

# **How to explain variation in institutional trust in the world, a 4-level longitudinal model**

By

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# Outline

- The question
- The data
- The problems to solve
- The methods used
- The analysis:
  - ◆ Variance at the four levels
  - ◆ What are the predictors?
  - ◆ Is the WorldWide governance index related to Trust?
- Discussion
- Conclusion & next steps

# The questions

- Is trust really declining?
  - ◆ Institutional trust as an essential ingredient of society.
  - ◆ Therefore, institutional trust as a collective property of societies, should not decline over time.
- Is trust similar for all countries and the various groups within societies?
  - ◆ Is trust related to the quality of governances, to economic development & inequalities, to electoral systems, etc.?
- Is change in trust over time similar for all institutions?
  - ◆ Do events impact trust in some institutions more than others? How does society recuperate from such events?

# The Data

- **The Barometers:**
  - ♦ Latino Barometro (1995-2013)
  - ♦ East Asia, Eurasia, Asian Barometers (2001-2012)
  - ♦ Arab Barometer(2006-2014)
  - ♦ Africa Barometer (2001-2015)
  - ♦ Caucasus Barometer
  - ♦ New Russia Barometer
  - ♦ New Europe Barometer
  - ♦ EuroBarometer (1985, 1997-2015)
- **LAPOP (2004-2014)**
- **World Values surveys (WVS)**
  - ♦ Surveys from 1981 to 2014.
- **International Social Survey Program (ISSP)**
  - ♦ Surveys on Religion 1998, 2008.

# The Data

The files used in this presentation

- The Barometers:
  - ♦ Latino Barometro (1995-2013), 2015 done
  - ♦ East Asia Barometer, Eurasia, Asian Barometer (2001-2012)
  - ♦ Arab Barometer (2006-2014)
  - ♦ Africa Barometer (2001-2015)
  - ♦ Caucasus Barometer, done
  - ♦ New Russia Barometer
  - ♦ New Europe Barometer
  - ♦ EuroBarometer (1985, 1997-2015)
- LAPOP (2004-2014)
- World Values surveys (WVS)
  - ♦ Surveys from 1981 to 2014.
- International Social Survey Program (ISSP)
  - ♦ Surveys on Religion 1998, 2008.

# The problems

## The measurement of trust

- Not all questions are on the same scale:
  - ◆ Most Barometers & World Values Survey: 4-points scale.
  - ◆ Lapop: 7-points scale.
- Current solution: Put all scales on a seven-point scale (1,2,3,4=1,3,5,7).
- Introduce a variable at the survey level that indicates the type of scale that was used.

# The problems:

## The measurement of Trust

- Different institutions surveyed at different periods in different countries.
- Solution: Multilevel longitudinal analysis of repeated measures.
  - ◆ When a new institution appears, a new variable is created. At the end, each answer to a trust-related question is coded for the institution on which the level of trust is asked.
  - ◆ The institutions are grouped *a posteriori* in order to have an acceptable number of categories (from 60 institutions to 14 categories):
    - Governments (federal, provincial, local); public administration (public service, civil service, etc.); International organizations (UN, IMF, World Bank, etc.), etc.

# The problems:

## Independent variables at the individual level

- Age and sex: ok but age sometimes in categories.
- Level of education and occupation: it is possible to put all the information on the same scale but do they “mean” the same thing in different parts of the world? 7 polls with info on education missing.
- Present in many surveys but not in all:
  - ◆ **Income:** subjective income, subjective social class, ownership (bicycle, car, house, etc.).
  - ◆ **Support for democracy, satisfaction with democracy.**



# The problems:

## Independent variables at the country-year level

- **Development indexes:**
  - ◆ Need to make choices: Gini, HDI,...
  - ◆ Not available for all countries and years.
- **Measures of democratic development?**
  - ◆ Before democracy, no surveys, less reliable data?
  - ◆ Electoral systems, elections, etc.: Not available for all countries.
  - ◆ WorldWide Governance index: OK
- **Information on international and national events in various countries:**
  - ◆ Need for research in various data bases.

## The data

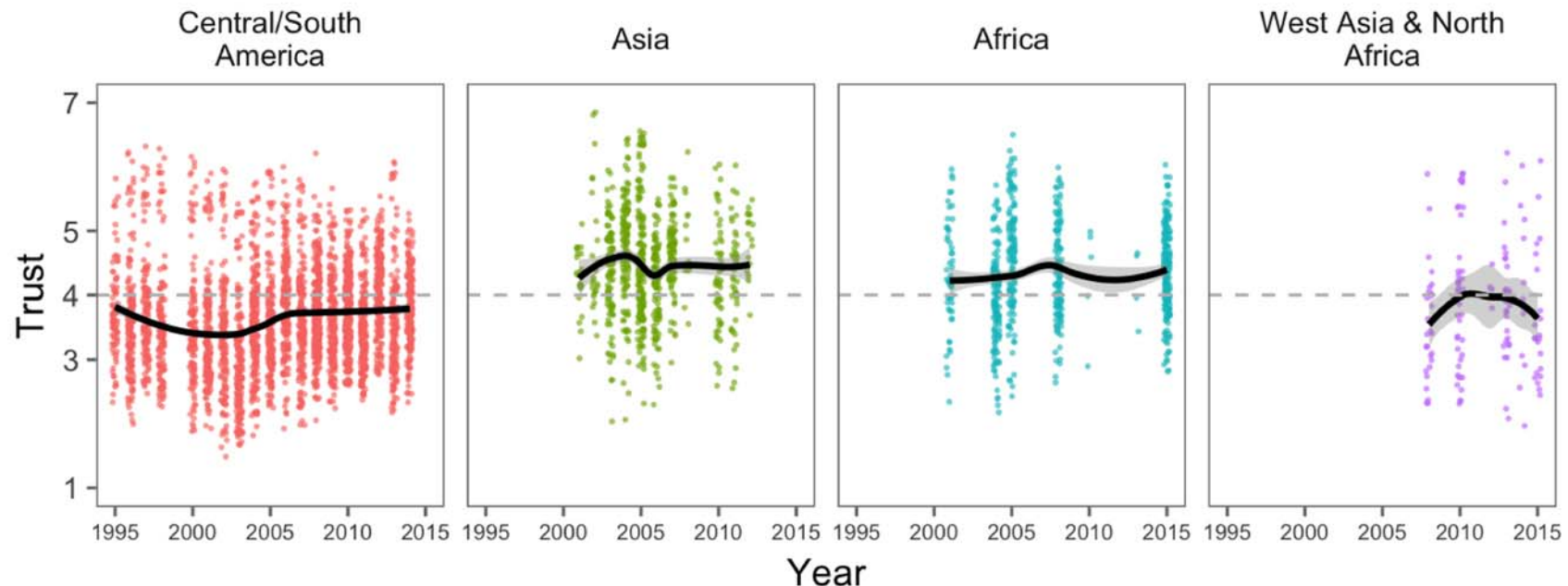
A combination of 635 surveys conducted in South and Central America, Asia, Africa and WANA (West Asia & North Africa)

- 98 countries/121 units.
- 560 country - years/635 surveys.
- 827,131 respondents.
- 9,747,094 measures pertaining to
  - ◆ 60 different institutions.

# The analyses

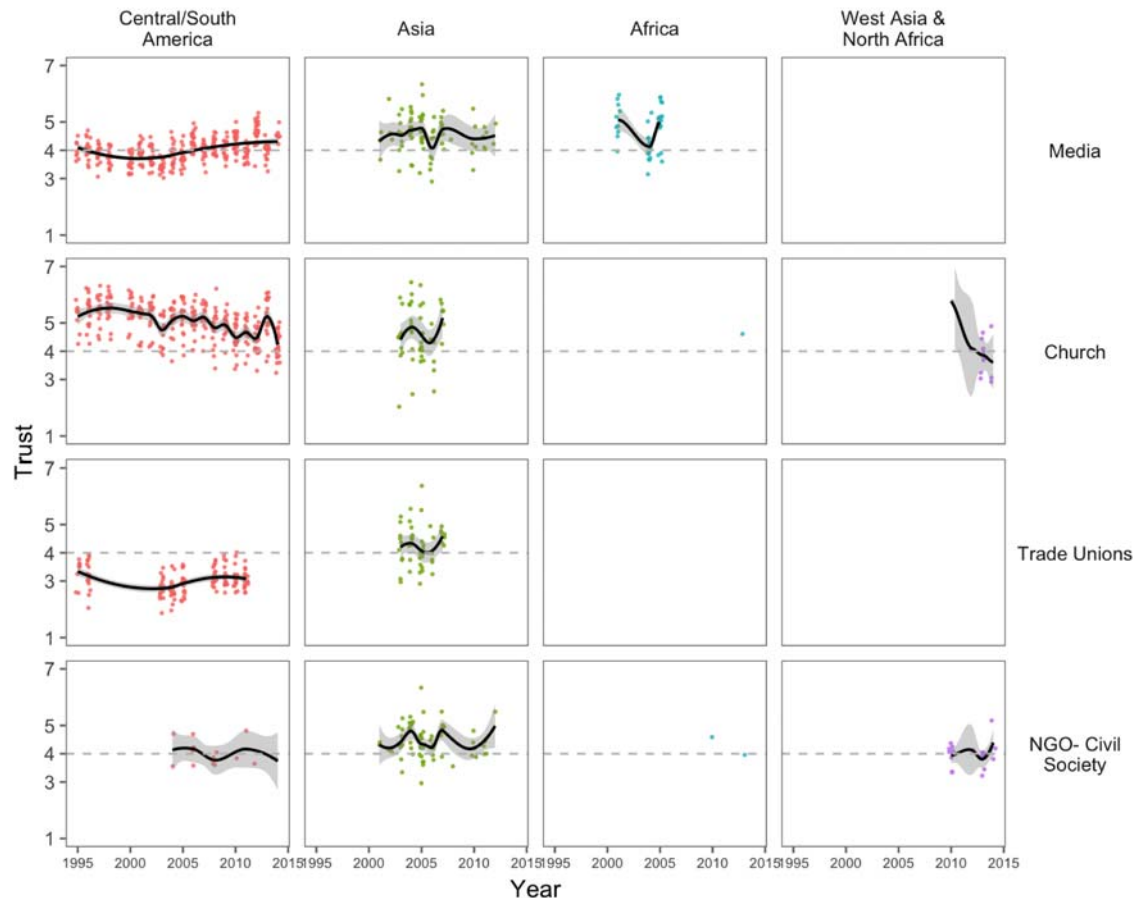
- First, visualize the data
- Using **Local regression** (Cleveland and Devlin, 1988; Hurvitch, Simonoff & Tsai, 1998; Loader, 1999; Fox, 2000a, 2000b; Jacoby, 2000)
- With tricube function (Loader, 1999) with a span determined using AICc, except for global trust where the default span of .75 was used.

# A synthetic view of change in mean institutional trust by region



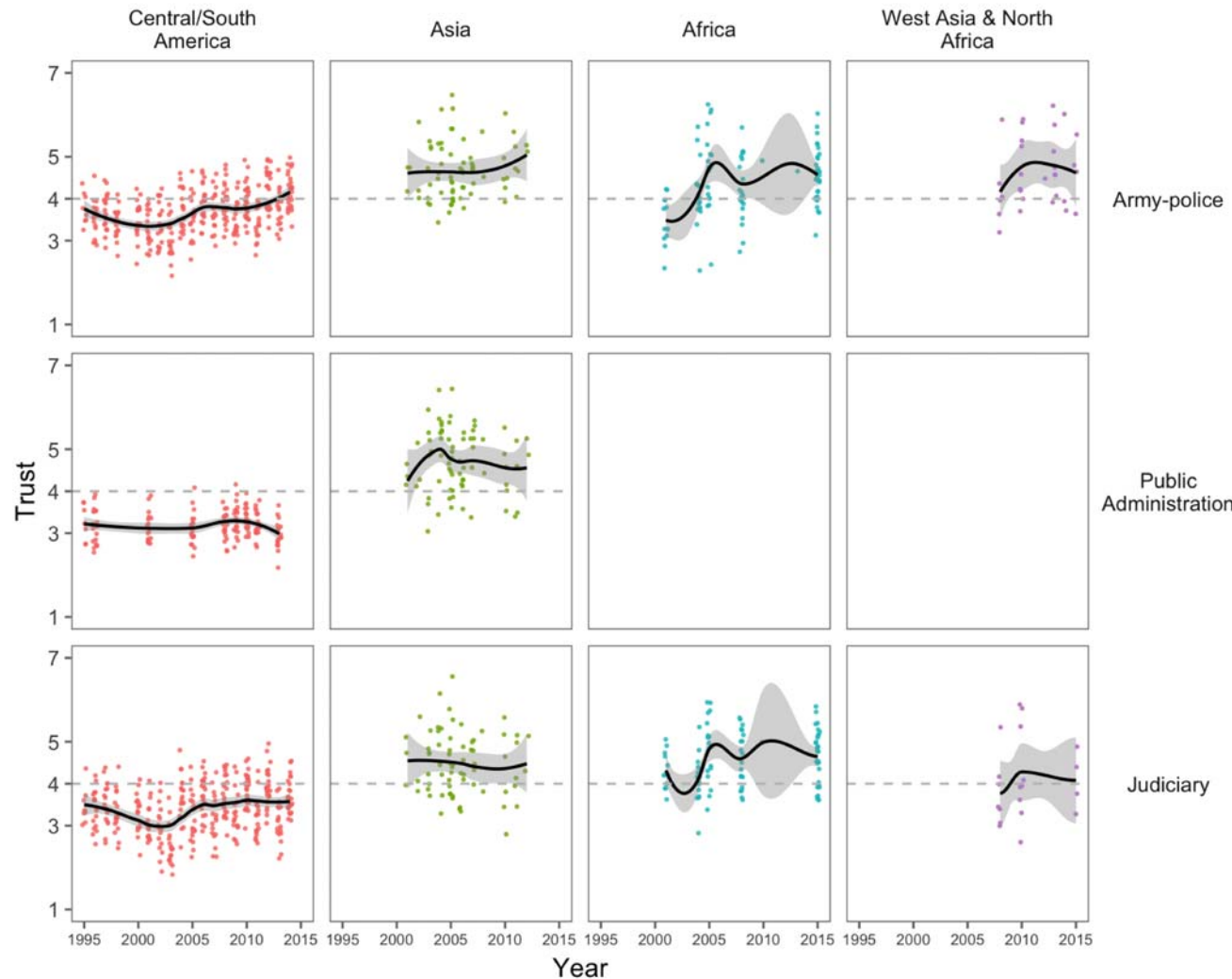
- On average, trust is stable
- Higher in Asia and Africa than in South/Central America
- Has dropped after 2011 in the WANA countries

# Trust: Institutions of the civil society



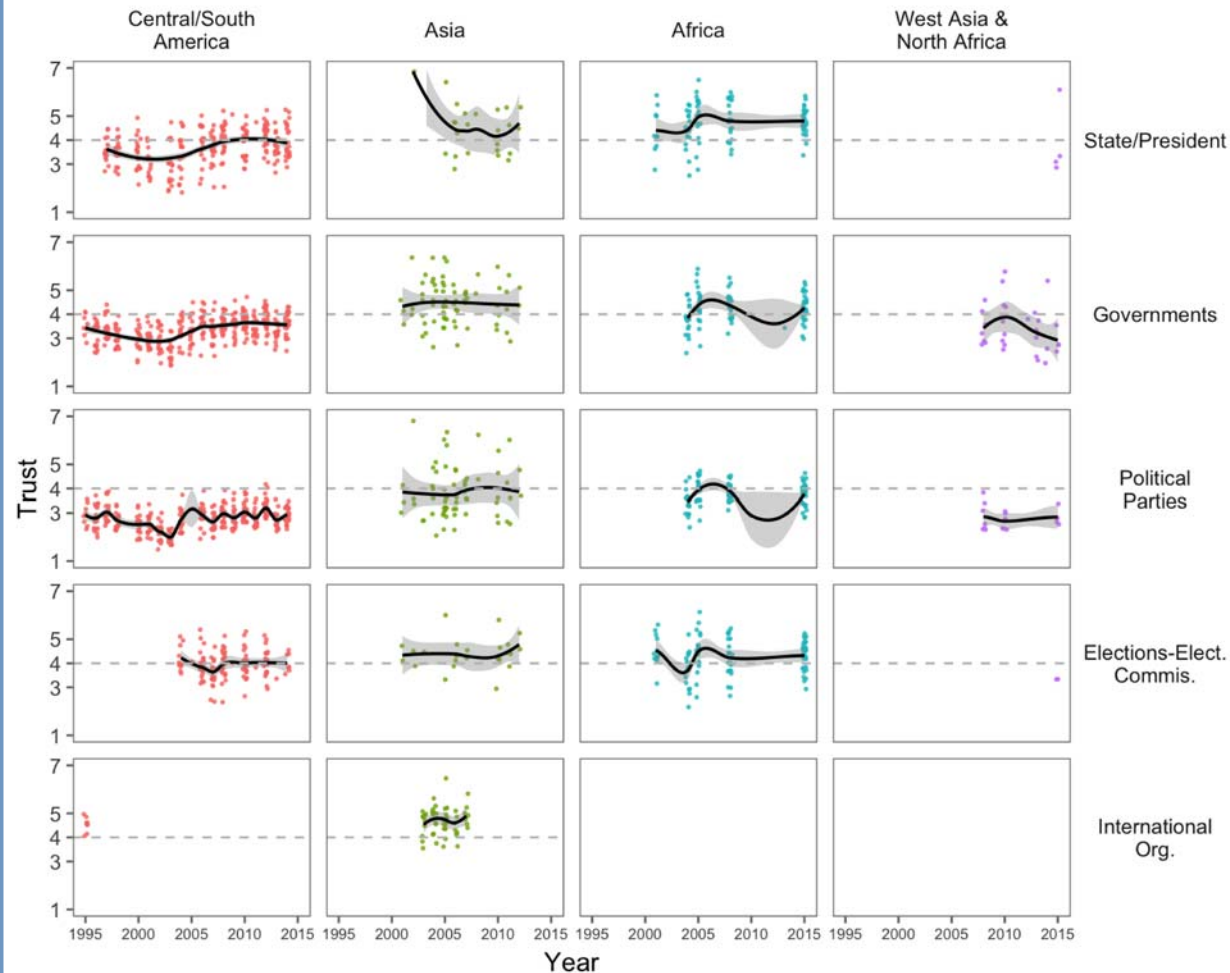
- In South/Central America: Church highest, TU lowest.
- In Asia, similar levels for all institutions
- Only 1 institution in Africa
- In WANA, decrease in trust towards religious leaders.

# Trust: Institutions of the administration



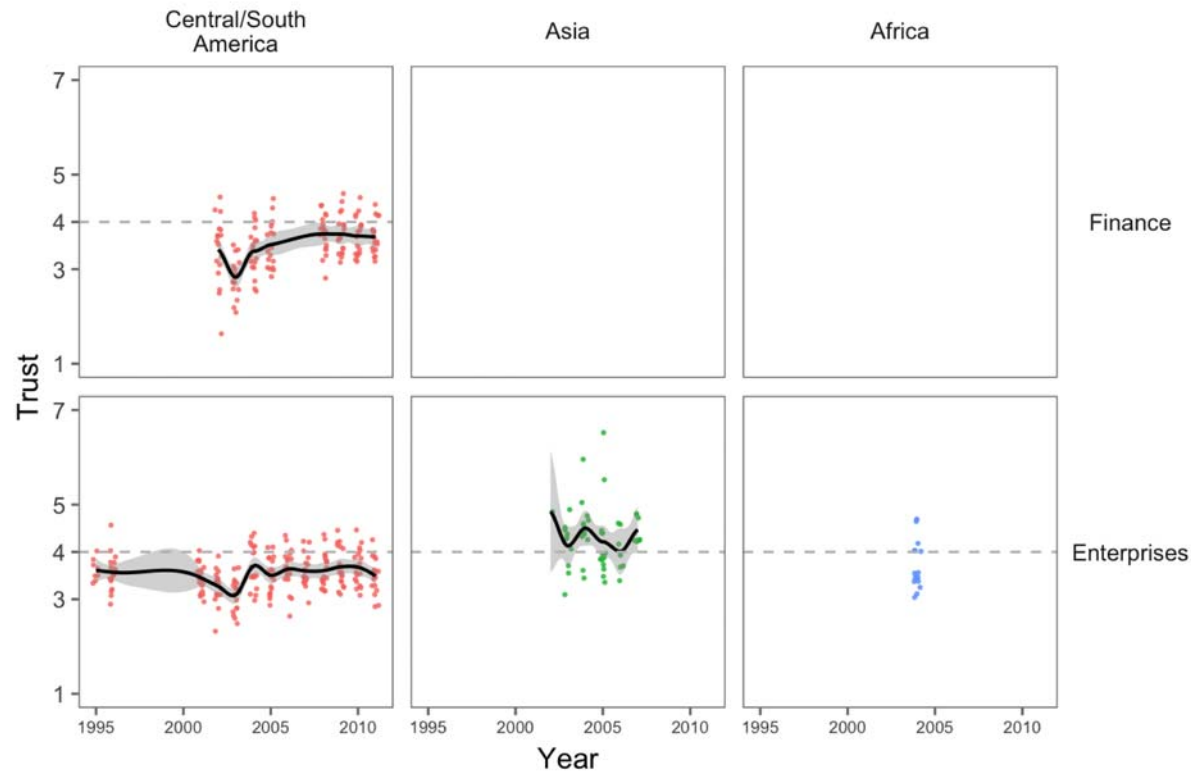
- Lower level of trust in South America
- Not much diff. Btw institutions (1 factor)
- Decrease in trust in judiciary in WANA countries.

# Trust: Institutions of the political system



- Trust lower in South/Central America & WANA.
- Political parties, lowest in South/Central America & WANA.
- Drop in trust in gvt in WANA, in State/President in Asia.

# Trust: Institutions of the economy



- Measured mostly in South/Central America.
- One factor.
- Rather stable.



## First conclusions

- Trust varies according to institutions and context.
- Overall stability of trust, except in the WANA countries (quadratic).
- Lower trust in South/Central America, except for Church.
- Lowest level of trust: political parties, in South/Central America & WANA.

# How can we model these patterns?

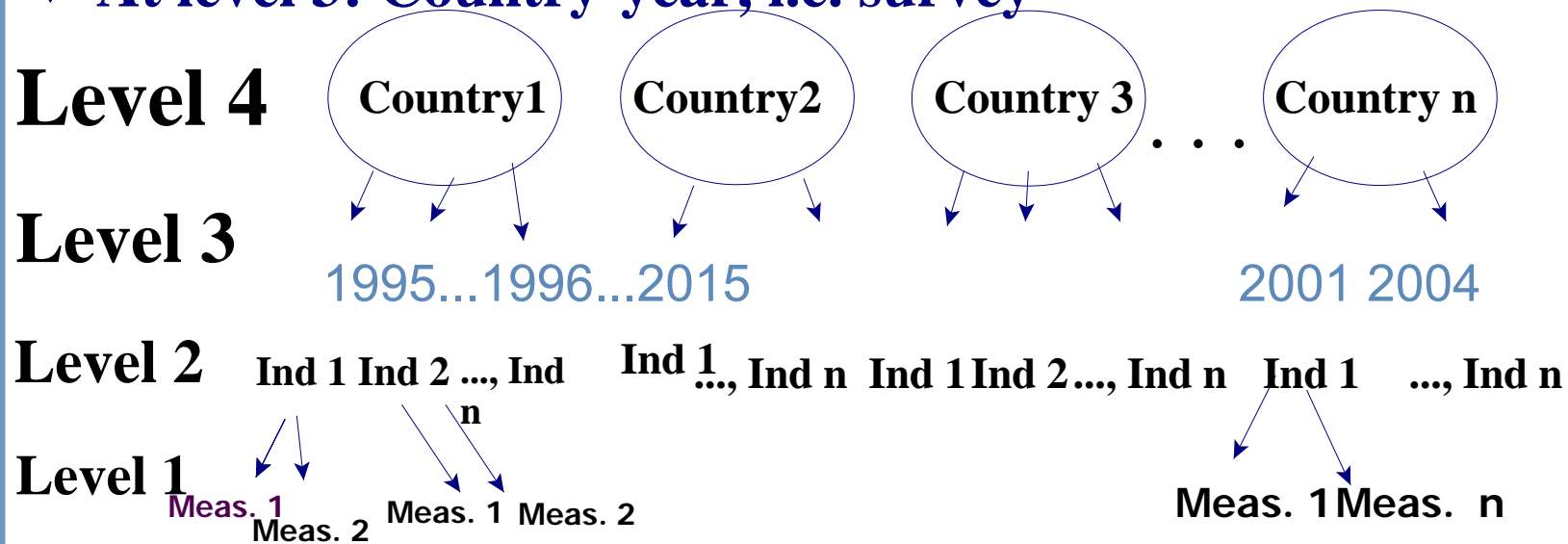
- We need to be able to take into account...
  - ♦ Overall,
    - The differences between institutions,.
    - The differences between individuals.
    - The stability/change over time.
    - The differences between regions.
  - ♦ The change over time for some specific institutions.
  - ♦ The difference between regions for some specific institutions.
- **AND see, at the macro level, whether differences between countries and over time can be explained.**

# The analyses

- Test the effects statistically
  - ◆ Using **multilevel longitudinal analysis of repeated measures**.
  - ◆ **At level 1**: answers to questions on trust for each respondent
  - ◆ **At level 2**: respondents
  - ◆ **At level 3**: surveys, i.e., country-years
  - ◆ **At level 4**: Countries- Source of data

# A 4-level longitudinal model with repeated measures

- ◆ At level 4: Country/Source of data
- ◆ At level 3: Country-year, i.e. survey



- ◆ At level 2: Individuals & their characteristics (age, sex, education).
- ◆ At level 1: Trust and its objects (police, religion, trade unions, political parties,...).

# Equations: Basic 4-level model

- Trust at the measurement level (ref: media)
  - ◆ Average Trust =  $\psi_0 + \psi_1(\text{Army/Police}) + \psi_2(\text{Finance}) + \dots + \psi_n(\text{ObjetN}) + \varepsilon$

- Trust at the respondent level

- ◆  $\psi_0 = \pi_{00} + \pi_{01}(\text{woman}) + \pi_{02}(\text{Young}) + \pi_{03}(\text{Old}) + \pi_{04}(\text{PropNREP}) + e_0$
- ◆  $\psi_1 = \pi_{10}$
- ◆  $\psi_2 = \pi_{20}, \dots$
- ◆  $\psi_n = \pi_{n0}$

- Trust at the time level

- ◆  $\pi_{00} = \beta_{000} + \beta_{001}(\text{Time}) + \beta_{002}(\text{Time}^2) + r_{00}$
- ◆  $\pi_{01} = \beta_{010}$
- ◆  $\pi_{02} = \beta_{020}$
- ◆  $\pi_{03} = \beta_{030}$
- ◆  $\pi_{10} = \beta_{100}$
- ◆  $\pi_{20} = \beta_{200}, \dots$

*\*Trust may change differently according to the object of trust, to age, to region, etc.*

- Trust at the country level—

- ◆  $\beta_{000} = \gamma_{0000} + \gamma_{0001}(\text{Asia}) + \gamma_{0002}(\text{Africa}) + \gamma_{0003}(\text{WANA}) + \gamma_{0004}(\text{scale}) + \mu_{000}$
- ◆  $\beta_{001} = \gamma_{0010}$
- ◆ ...
- ◆  $\beta_{1300} = \gamma_{13000}$

# Results - basic models

Trust in institutions - basic models										
	Model 0		Model 1		Model 2		Model 3		Model 4	
<b>Intercept</b>	4.12725	***	4.527	***	4.290	***	4.452	***	3.817	***
<b>Level Measure</b>										
Media (REF)										
Church			0.678	***	0.678	***	0.678	***	0.678	***
Trade Unions			-0.785	***	-0.785	***	-0.785	***	-0.785	***
ONG- Civil Society			-0.449	***	-0.448	***	-0.449	***	-0.449	***
Army-police			-0.265	***	-0.266	***	-0.266	***	-0.266	***
Public Admin.			-0.504	***	-0.503	***	-0.504	***	-0.504	***
Judiciary			-0.481	***	-0.481	***	-0.481	***	-0.481	***
Finance			-0.326	***	-0.328	***	-0.326	***	-0.326	***
Enterprises			-0.454	***	-0.454	***	-0.454	***	-0.454	***
State/President			-0.219	***	-0.220	***	-0.220	***	-0.220	***
Governments			-0.606	***	-0.606	***	-0.606	***	-0.606	***
Political Parties			-1.151	***	-1.151	***	-1.151	***	-1.151	***
Elections- Elect. Commis.			-0.378	***	-0.377	***	-0.378	***	-0.378	***
International Org.			-0.198	***	-0.196	***	-0.198	***	-0.198	***
<b>Level Respondent</b>										
woman					0.004	ns	0.004	ns	0.004	ns
Young (Less than 30 )					0.009	**	0.009	**	0.009	**
time										
Old (60 plus)					0.095	***	0.094	***	0.095	***
time										
Prop_Non- resp.					0.003	***	0.004	**	0.003	**
<b>Level Country-Year</b>										
Time							0.001	ns	0.001	ns
Time2							0.001	*	0.001	*
<b>Level Country-Source</b>										
Central/South America (REF)										
Asia									1.022	***
Africa									0.875	***
West Asia N. Africa									0.496	**
Answer Scale (7 pts)									0.425	**
<b>Variance</b>										
Measures	2.553	62.9%	2.380	60.6%	2.380	60.7%	2.380	60.7%	2.380	63.1%
Respondents	1.097	27.0%	1.112	28.3%	1.109	28.3%	1.109	28.3%	1.109	29.4%
Country-Year	0.106	2.6%	0.108	2.8%	0.109	2.8%	0.107	2.7%	0.109	2.9%
Country-Source	0.303	7.5%	0.325	8.3%	0.324	8.3%	0.327	8.3%	0.176	4.7%
<b>Total</b>	<b>4.059</b>		<b>3.925</b>		<b>3.922</b>		<b>3.924</b>		<b>3.775</b>	
			6.8%		0.2%		1.3%		46.3%	

# Focus on level 1

Trust in institutions - basic models				
	Model 0		Model 1	
<b>Intercept</b>	4.12725	***	4.527	***
<b>Level Measure</b>				
Media (REF)				
Church			0.678	***
Trade Unions			-0.785	***
ONG- Civil Society			-0.449	***
Army-police			-0.265	***
Public Admin.			-0.504	***
Judiciary			-0.481	***
Finance			-0.326	***
Enterprises			-0.454	***
State/President			-0.219	***
Governments			-0.606	***
Political Parties			-1.151	***
Elections- Elect. Commis.			-0.378	***
International Org.			-0.198	***
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<b>Total</b>	<b>4.059</b>		<b>3.925</b>	
			6.8%	

- Compared to media
  - ◆ Church is 0.68 pts higher
  - ◆ Political Parties, 1.15 pts lower & Trade Unions, 0.79 pts lower.
- At start, 63% of the variance at the level of institutions.
- 6.8% of the variance explained by institutions  $(2.553 - 2.38) / 2.553$

# Focus on level 2 & 3

Trust in institutions - basic models				
	Model 2		Model 3	
<b>Intercept</b>	4,290	***	4,452	***
<b>Level Respondent</b>				
woman	0,004	ns	0,004	ns
Young (Less than 30 ) time	0,009	**	0,009	**
Old (60 plus) time	0,095	***	0,094	***
Prop_Non-resp.	0,003	***	0,004	**
<b>Level Country-Year</b>				
Time			0,001	ns
Time2			0,001	*
<b>Variance</b>				
Measures	2,380	60,7%	2,380	60,7%
Respondents	1,109	28,3%	1,109	28,3%
Country-Year	0,109	2,8%	0,107	2,7%
Country-Source	0,324	8,3%	0,327	8,3%
<b>Total</b>	<b>3,922</b>		<b>3,924</b>	
	0,2%		1,3%	

- Individual level:
  - ◆ Sex is not significant
  - ◆ Compared to middle age:
    - being less than 30: +.009;
    - being 60+: +.094 .
  - ◆ Prop. Non-response: +.003.
- Country-year Level:
  - ◆ Time squared is significant.
- Variance explained: minimal



# Focus on level 4

Trust in institutions - basic models		
	Model 4	
<b>Intercept</b>	3,817	***
<b>Level Country-Source</b>		
Central/South America (REF)		
Asia	1,022	***
Africa	0,875	***
West Asia N. Africa	0,496	**
Answer Scale (7 pts)	0,425	**
<b>Variance</b>		
Measures	2,380	63,1%
Respondents	1,109	29,4%
Country-Year	0,109	2,9%
Country-Source	0,176	4,7%
<b>Total</b>	<b>3,775</b>	
	46,3%	

- All regions – Asia and Africa more so -- have a higher average level of trust than South/Central America,.
- The answer scale, i.e., answering on a 7-point compared to 4-point scale, gives an average of .42 points more on the trust scale.
- This information explains 46.3% of the variance at the country-source level.

# Explanation at the macro level: the Worldwide Governance Index (WGI)

- If the measure is valid, the worldwide governance index should be related to
  - ◆ More trust in general.
  - ◆ More trust in the political institutions.

# Focus on cross-level interactions

Trust in institutions - basic models						
	Model 4		M 4 with WGI rank		M4 inter. w WGI rank	
<b>Intercept</b>	3,817	***	3,609717	***	3,639233	***
<b>Level Measure</b>						
Media (REF)						
Church	0,678	***	0,678	***	0,676	***
Trade Unions	-0,785	***	-0,785	***	-0,785	***
ONG- Civil Society	-0,449	***	-0,449	***	-0,454	***
Army-police	-0,266	***	-0,266	***	-0,268	***
Public Admin.	-0,504	***	-0,504	***	-0,502	***
Judiciary	-0,481	***	-0,481	***	-0,484	***
Finance	-0,326	***	-0,326	***	-0,327	***
Enterprises	-0,454	***	-0,454	***	-0,455	***
State/President	-0,220	***	-0,220	***	-0,154	***
WGI rank					-0,002	***
Governments	-0,606	***	-0,606	***	-0,693	***
WGI rank					0,002	***
Political Parties	-1,151	***	-1,151	***	-1,125	***
WGI rank					-0,001	***
Elections- Elect. Commis.	-0,378		-0,378		-0,783	***
WGI rank					0,010	***
International Org.	-0,198	***	-0,198	***	-0,198	***
<b>Level Respondent</b>						
<b>Level Country-Year</b>						
Time	0,001	ns	0,002	ns	0,002	ns
Time2	0,001	*	0,001	*	0,001	*
WGI_rnk			0,005	*	0,004	*
<b>Level Country-Source</b>						
<b>Variance</b>						
Measures	2,380	63,1%	2,380	63,2%	2,378	63,2%
Respondents	1,109	29,4%	1,109	29,4%	1,109	29,5%
Country-Year	0,109	2,9%	0,108	2,9%	0,108	2,9%
Country-Source	0,176	4,7%	0,170	4,5%	0,170	4,5%
<b>Total</b>	<b>3,775</b>		<b>3,768</b>		<b>3,766</b>	

- WGI ranking is
  - ◆ Positively related to trust globally.
  - ◆ More positively related to trust in government & elections.
  - ◆ More negatively related to trust in State/President & political parties.
  - ◆ Overall:
    - Plus 1.1% of variance at the year level.
    - Plus 3.2% of the variance at the country level.

# What does it mean?

- Compared with trust in media,
  - ◆ Trust in political parties is more than one point (1.12) lower
  - ◆ Trust in Trade Unions is 0.79 of point lower
  - ◆ Trust in the Church is .68 points higher.
- Compared with South/Central America,
  - ◆ All the other regions have a higher level of trust.
- The analysis allows for modelling
  - ◆ The relationship between the Governance index and trust in specific political institutions.

# What does it mean?

- Compared to Van der Meer and Dekker (2011),
  - ♦ 7.5% of variance at the country level and 2.6% at the year level for a total of 10.1% compared to 9% for van der Meer & al.).
  - ♦ *27.0% at the individual level and 62.9% at the measurement level* for a total of 89.9% compared to 91% at the individual level for van der Meer & al.)
- This confirms the importance of including the measurement level instead of using only one measure of trust or an average of measures (Rose & Mishler, 2011).

# What does it mean?

- **The model explains**
  - ◆ 6.9% of the variance at the measurement level.
  - ◆ 43.8% of the variance at the country-source level (compared to 65% for van der Meer & Dekker, 2011).
  - ◆ No substantial variance explained at the individual level or at the year level compared to 5% for individual+measure in van der Meer& Dekker, 2011).
- **We are therefore looking for:**
  - ◆ Variables that can explain
    - Inter-individual differences (27% of the variance).
    - Variation over time (2.6% of the variance)
    - Variation between institutions.

# Next steps

- ◆ At the country level:
  - Add Eastern Europe and Russia.
  - Find/integrate information on the political systems & elections.
  - Integrate the World Value Surveys for the WANA countries and eventually for other regions.
- ◆ At the time-country level:
  - Integrate events that may have influenced trust at the regional or country level.
  - Integrate recent data (year 2015, 2016).
- ◆ At the individual level:
  - Integrate education in the model.
  - See in subsets of countries the impact of variables like satisfaction with democracy, with the economic situation...
- ◆ At the institutional level:
  - Check on the groupings: too large, too small?

# Conclusion

- **Technically, the method requires**
  - ◆ Methodical work to combine & harmonize the data.
  - ◆ Building the 4-level files.
- **It allows for analysing trust in institutions taking into account**
  - ◆ Mean levels of trust at the individual level
  - ◆ The variation in objects of trust in different surveys.
  - ◆ The variation in scales used in different surveys.
- **It allows for testing cross-level interactions at the institutional -- and other -- levels.**