COMPARISON OF THE PREDICTIVE POWER AND PREDICTABILITY OF THE INGLEHART AND SCHWARTZ VALUE CONCEPTS
(progress report)

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The Problem

- two theories behind Inglehart and Schwartz value concepts;
- two instruments of measuring values;

What are the links between concepts?

Which concept is more fruitful in terms of predictive power?

If both approaches have the same value in different fields, what are those fields?

Literature: *critique of value concepts*

- **Inglehart's value concepts critique**:
  Klein 1995; Witte 1996; Davis and Davenport 1999; Clarke *et al.* 1999; Hansen and Tol 2003 and others

- **Schwartz's value concepts critique:**
  Relatively low number of criticism, mostly considering measurement details, and weak evidence considering conceptual and methodological problems

Literature: *Comparisons of concepts*

- **Inglehart and Oyserman, 2004** (correlation of one Inglehart's culture-level and one Schwartz' culture level dimension);
- **Schwartz, 2004** (correlation of all culture level dimensions)
- **Welzel, 2009** (correlation of one Inglehart dimension and two Schwartz value dimensions)
- **Held, Muller, Deutsch, Grzechnik & Welzel, 2009** (correlations of all four dimensions)
- **Schmidt (in press)** – compared links of four dimensions with the several external variables
- **Beckers et al. (in press)** – compared four dimensions on the individual level on the base of the small web-survey

A very few <u>systematic</u> comparisons of Schwartz and Inglehart value concepts

Strategy: to analyze all dimensions in both original and alien analytical frameworks

- e.g. to conduct Inglehart analytic strategy for Schwartz dimensions and vice versa.

- It tests issues which are not included in the original theories (e.g. correlation of Inglehart's dimensions with individual's gender), but it creates equal conditions for fair and competitive comparison of the two value concepts

Steps:

- Choose the two "model" papers: Inglehart, Baker, 2000 and Schwartz, 2007;

- Conduct all the analytical steps mentioned in both "model" papers for both sets of dimensions;

- Contrast the results of analysis

The resulting content of analysis

1. Reproduce Inglehart's and Schwartz's value dimensions as close to the original ones as it's possible
2. Reliability and validity tests (from Schwartz, 2009)
3. Country-level correlations and regression models (from Inglehart, Baker, 2000)
4. Individual-level correlations and models (from Schwartz, 2009);
5. Contrasting individual-level and country-level in multilevel analysis (to be added later).

Working hypotheses

- Inglehart value concepts have stronger links on the country level (cultural zones, GDPpc, labour force, etc.) and Schwartz value concepts have stronger links on the individual level (age, gender, education, income, etc.);
- Both sets of dimensions function quite similar since they correlate with each other, but there are differences on country and individual level;
- Schwartz's value concepts have better psychometrical characteristics than Inglehart's ones.

Data

- 5th Wave of World Values Survey, including national samples from 47 countries

- total sample 60025 respondents who have both Schwartz's and Inglehart's scores.

- country specific weight was used for all analyses

Reproducing Inglehart's Traditional/Secular-Rational and Survival/Self-Expression dimensions

- 2 value variables included in integrated data file have huge amount of missing data (above 60%);

- TO BE CONSTRUCTED 2 value dimensions on 10 items described in Inglehart, Welzel, 2005 Internet-appendix;

- the Inglehart's factors couldn't be reproduced within the 5th wave data only

- That's why – the factor analysis on the integrated data from five waves of WVS and after that we have left only the data gathered in 5th wave

- Satisfactory result - the resulting factor scores are correlated with those included in the dataset +0.95 (N=37417)

Reproducing Inglehart's dimensions: factor loadings

	Component	
	1	2
	Trad/Sec-Rat	Surv/Self-Ex
#1 Importance of God in life	0,67	0,27
#2 Teach Children Obedience and Faith rather than Independence and Determination	0,54	0,30
#3 Disapproval of Abortion	0,55	0,48
#4 National Pride	0,64	-0,16
#5 Respect for Authority	0,52	-0,04
#6 Reversed materialist/postmaterialist index (4-item)	-0,07	0,53
#7 Feeling of Unhappiness	-0,40	0,50
#8 Disapproval of Homosexuality	0,37	0,64
#9 Abstaining from Signing Petitions	0,08	0,54
#10 Distrusting in Other People	0,06	0,34
Dispersion explained, %	20	18

Number of respondents in analysis is 115632, number of countries in analysis 84.

Mean substitution was used for the missing values.

Reproducing Schwartz's Conservation/Openness to change and Self-Enhancement/Self-Transcendence dimensions

- Measured by 10-item shortened and modified Portrait Values Questionnaire in WVS;
- Following Schwartz, no factor analysis but arithmetic indices, e.g. averages of the raw items
- **Conservation/ Openness to change = Self-direction + Stimulation + Hedonism – Security – Conformity – Tradition.**
- **Self-Enhancement/Self-Transcendence = Benevolence + Universalism – Achievement – Power.**
- Correction for response style – centering
- Resulting scores are correlated with ones made in Welzel, 2009 on 0.97(n=60344)
- Correlate with each other on r=0.26 (n=60344)

From raw items to Schwartz's dimensions

Indicators	Values	Categories for higher order dimensions
Living in secure surroundings is important to this person; to avoid anything that might be dangerous.	Security	Conservation
Tradition is important to this person; to follow the customs handed down by one's religion or family.	Tradition	
It is important to this person to always behave properly; to avoid doing anything people would say is wrong	Conformity	
It is important to this person to think up new ideas and be creative; to do things one's own way.	Self-direction	Openness to change
Adventure and taking risks are important to this person; to have an exciting life.	Stimulation	
It is important to this person to have a good time; to "spoil" oneself.	Hedonism	
It is important to this person to be rich; to have a lot of money and expensive things.	Power	Self-Enhancement
Being very successful is important to this person; to have people recognize one's achievements.	Achievement	
It is important to this person to help the people nearby; to care for their well-being.	Benevolence	Self-Transcendence
Looking after the environment is important to this person; to care for nature.	Universalism	

Country-level indices

- For country-level scores we used averaged individual-level Inglehart's factor scores and averaged Schwartz's indices.

- Inglehart's country averages correlate to country-level factor scores on 0.97

- Schwartz's country averages correlate to the similar aggregates based on data from European Social Survey (**0.88** for Conservation/Openness to change and **0.67** for Self-enhancement/Self-Transcendence, n=18) and Schwartz Value Survey (**0.70** and **0.64** consequently, n=33).

Correlations between Inglehart's and Schwartz's value dimensions within the data analyzed

	Inglehart Traditional/Secular-rational	Inglehart Survival/Self-Expression
Schwartz Conservation/ Openness to change	0,42* (0.25*)	0,73*(0.29*)
Schwartz Self-enhancement/ Self-Transcendence	0,35* (-0.02)	0,65* (0.14*)

Correlations of the aggregated on the national level values (n=46),
in parenthesis – correlations on the individual level (n=60009).

1. RELIABILITY AND VALIDITY TESTS OF INGLEHART AND SCHWARTZ SCALES

Cronbach Alpha: whether indices are internally consistent within countries

| Value index	N of items in index	Overall Cronbach Alpha in all countries	N of countries where..				N of countries
			α<=0.3 "not reliable"	0.3<α<=0.5 "low"	0.5<α<=0.6 "acceptable"	α>0.6 "good"	
Schwartz Conservation/ Openness to change	6	0.54	4	25	12	6	47
Schwartz Self-enhancement/ Self-Transcendence	4	0.52	5	28	10	4	47
Inglehart Traditional/ Secular-rational	5	0.59	18	19	8	2	46
Inglehart Survival/ Self-expression	5	0.34	36	11	0	0	45

Individual level- internal consistency

Reliability (consistency)

- Schwartz's dimensions are more consistent than Inglehart's ones.

- The least consistent dimension is Inglehart's Survival/Self-Expression, and the most consistent is Schwartz's Conservation/ Openness to change
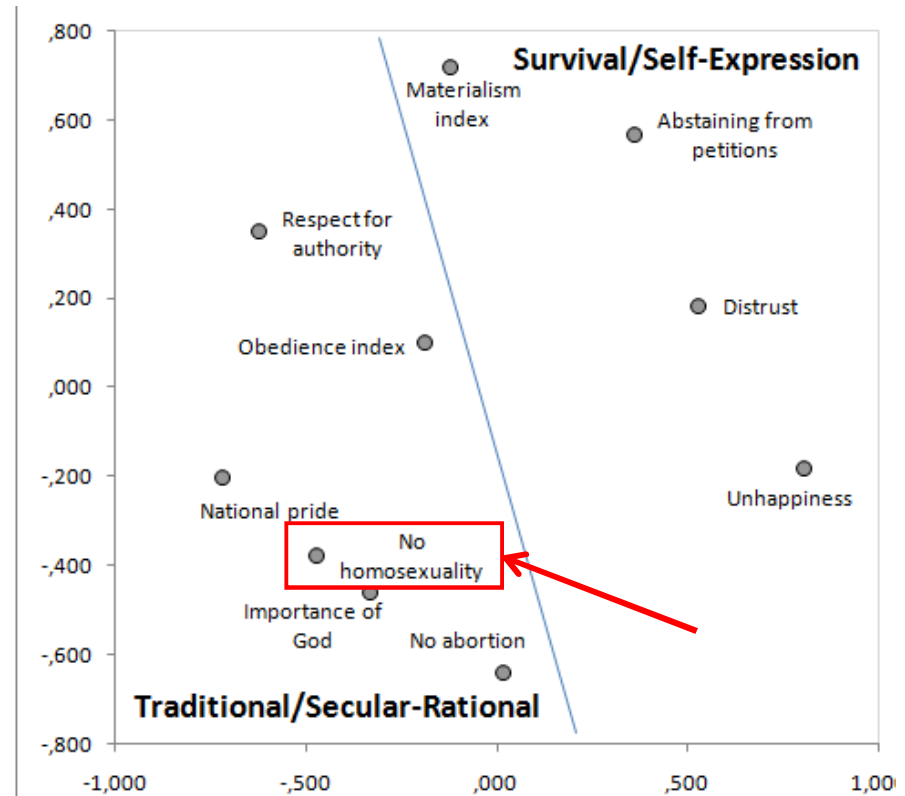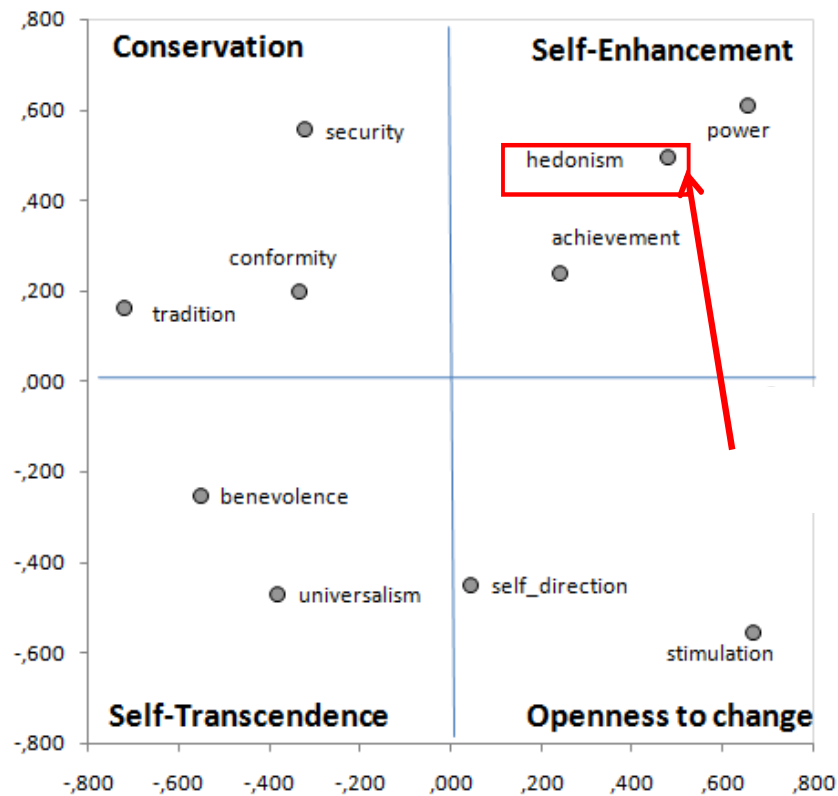
Multidimensional scaling as a tool of assessing construct validity

Average overall structures of value dimensions
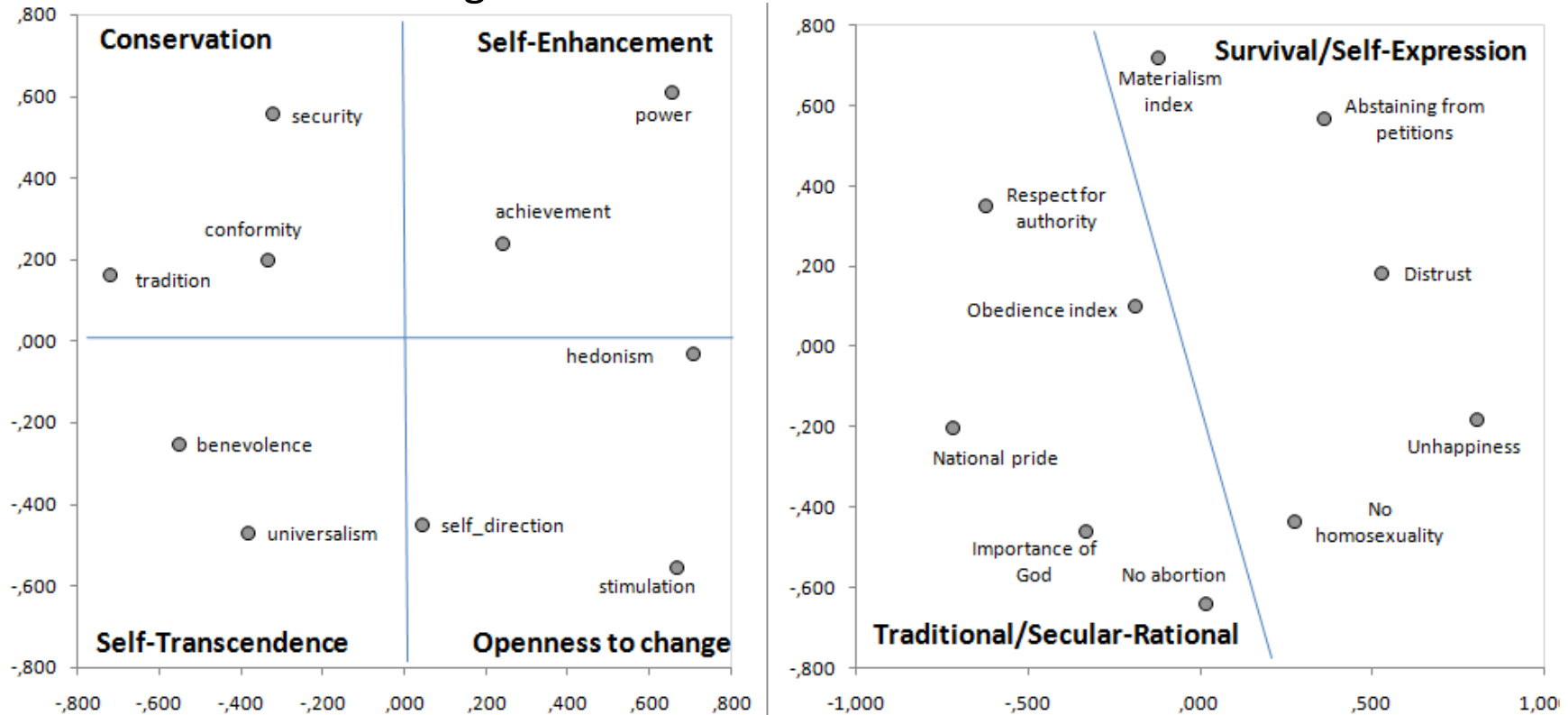
- Schwartz data from 5th wave of WVS because no more data are available, Inglehart's based on the data from 84 countries (as factor analysis, as original factors to be reproduced)
- The whole structure

Example of Structure Deviations

Frequency of deviated items
(N of countries)

Schwartz's items		Inglehart's items	
Achievement	18	Disapproval of homosexuality	11
Self-direction	13	Respect for authority	8
Hedonism	10	Materialism index	7
Security	6	Disapproval abortion	6
Tradition	5	Abstaining from petitions	6
Universalism	5	Importance of God	5
Benevolence	3	National pride	5
Conformity	3	Distrust	4
Stimulation	2	Obedience index	3
Power	0	Unhappiness	1
Total deviations	**65**	**Total deviations**	**56**

Number of within-country deviations from the original structure

|	Schwartz's scales	Inglehart's scales
Advanced industrial countries*	0,6	1,1
Latin America countries	0,8	1,2
Ex-communist countries	2,1	1,0
Islamic countries countries	2,0	1,0
African countries	2,5	1,2
South Asian countries	2,0	2,5
All countries	**1.48**	**1.30**

* Includes Non-communist Europe, North America, Australia, Japan and South Korea

Construct validity
(configural equivalence)

- Results are contradictory since Inglehart's dimensions are not openly assigned any measurement assumptions, except those included in factor analysis procedure;
- If both sets of dimensions are treated equally as having two consistent dimensions (2 except for 4 regions on the space) Schwartz's ones have better performance;
- It needs to be conceptualized in more detailed way.

2. COMPARISONS OF COUNTRY-LEVEL PREDICTABILITY OF INGLEHART AND SCHWARTZ DIMENSIONS

Mapping countries with averages of value dimensions
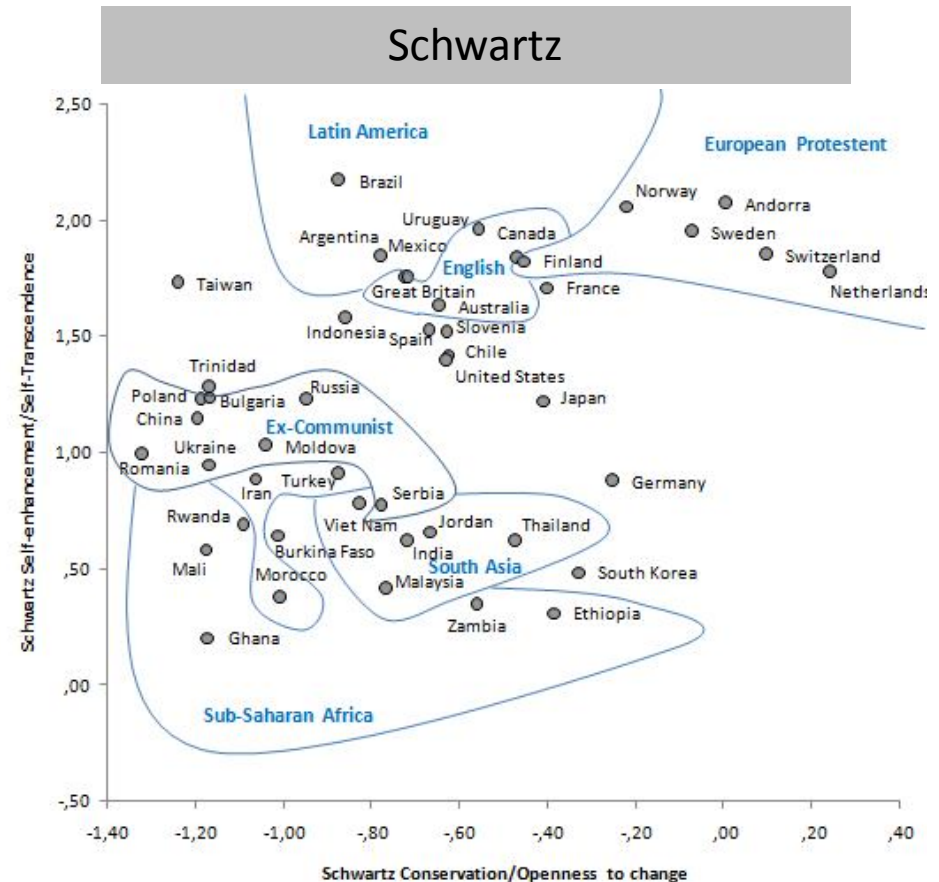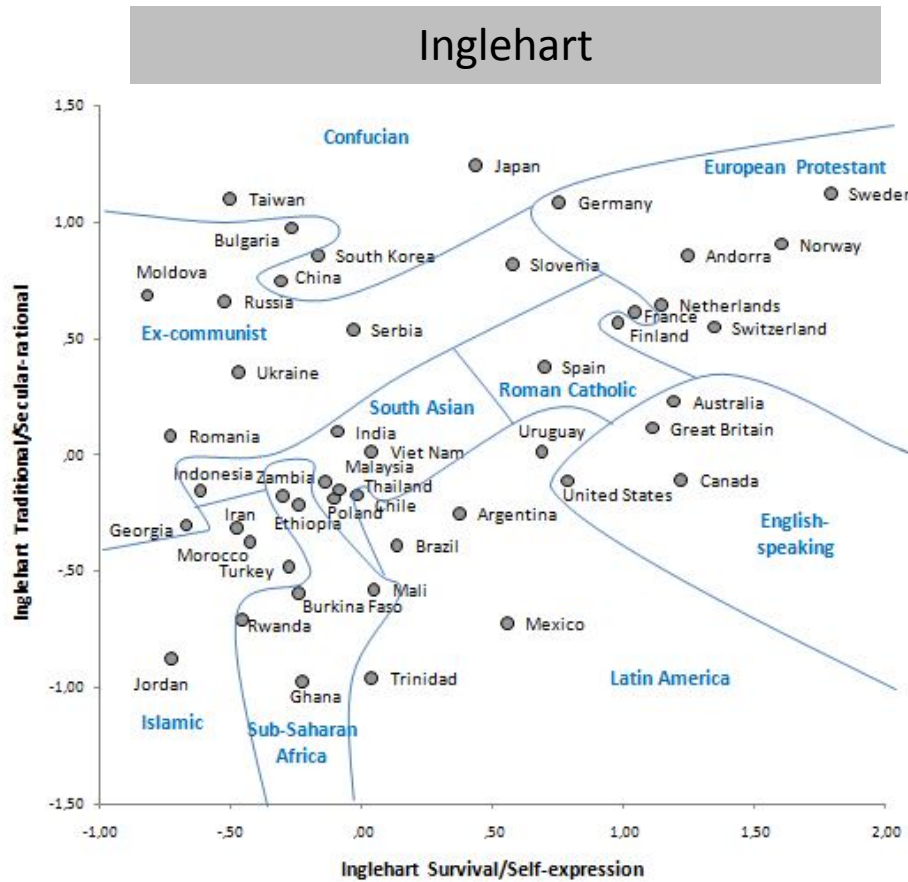
Mapping countries with MDS
(10 raw items as input)

Inglehart
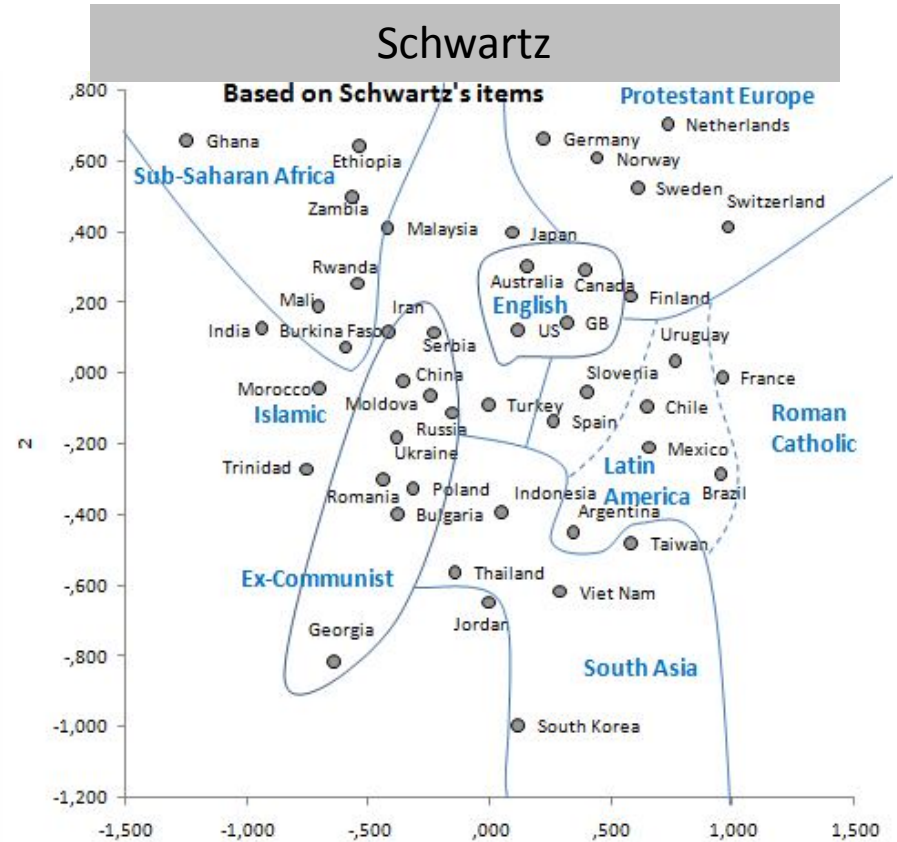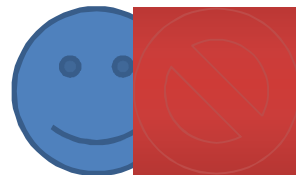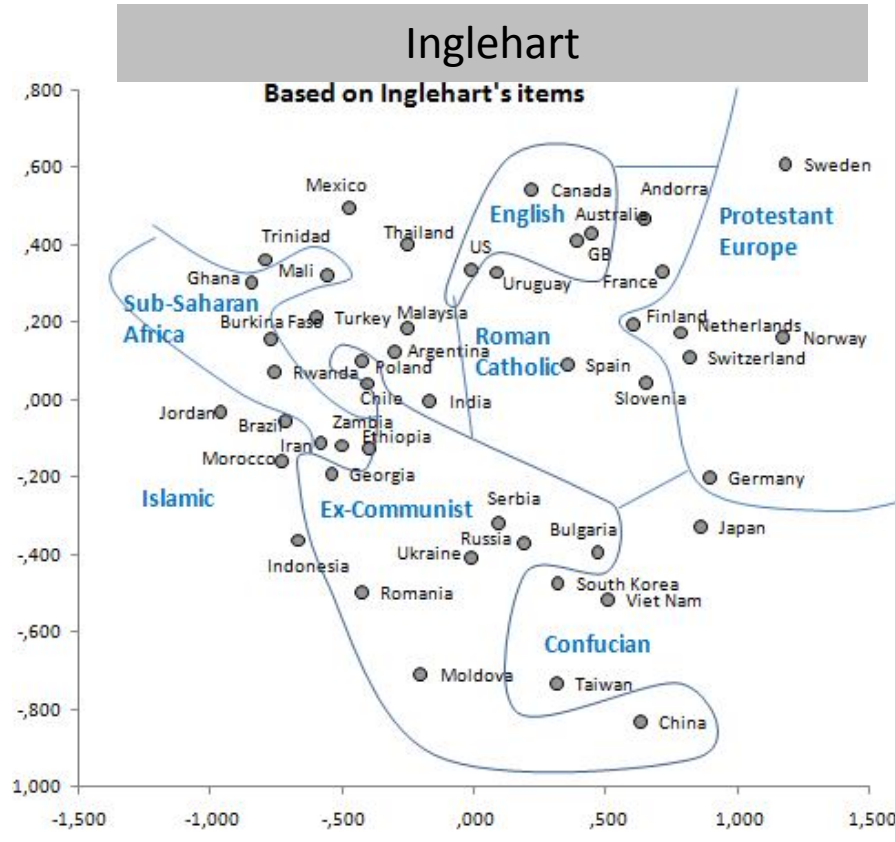
Schwartz

Country-level correlations of Schwartz and Inglehart value dimensions and some characteristics of countries

	Schwartz Conservation /Openness to change	Schwartz Self-enhancement/Self-Transcendence	Inglehart Traditional/Secular-rational	Inglehart Survival/Self-expression	N countries
School enrolment, secondary (% gross), 1990	0,43*	0,64*	0,60*	0,46*	39
GDP per capita, PPP (current international $), 1990	0,63*	0,62*	0,56*	0,84*	44
GNI per capita, Atlas method (current US$), 1990	0,71*	0,58*	0,63*	0,86*	39
Fertility rate, total (births per woman), 1990	**-0,25**	-0,62*	-0,65*	-0,44*	44
Employment in agriculture (% of total employment), 1990	-0,37*	-0,51*	**-0,22**	-0,65*	32
Employment in industry (% of total employment), 1990	**-0,10**	**0,10**	**0,25**	**0,06**	32
Employment in services (% of total employment), 1990	0,56*	0,62*	**0,06**	0,78*	32

* Correlation is significant on 0.01 level.

Country-level regressions on value dimensions

Dependent variable: one of 4 value dimensions

Independent variables:

Model 1

- GDP per capita, PPP (current international $), 1990
- Employment in industry (% of total employment), 1990
- Dummy for one of the cultural zones

Model 2

- GDP per capita, PPP (current international $), 1990
- Employment in services (% of total employment), 1990
- Dummy for one of the cultural zones

Different model for each of 10 cultural zones; models 1 and 2, for 4 dimensions.

Total 80 regressions.

Part of country-level regressions

	Schwartz Conservation/Openness to change		Schwartz Self-enhancement/Self-Transcendence		Inglehart Traditional/Secular-rational		Inglehart Survival/Self-expression	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Cultural zone: Ex-Communist	**−0,60***	**−0,37***	**0,49***	**0,08**	**0,10**	**0,40***	**−0,16**	**−0,25***
GDP per capita, PPP, curr.int.$	0,79*	0,59*	0,09	0,64*	1,04*	0,63*	0,67*	0,80*
Employment in industry, %	—	−0,14	—	−0,04	—	0,04	—	−0,05
Employment in services, %	−0,38	—	0,85*	—	−0,63*	—	0,20	—
Adjusted R²	*0,55*	*0,53*	*0,52*	*0,32*	*0,53*	*0,42*	*0,76*	*0,75*
Cultural zone: Protestant Europe	**0,35***	**0,29**	**0,00**	**−0,03**	**0,12**	**0,21**	**0,17**	**0,12**
GDP per capita, PPP, curr.int.$	0,24	0,49*	0,35	0,64*	1,01*	0,40*	0,46*	0,79*
Employment in industry, %	—	−0,21	—	−0,02	—	0,17	—	−0,1
Employment in services, %	0,25	—	0,36	—	−0,72*	—	0,38*	—
Adjusted R²	*0,44*	*0,45*	*0,39*	*0,32*	*0,54*	*0,30*	*0,76*	*0,70*
Cultural zone: English	**−0,29**	**−0,32***	**−0,09**	**−0,06**	**−0,34***	**−0,38***	**−0,04**	**−0,03**
GDP per capita, PPP, curr.int.$	0,59*	0,84*	0,39	0,65*	1,22*	0,73*	0,60*	0,88*
Employment in industry, %	—	−0,29*	—	−0,03	—	0,09	—	−0,12
Employment in services, %	0,25	—	0,38	—	−0,68*	—	0,37*	—
Adjusted R²	*0,43*	*0,48*	*0,39*	*0,32*	*0,63*	*0,39*	*0,74*	*0,69*

*The coefficient is significant, p<0.05.
"curr.int.$" means "in current international US dollar"; employment percentage is the share of the whole national labor force in 1990.
N of countries in every of 80 regression models is 46

Summing up the 80 regressions

	Schwartz Conservation/Openness to change	Schwartz Self-enhancement/Self-Transcendence	Inglehart Traditional/ Secular-rational	Inglehart Survival/ Self-expression
GDP per capita, PPP, curr.int.$	+ in 19models	+ in 12models	+ in 20models	+ in 20models
Employment in industry, %	– in 1 model	in 0 models	– in 6 models	in 0 models
Employment in services, %	in 0 models	+ in 2 models	– in 4 models	+ in 8 models
Cultural zone: Ex-Communist	– –	+	+	–
Cultural zone: Protestant Europe	+			
Cultural zone: English	–		– –	
Cultural zone: Latin-American		+ +		
Cultural zone: African		– –		
Cultural zone: South Asian				
Cultural zone: Orthodox	– –			– –
Cultural zone: Confucian			+	
Cultural zone: Islamic				
Cultural zone: Roman Catholic		+ +	+	+

Summing up regressions

- Inglehart's dimensions are better predicted with wealth of nations, than Schwartz's dimensions

- Inglehart's dimensions are better predicted with labor force structure whereas Schwartz's dimensions do not depend on it;

- Inglehart's dimensions are able to identify Confucian cultural zone and Schwartz's ones are not.

- Schwartz's dimensions are able to identify Protestant, Latin-American and African cultural zones, whereas Inglehart's dimensions are not.

Models combining wealth of nations, labor force structure, education enrolment and 4 cultural zones

Model 1: only wealth of nation,

Model 2: wealth of nation and share of industrial workers;

Model 3: wealth of nation and share of services workers;

Model 4: wealth of nation and enrolment in secondary education;

Model 5: education enrolment and 4 cultural zones;

Model 6: wealth of nation, employment in industrial sector and 4 cultural zones.

Regressions coefficients

	Conservation / Openness to change					Self-Enhancement / Self-Transcendence			
	Mod 1	Mod 2	Mod 3	Mod 4		Mod 1	Mod 2	Mod 3	Mod 4
GDP per capita, PPP, curr.int.$	0,63*	0,68*	0,48*	0,58*		0,62*	0,62*	0,35	0,24
Employment in industry, %	-	-0,24	-	-0,30		-	-0,02	-	-0,24
Employment in services, %	-	-	0,21	-		-	-	0,36	-
Secondary school enrollment, %	-	-	-	0,16		-	-	-	0,59*
Cultural zone: Ex-Communist	-	-	-	-		-	-	-	-
Cultural zone: Protestant Europe	-	-	-	-		-	-	-	-
Cultural zone: Confucian	-	-	-	-		-	-	-	-
Cultural zone: Roman Catholic	-	-	-	-		-	-	-	-
R-sq	**0,38**	**0,42**	**0,38**	**0,40**		**0,37**	**0,34**	**0,41**	**0,45**

	Traditional / Secular-Rational					Survival / Self-Expression			
	Mod 1	Mod 2	Mod 3	Mod 4		Mod 1	Mod 2	Mod 3	Mod 4
GDP per capita, PPP, curr.int.$	0,56*	0,53*	1,09*	0,27		0,84*	0,86*	0,58*	1,06*
Employment in industry, %	-	0,15	-	0,00		-	-0,11	-	0,00
Employment in services, %	-	-	-0,73*	-		-	-	0,36*	-
Secondary school enrollment, %	-	-	-	0,40		-	-	-	-0,30
Cultural zone: Ex-Communist	-	-	-	-		-	-	-	-
Cultural zone: Protestant Europe	-	-	-	-		-	-	-	-
Cultural zone: Confucian	-	-	-	-		-	-	-	-
Cultural zone: Roman Catholic	-	-	-	-		-	-	-	-
R-sq	**0,30**	**0,29**	**0,54**	**0,32**		**0,70**	**0,70**	**0,75**	**0,72**

Some inferences

- Wealth of nations as measured by GPD per capita is steadily significant in the majority of models

- Labor force structure is significant only in models including Inglehart's value dimensions

- For Inglehart's dimensions in Models 5 and 6 more cultural zones have significant coefficients; Schwartz's value dimensions are less successful in these models

Comparing of R-squares

	Model 3 (GDPpc +industry sector)	Model 4 (GDPpc +industry sector +4 cultural zones*)	Difference (impact of cultural zone)
Schwartz Conservation/ Openness to change	0.42	0.58	0.16
Schwartz Self-enhancement/ Self-Transcendence	0.34	0.48	0.14
Inglehart Traditional/ Secular-rational	0.29	0.56	0.17
Inglehart Survival/ Self-expression	0.70	0.79	0.09

*Dummy variables for Ex-communist, Protestant, Confucian and Roman Catholic cultural heritage zones.

- **in contrast to other value dimensions Survival/Self-Expression values has a tiny impact from cultural variables (zones);**
- **Survival/Self-Expression values have the stronger links with wealth, but very weal impact from cultural zones**

3. INDIVIDUAL-LEVEL CORRELATIONS

Individual-level correlations (number of countries where correlation is above 0.2)

Dimension	Age	Gender	Education	Income
Schwartz Conservation/ Openness to change (47 countries)	**-0.23* (33)** 47(same direction)	**-0.11* (3)** 47(same direction)	**0.17* (19)** 46(same direction)	**0.15* (10)** 44(same direction)
Schwartz Self-enhancement/ Self-Transcendence (47 countries)	**0.24* (20)** 47(same direction)	**0.10* (2)** 44(same direction)	**0.04* (2)** 9(same direction)	**-0.08* (6)** 41(same direction)
Inglehart Traditional/ Secular-rational (46 countries)	**0.04* (10)** 10(same direction)	**-0.02* (0)** 36(same direction)	**0.20* (7)** 35(same direction)	**0.03* (4)** 25(same direction)
Inglehart Survival/ Self-expression (45 countries)	**-0.01 (18)** 43(same direction)	**-0.01* (0)** 29(same direction)	**0.24* (31)** 47(same direction)	**0.22* (28)** 45(same direction)
N respondents	59847-64244	59961-64386	59622-63960	53805-57439

•Correlation is significant at p>0.01. In parenthesis N of countries with correlations above 0.2 by absolute values.

•Education is the variable x025 "highest education level attained", where 1 – "inadequately completed elementary education" and 8 – "university degree"; Income is 10-point scale of incomes, which is country-specific variable (1 for lower stratum within country 10 for higher).

Some inferences

- Schwartz's dimensions are strongly correlated to the age and gender and Inglehart's ones don't;
- Schwartz's Self-Enhancement/Self-Transcendence and Inglehart's Traditional/Secular-rational dimensions are not steadily correlated to the individual income;
- Inglehart's Survival/Self-expression dimension demonstrate stronger correlations with individual education and income.

Conclusions

- **Reliability/Consistency:** Schwartz's dimensions have better performance, as hypothesized

- **Construct Validity:** contradictory results, needed to be incorporated into latent variables theory

- **Nation-level conclusions:** GDPpc influences both sets, labor force only Inglehart's, cultural zones – both, but Schwartz's: Protestant, Latin American and African, Inglehart's: Confucian.

- **Individual-level conclusions:** Schwartz's dimensions are correlated to age and gender and Inglehart's ones are not, but it's more sensitive to respondent's income.

Future steps

- Make comprehensive literature review;

- Explore power of each dimension as independent variable (e.g. its predictive power) for attitudinal variables;

- Conduct multilevel analysis (age, gender, education, income and GDPpc, cultural zone)

THANK YOU FOR YOUR ATTENTION!

Cultural zones

- **Ex-Communist:** Ukraine, Serbia, Russian Federation, Romania, Moldova, Georgia, Bulgaria, Slovenia, Poland, China;
- **Protestant Europe:** Switzerland, Sweden, Norway, Netherlands, Germany, Finland;
- **English-speaking:** United States, United Kingdom, Canada, Australia;
- **Latin-American:** Uruguay, Trinidad and Tobago, Mexico, Chile, Brazil, Argentina;
- **African:** Zambia, Rwanda, Mali, Ghana, Ethiopia, Burkina Faso;
- **South Asian:** Vietnam, Thailand, South Korea, Malaysia, Japan, Indonesia, India;
- **Orthodox:** Ukraine, Serbia, Russian Federation, Romania, Moldova, Georgia, Bulgaria;
- **Confucian:** South Korea, Japan, China;
- **Islamic:** Turkey, Morocco, Mali, Malaysia, Jordan, Iran, Indonesia (we added it as it is important and it is presented on later Inglehart's value maps and nowadays it is clear that this part of the world has a special and unique culture, which is different from others);
- **Roman Catholic:** Spain, Slovenia, Poland, Mexico, France, Chile, Brazil, Argentina, Andorra.