For that reason, it is a welcome development that nowadays empirically oriented political scientists and sociologists have begun to publish comparative studies on their own on comparing religions (see Tausch 2016).

In the following, we apply the logic of our new 'Overall Open Personality Index' to the data contained in the World Values Survey about the major global religious denominations. For reasons of space we can only mention some preliminary results and must leave other aspects for further research. In that context, we could also mention the hypothesis by Lenoir, who maintained that equality, individual freedom, emancipation of women, social justice, the separation of powers, non-violence and pardoning of sins,

and love of your neighbor as the seven major points of the message of Jesus of Nazareth only came to blossom in the movement of the Enlightenment (Lenoir 2008).

For each denomination (and for the people without any denomination), we empirically distinguish between those individuals who say that G'd has a great importance in their lives⁶ and the respective entire population. Our results by and large confirm the findings, reported in the literature (Tausch 2016). Table 2 also confirms the pessimism regarding Confucianism, which on all accounts has the poorest performance of all the major denominations on our combined indicator. This performance, we have to add, does not necessarily reflect a doctrinal or sociological weakness of the community of Confucian believers *per se*, but does reflect the realities of contemporary China which still is a one-party communist state.

Table 2
The paths of Enlightenment: Open Personality Index for the different global denominations (religiously active population and total population)

	Overall Open Personality Index
Jewish global total population in the WVS sample	4.085
Jewish global population in the WVS sample saying G'd important/very important	3.620
Protestant global population in the WVS sample saying G'd important/very important	3.375
Protestant global total population in the WVS sample	3.193
Hindu global population in the WVS sample saying G'd important/very important	3.159
Hindu global total population in the WVS sample	2.793
Buddhist global population in the WVS sample saying G'd important/very important	1.566
Taoist global population in the WVS sample saying G'd important/very important	1.525
Buddhist global total population in the WVS sample	1.233
Taoist global total population in the WVS sample	0.601
No religious denomination global total population in the WVS sample	0.336
Roman Catholic global population in the WVS sample saying G'd important/very important	0.295
Roman Catholic global total population in the WVS sample	0.036
Muslim global population in the WVS sample saying G'd important/very important	-0.974
Muslim global total population in the WVS sample	-1.125
No religious denomination global population in the WVS sample saying G'd important/very important	-1.140
Orthodox global population in the WVS sample saying G'd important/very important	-1.192
Orthodox global total population in the WVS sample	-1.729
Confucian global total population in the WVS sample	-6.555
Confucian global population in the WVS sample saying G'd important/very important	-7.413

On this account, the 5775 year old religion of Judaism emerges as the role model for other religions how to combine religion and the traditions of the Enlightenment (Tausch 2016). It also should be noted that the transformative potential defined as the capacity to legitimize, in religious or ideological terms, the development of new motivations, activities, and institutions which were not encompassed by their original impulses and views is fully vindicated for the case of global Judaism and global Protestantism. Interestingly enough, also Hinduism, Buddhism, Taoism and Roman Catholicism are assigned a positive value on the indicator. It has to be noted as well that religiously committed Protestants and Roman Catholics rank better on our scale than does the overall global Protestant and Roman Catholic population, indicating how much already traditions of the Enlightenment took hold of the two major Western Christian denominations.

4. Conclusions and prospects

In our essay, we evaluated the latest wave of *World Values Survey* data. Our article is based on a standard IBM-SPSS XXII analysis of these data. In view of the sometimes counter-intuitive results reported here, we should emphasize once again that we are dealing only with the subjective views of representative populations around the globe regarding core values of an *'Open Society'*. We are not saying that, say, Sweden and Uzbekistan are more 'open societies' than, say, Australia and the Netherlands. But what we are saying is that the *World Values Survey* data suggest that according to the values:

- 1. trust in the state of law;
- 2. no shadow economy and violence;
- 3. post material activism;
- 4. support for democracy;
- 5. non-violent society;
- 6. no xenophobia and racism;
- 7. trust in transnational capital and Universities;
- 8. Hayek/Max Weber;
- 9. supporting gender justice;
- 10. not staying away from environmental activism;
- 11. caring for democracy;
- 12. supporting the army and sports.

The populations in several transition countries and developing countries today already are characterized by a higher 'Overall Open Personality Index' than in countries, generally regarded as successful cases of transition and democratization, such as Romania; Singapore; Korea, South; and Poland. The rankings, presented in this article are based on legitimate factor analytical procedures, applied to the World Values Survey data. Combining the mentioned twelve core values, the populations of Uzbekistan, Ghana, Taiwan, Trinidad and Tobago, Rwanda, China, Zimbabwe, Turkey, Nigeria, Colombia, and Malaysia are already ahead of more successful democratization and transition cases.

Very large arrays of negative phenomena, which cannot be overlooked anymore by contemporary social science, are clearly associated with the loss of religion. This holds for the majority of nations around the world, irrespective of the predominant religious denominations. Negative phenomena are on the rise especially in the Western countries and in the former communist countries of Eastern Europe, where they spread most rapidly, and where they endanger, in the end, the very existence of the Open Society.

An analysis of the emerging trends regarding the relationship of value structures to economic convergence also seems to suggest that in contrast to Inglehart's secularist interpretation, value change is becoming destructive indeed and undermines the very basis of economic growth in the West. Trust and work ethics all have an influence on the economic growth rate of today: no trust in the state of law, distrust in transnational capital and Universities, and lack of entrepreneurial spirit are among the major growth bottlenecks, while our Open Personality Index is positively related to the economic convergence process between the nations since the global economic crisis of 2007/2008. International economic data (see https://uibk.academia.edu/ArnoTausch/Documentationfor-books-and-articles) also suggest that the shifting of global economic weights away from Europe and benefitting the world of Islam and the world of immigration is absolutely correct.

NOTES

- ¹ http://ec.europa.eu/public_opinion/index_en.htm.
- ² http://lcsr.hse.ru/en/inglehart.
- ³ http://www.worldvaluessurvey.org/WVSContents.jsp?CMSID=WhatWeDo.
- ⁴ http://www.worldometers.info/world-population/.
- ⁵ http://www.oic-oci.org/oicv2/home/?lan=en.
- ⁶ The WVS item about the importance of G'd is a 10-point scale. People choosing a value of seven or more on the scale were classified as the population with stronger religious feelings. We are aware of the fact that such a distinction might be arbitrary. It should be emphasized, however, that also people NOT belonging formally to any religious denomination may be religious persons, and indeed they often are!
- ⁷ Poorer nations grow faster than richer countries. The well-known facts of economic convergence, analyzed by Barro, suggest testing the effects of social values on economic growth by correlating social values with economic convergence, measured here by the residuals from the non-linear function of average economic growth rates, predicted by the natural logarithm of GDP per capita and GDP per capita square in the initial phase of the growth process. Other procedures would bias the results in favor of poorer nations, whose economic growth 'automatically' tends to be higher; see also Tausch, Heshmati, and Karoui 2014.

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