

How to Compare When Data Come from Diverse Sources: A 4 - Level Model of Change in Institutional Trust over Time

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Outline

- The problem: How to compare and keep the maximum information available
 - Various data sets and measures
 - Various political/electoral/economic situations
- The solution: Work with levels of analysis
- A multilevel approach and its problems
- Concretely, how does it work?
- Concretely, an example
- Discussion and conclusion



A different approach: Once the data have been collected, how to use it and keep as much information as possible?

- Since we are working with data that have been collected,
 - ▶ Similar concepts are often measured but different questions are used to measure them.
- We conceptualize the different measures as samples of all the measures of a similar concept that can be used.
- Therefore, we have samples at different levels, i.e., the levels of measures, of respondents, of countries and years.

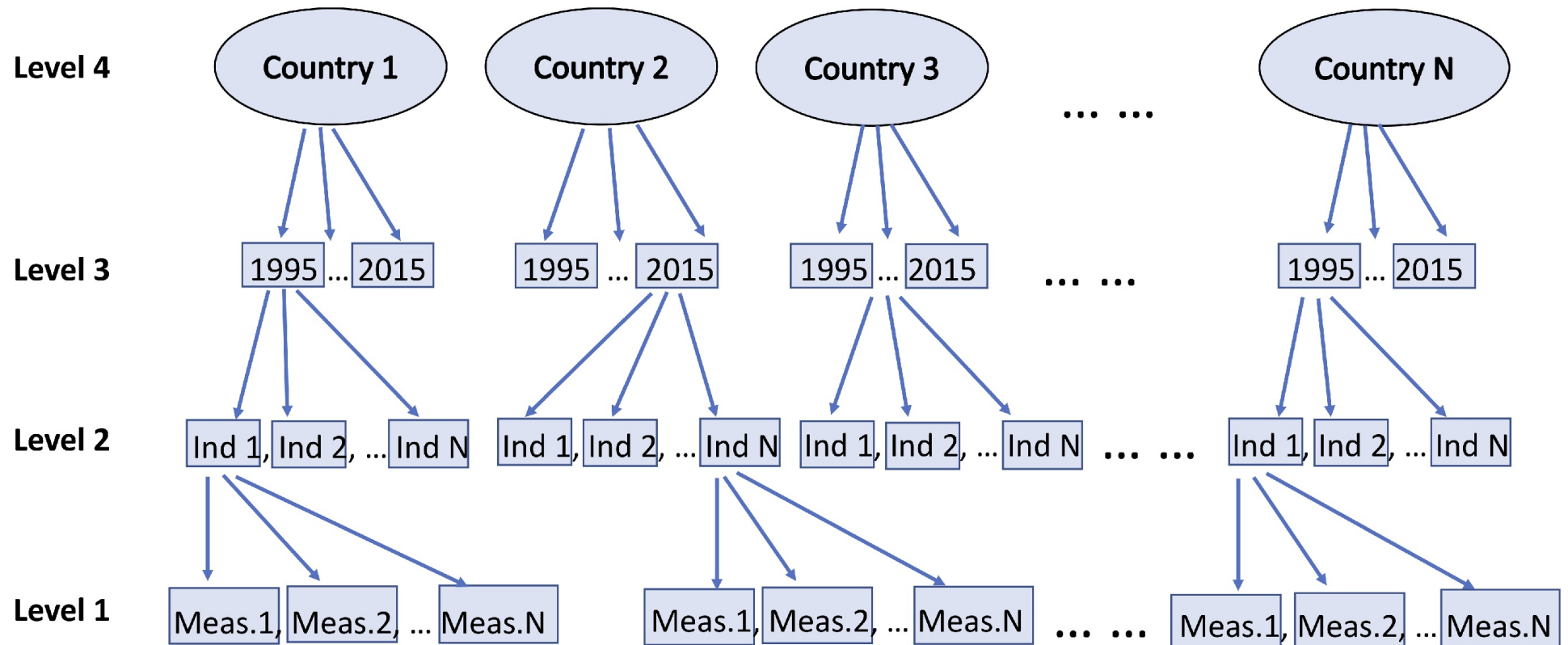


Why use a multilevel approach?

- We can assess the different effects at the level where they operate, within individuals, at the individual level, over time and at the country level
- We do not have to deal with missing values and keep only the cases where the same information is available for all the cases, years, or countries.
- We can model cross-level effects,
 - ▶ Like the possible effect of the countries' average GDP on trust in the government.
 - ▶ Or the impact of age-group or of time on trust in religion.



A 4-level longitudinal model with repeated measures



The Data


The files used in this presentation

- The Barometers:
 - ▶ Latino Barometro (1995-2016)
 - ▶ East Asia Barometer (2001-2012), Asian Barometer (2003-2007)
 - ▶ Arab Barometer (2008-2014)
 - ▶ Africa Barometer (2001-2015)
- LAPOP (2004-2016)
- World Values surveys (WVS)
 - ▶ Surveys from 1995 to 2014 for Africa and West Asia.



A multilevel approach and its problems

At level 4: country or country-source?

- There are more than one survey conducted during the same year in a given country by different survey projects,
 - ▶ Which means that we need to be able to test whether, on average, there is a difference according to the source of data.
 - ▶ Solution: The highest level is a “country-source” level. For example, in 2013, the Arab Barometer and the WVS both conducted a survey in Algeria. Country-source codes are 120 & 122, depending on the source of data.
 - Which allows for:
 - ▶ Adding a variable identifying the source of data in order to control for the different methodological features -- answer scale, question wording, etc. -- of the different projects.
- 

A multilevel approach and its problems

At level 3: country-source-year = survey level

- The source of data is controlled at the country level.
- Multiple surveys are conducted over time in each country. The time level is intermediary, i.e., both
 - ▶ nested within country-source and
 - ▶ having respondents nested within each survey.
- Consequence: Add a variable identifying the year when the survey was conducted and, as a longer period of data becomes available, variables for a quadratic (or even cubic) effect of time.
- At this level, we can add methodological characteristics of specific surveys (within projects).



A multilevel approach and its problems

At level 2, the respondents' level: ex-post harmonization issues

- The respondent level is where most harmonization problems occur. The only non problematic variable – for now – is sex.
- Some projects/countries ask age in years, others in categories. Categories may not be the same in different projects.
 - Solution: The only common denominator: young (15-29), middle (30-59), old (60+)
- Level of education: the educational systems vary. May be difficult to place technical training. 3% not asked.
 - Harmonize in 5 categories:
 - No formal education, primary, secondary, technical, university.



A multilevel approach and its problems

At level 2, the respondents' level: harmonization issues

- The major problem is not harmonization but the fact that some questions were not asked in some surveys.
- Occupation: 23% not asked
 - ▶ Common categories: employed, out of work, homemaker, retired, student.
- Subjective Income: (36% not asked)
 - ▶ Four categories from “sufficient, can save” to “not sufficient, have big problems”
- Attitudes as independent variables.
 - Satisfaction with democracy: 37% not asked
 - Support for democracy: 22% not asked



A multilevel approach and its problems

At level 2, the respondents' level: methodological information

- We may ask whether the proportion of questions answered by a respondent, i.e., item non-response, is related to the level of trust.
- In order to control for item non-response, we recuperate the number of questions asked to a respondent (at the survey level) and the number of questions answered.



A multilevel approach and its problems

At level 1, the measurement level

- Measures asked in a survey are samples of all the measures that can be asked to measure a concept.
- The main concept for this study is institutional trust but we could use the method for other concepts like attitude towards the protection of environment, etc.
- There are 110 institutions to date if we consider each different institution for which trust is asked.
 - ▶ How to decide which institutions are similar enough to be grouped together and which ones should be kept separate?



A multilevel approach and its problems

At level 1, the measurement level

- **First problem:** The measures have to be on the same **scale**, which means
 - ▶ First, recode all scales so that the highest number corresponds to higher trust.
 - ▶ Second,
 - The current situation: Expanding the scale: from 1 to 4 (Barometers & WVS) to 1,3,5,7 (LAPOP).
 - To be solved: In new surveys, we have scales of 0 to 10, or 1 to 10 or scales of only 2 or 3 anchors.
- **The second problem:** Different question wordings:
 - ▶ Trust vs Confidence: In our case, not a problem because most if not all the surveys are not conducted in English. In other languages, there is only one word for trust.



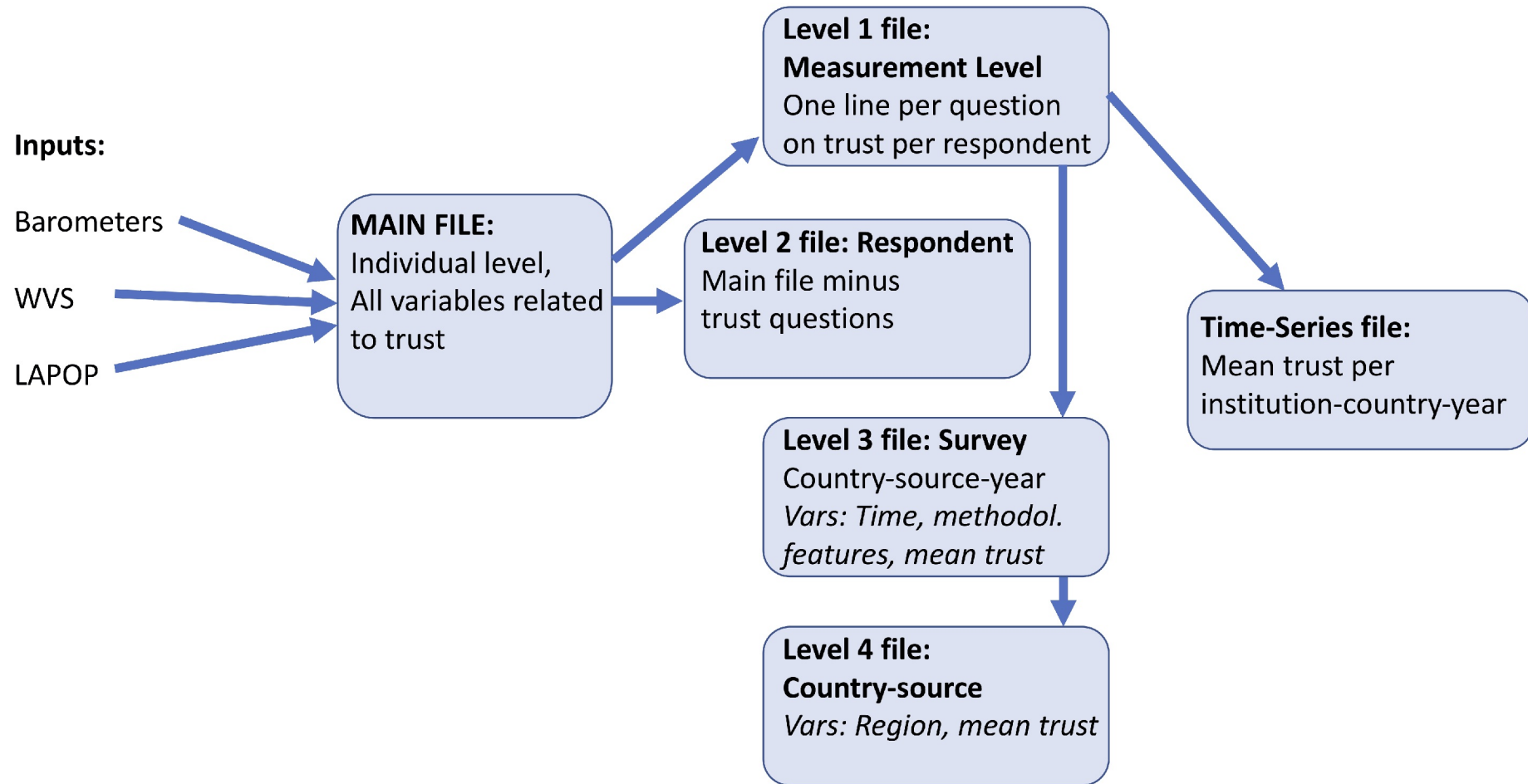
A multilevel approach and its problems

At level 1, the measurement level

- The third problem: The institution on which the trust question is asked.
 - ▶ Example 1: Four institutions related to elections: Elections, National Election Commission, Results of the next election and Secret Vote.
 - ▶ Example 2: Can we group together European Union, UN, International Monetary Fund, World Bank, World Trade Organization, UN Development Program in a category “International Organizations”?
- Solution: Check whether the institutions have similar averages and Std. Deviations in each region and for each survey project before grouping.
 - ▶ But some specificities: The “Russian” question, i.e., the state-governement vs the president.



Concretely, how does it work: Synthesis of the process



Concretely, how does it work?

Step 1: Combining data

- A Main database combines the data from all the survey projects at the individual level, including
 - ▶ Id for the country, year and source of data,
 - ▶ Harmonized indicators of socio-demographics,
 - ▶ Harmonized indicators of general attitudes of interest (perception of democracy, participation in political activities, etc.), if available in enough surveys.
 - ▶ One variable for each question on trust in an institution that has been asked in the survey.
 - If institution already surveyed in a prior survey, use the same name for the variable.
 - If not, introduce a new variable.



1st step: merging & harmonizing: The main file

*FUSION_LAAL_fev_2018.sav [Jeu_de_données8] - IBM SPSS Statistics Editeur de données

Echier Edition Affichage Données Transformer Analyse Graphiques Utilitaires Extensions Fenêtre Aide

1 : Congress_pariement Visible : 210 variables sur 210

	Baromet	Year	Country	id_Bctry	id_ctry	ID_resp	Armed_f	Banks	Broadcas	Broadcas	Broadcas	Church	Civil_servi	Civil_soc	Congress_pa	Const_court	Corrup_c	Go
	r		try				rces		ting_Gvt	ting_Inde	ting_Nat		ce	instit	riament		omm	
1	2	2005	4	40	402005	1	3	.	.	.	.	7	.	.	.	.	.	.
2	2	2005	4	40	402005	2	5	.	.	.	.	5	.	.	5	.	.	.
3	2	2005	4	40	402005	3	3	.	.	.	.	.	.	.	7	.	.	.
4	2	2005	4	40	402005	4	5	.	.	.	.	.	.	.	.	.	.	.
5	2	2005	4	40	402005	5	3	.	.	.	.	5	.	.	.	.	.	.
6	2	2005	4	40	402005	6	3	.	.	.	.	7	.	.	7	.	.	.
7	2	2005	4	40	402005	7	3	.	.	.	.	5	.	.	5	.	.	.
8	2	2005	4	40	402005	8	5	.	.	.	.	5	.	.	5	.	.	.
9	2	2005	4	40	402005	9	5	.	.	.	.	.	.	.	5	.	.	.
10	2	2005	4	40	402005	10	5	.	.	.	.	7	.	.	7	.	.	.
11	2	2005	4	40	402005	11	7	.	.	.	.	7	.	.	.	.	.	.
12	2	2005	4	40	402005	12	7	.	.	.	.	7	.	.	3	.	.	.
13	2	2005	4	40	402005	13	7	.	.	.	.	5	.	.	3	.	.	.
14	2	2005	4	40	402005	14	7	.	.	.	.	5	.	.	5	.	.	.
15	2	2005	4	40	402005	15	7	.	.	.	.	5	.	.	3	.	.	.
16	2	2005	4	40	402005	16	7	.	.	.	.	7	.	.	3	.	.	.
17	2	2005	4	40	402005	17	3	.	.	.	.	3	.	.	3	.	.	.
18	2	2005	4	40	402005	18	3	.	.	.	.	7	.	.	.	.	.	.
19	2	2005	4	40	402005	19	3	.	.	.	.	5	.	.	5	.	.	.
20	2	2005	4	40	402005	20	7	.	.	.	.	7	.	.	5	.	.	.
21	2	2005	4	40	402005	21	5	.	.	.	.	5	.	.	5	.	.	.
22	2	2005	4	40	402005	22	7	.	.	.	.	5	.	.	7	.	.	.
23	2	2005	4	40	402005	23	5	.	.	.	.	5	.	.	5	.	.	.
24	2	2005	4	40	402005	24	7	.	.	.	.	5	.	.	7	.	.	.
25	2	2005	4	40	402005	25	5	5	.	.	5	.	.	.
26	2	2005	4	40	402005	26	7	5	.	.	7	.	.	.


Vue de données Vue des variables

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Concretely, how does it work

Step 2: Build the level 1 file

- Restructure the file so that there is one line per question on trust in an institution asked to a given respondent and a variable identifying the institution:
 - ▶ A line has five variables
 - 1. Country-source identifier
 - 2. Country-year-source identifier
 - 3. Respondent identifier
 - 4. Institution identifier
 - 5. Answer on a trust question
 - ▶ Recode the institutions into larger categories. And create dummy variables for each recoded institution.
 - ▶ Create a variable that indicates item non-response and send it back to the level 2 file.
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Second step: the level 1 file

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1: id_Bctry 40 Visible : 25 variables sur 25

	id_Bctry	id_ctry	ID_resp	Country	Year	Baromete r	source	index1	Trust	institution	instREC	GVI	ELECT	POLPARTY
1	40	402005	1	4	2005	2	0 Government	7	35	11	1	0	0	
2	40	402005	1	4	2005	2	0 Local_government	5	43	11	1	0	0	
3	40	402005	1	4	2005	2	0 UN	5	100	15	0	0	0	
4	40	402005	1	4	2005	2	0 World_Bank	5	106	15	0	0	0	
5	40	402005	1	4	2005	2	0 World_Trade_Org	5	107	15	0	0	0	
6	40	402005	1	4	2005	2	0 Armed_forces	3	5	21	0	0	0	
7	40	402005	1	4	2005	2	0 Police	3	67	22	0	0	0	
8	40	402005	1	4	2005	2	0 Pub_Educ_Syst	7	77	24	0	0	0	
9	40	402005	1	4	2005	2	0 Pub_Health_Syst	5	78	24	0	0	0	
10	40	402005	1	4	2005	2	0 Judiciary	3	41	25	0	0	0	
11	40	402005	1	4	2005	2	0 Medias	5	48	31	0	0	0	
12	40	402005	1	4	2005	2	0 Church	7	15	32	0	0	0	
13	40	402005	1	4	2005	2	0 Trade_unions	3	98	33	0	0	0	
14	40	402005	1	4	2005	2	0 ONG	5	63	34	0	0	0	
15	40	402005	1	4	2005	2	0 Large_Domestic_Cies	3	42	52	0	0	0	
16	40	402005	2	4	2005	2	0 Congress_parliament	5	23	11	1	0	0	
17	40	402005	2	4	2005	2	0 Government	7	35	11	1	0	0	
18	40	402005	2	4	2005	2	0 Local_government	3	43	11	1	0	0	
19	40	402005	2	4	2005	2	0 Politic_parties	5	70	14	0	0	1	
20	40	402005	2	4	2005	2	0 UN	3	100	15	0	0	0	
21	40	402005	2	4	2005	2	0 World_Bank	5	106	15	0	0	0	
22	40	402005	2	4	2005	2	0 World_Trade_Org	3	107	15	0	0	0	
23	40	402005	2	4	2005	2	0 Armed_forces	5	5	21	0	0	0	
24	40	402005	2	4	2005	2	0 Police	3	67	22	0	0	0	
25	40	402005	2	4	2005	2	0 Pub_Educ_Syst	7	77	24	0	0	0	
26	40	402005	2	4	2005	2	0 Pub_Health_Syst	5	78	24	0	0	0	
27	40	402005	2	4	2005	2	0 Judiciary	5	41	25	0	0	0	

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Concretely, how does it work?

Step 3: Create the level 3 file (country-year-source)

- It is necessary with HLM, the only software available now for 4-level models.
- Aggregate the level 1 file at the country-year-source (i.e., the survey) level:
 - ▶ Compute Time centered, Time centered at power 2.
 - ▶ Introduce variables related to survey methodology (nb questions asked on trust, for example)



The level 3 file: Country_source_year = survey

*FUSION_LAAL_fev2018_niv3.sav [Jeu_de_données3] - IBM SPSS Statistics Editeur de données

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1 : cname Afghanistan Visible : 38 variables sur 38

	id_Bctry	id_ctry	yearC	yearC2	country	cname	year	source	trust_mean	N_BREAK	region	region2	year2	cname
1	40	402005	-1	1	4	Afghanistan	2005	0	4.90	15468	1	1.00	11	
2	120	1202008	2	4	12	Algeria	2008	0	3.15	4783	3	3.00	14	
3	120	1202010	4	16	12	Algeria	2010	0	3.26	8193	3	3.00	16	
4	120	1202013	7	49	12	Algeria	2013	0	4.50	8129	3	3.00	19	
5	120	1202015	9	81	12	Algeria	2015	0	4.24	11147	3	3.00	21	
6	122	1222002	-4	16	12	Algeria	2002	2	4.66	20610	3	3.00	8	
7	122	1222013	7	49	12	Algeria	2013	2	4.50	18515	3	3.00	19	
8	281	2812016	10	100	28	Antigua	2016	1	4.12	3946	4	4.00	22	
9	320	3201995	-11	121	32	Argentina	1995	0	3.46	13572	4	4.00	1	
10	320	3201996	-10	100	32	Argentina	1996	0	2.98	12729	4	4.00	2	
11	320	3201997	-9	81	32	Argentina	1997	0	3.22	9119	4	4.00	3	
12	320	3201998	-8	64	32	Argentina	1998	0	2.94	9389	4	4.00	4	
13	320	3202000	-6	36	32	Argentina	2000	0	3.29	9178	4	4.00	6	
14	320	3202001	-5	25	32	Argentina	2001	0	3.17	15299	4	4.00	7	
15	320	3202002	-4	16	32	Argentina	2002	0	2.41	13016	4	4.00	8	
16	320	3202003	-3	9	32	Argentina	2003	0	2.88	17310	4	4.00	9	
17	320	3202004	-2	4	32	Argentina	2004	0	3.11	17426	4	4.00	10	
18	320	3202005	-1	1	32	Argentina	2005	0	3.35	13914	4	4.00	11	
19	320	3202006	0	0	32	Argentina	2006	0	3.51	11823	4	4.00	12	
20	320	3202007	1	1	32	Argentina	2007	0	3.42	15276	4	4.00	13	
21	320	3202008	2	4	32	Argentina	2008	0	3.26	17710	4	4.00	14	
22	320	3202009	3	9	32	Argentina	2009	0	3.31	17589	4	4.00	15	
23	320	3202010	4	16	32	Argentina	2010	0	3.48	19980	4	4.00	16	
24	320	3202011	5	25	32	Argentina	2011	0	3.54	17713	4	4.00	17	
25	320	3202013	7	49	32	Argentina	2013	0	3.57	16569	4	4.00	19	
26	320	3202015	9	81	32	Argentina	2015	0	3.46	18813	4	4.00	21	
27	320	3202016	10	100	32	Argentina	2016	0	3.44	13186	4	4.00	22	
28	324	3242000	0	0	32	Argentina	2000	1	2.40	48267	4	4.00	11	

Vue de données Vue des variables

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Concretely, how does it work?

Step 4: Create the level 4 file

- Create the level 4 file (necessary with HLM), the only software available now for 4-level models.
- Aggregate at the Country-source level:
 - ▶ Polydichotomize the variable indicating the source of data in order to have one variable per source of data.
 - ▶ Compute a variable for region and polydichotomize to have one variable per region.



The level 4 file: Country-source level

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4 : cname Antigua Visible : 46 variables sur 46

	ccode	id_Bctry	cname	Asia	Africa	Wana	SthCtrlA	Other	lapop	WVS	trust_mean	source	re
1	4	40	Afghanistan	1	0	0	0	,00	,00	,00	4,90	0	
2	12	120	Algeria	0	0	1	0	,00	,00	,00	3,79	0	
3	12	122	Algeria	0	0	1	0	,00	,00	1,00	4,58	2	
4	28	281	Antigua	0	0	0	1	,00	1,00	,00	4,12	1	
5	32	320	Argentina	0	0	0	1	,00	,00	,00	3,25	0	
6	32	321	Argentina	0	0	0	1	,00	1,00	,00	3,64	1	
7	44	441	Bahamas	0	0	0	1	,00	1,00	,00	4,49	1	
8	48	480	Bahrain	0	0	1	0	,00	,00	,00	3,90	0	
9	50	500	Bangladesh	1	0	0	0	,00	,00	,00	4,78	0	
10	52	521	Barbados	0	0	0	1	,00	1,00	,00	4,09	1	
11	64	640	Bhutan	1	0	0	0	,00	,00	,00	5,29	0	
12	68	680	Bolivia	0	0	0	1	,00	,00	,00	3,41	0	
13	68	681	Bolivia	0	0	0	1	,00	1,00	,00	3,76	1	
14	72	720	Botswana	0	1	0	0	,00	,00	,00	4,50	0	
15	76	760	Brazil	0	0	0	1	,00	,00	,00	3,68	0	
16	76	761	Brazil	0	0	0	1	,00	1,00	,00	3,92	1	
17	84	841	Belize	0	0	0	1	,00	1,00	,00	4,10	1	
18	96	960	Brunei	1	0	0	0	,00	,00	,00	5,81	0	
19	104	1040	Myanmar	1	0	0	0	,00	,00	,00	4,85	0	
20	108	1080	Burundi	0	1	0	0	,00	,00	,00	4,88	0	
21	116	1160	Cambodia	1	0	0	0	,00	,00	,00	4,82	0	
22	120	1200	Cameroon	0	1	0	0	,00	,00	,00	3,59	0	
23	124	1241	Cameroon	0	0	0	0	1,00	1,00	,00	4,44	1	
24	132	1320	Cape Verde	0	1	0	0	,00	,00	,00	4,05	0	
25	144	1440	Sri Lanka	1	0	0	0	,00	,00	,00	3,98	0	
26	152	1520	Chile	0	0	0	1	,00	,00	,00	3,83	0	
27	152	1521	Chile	0	0	0	1	,00	1,00	,00	4,22	1	

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The level 2 file is at the respondent level

Step 5: The level 2 file

- The original main harmonized file is a level 2 file.
- Clean it from all the unnecessary information, i.e. the information that is not at the respondent level: delete all the trust variables and save as level 2.



The time-series file

Step 6: Create the time-series file

- From the level 1 file, aggregate by country, year and institution in order to have one line per country-year per institution.
- It becomes possible to perform local regressions that give an idea of the trends in trust for different institutions in different regions and overall.



Time-series file: country-year-institution category

FUSION_LAAL_fev2018_TS.sav [Jeu_de_données5] - IBM SPSS Statistics Editeur de données

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90 : Visible : 7 variables sur 7

	Country	Year	instREC	Trust_mean	N_BREAK	region	region2	var	var	var	var	var	var	var	var	var
79	4	2005	11	5,20	2555	1	1,00									
80	50	2005	11	4,95	2909	1	1,00									
81	64	2005	11	5,57	2118	1	1,00									
82	96	2004	11	6,35	799	1	1,00									
83	116	2004	11	4,39	2327	1	1,00									
84	116	2007	11	4,83	2950	1	1,00									
85	116	2008	11	4,92	3616	1	1,00									
86	116	2012	11	5,17	4630	1	1,00									
87	144	2003	11	3,62	2339	1	1,00									
88	144	2005	11	3,44	2377	1	1,00									
89	156	2002	11	6,36	8821	1	1,00									
90	156	2003	11	5,30	2354	1	1,00									
91	156	2006	11	4,91	5884	1	1,00									
92	156	2008	11	5,66	14042	1	1,00									
93	156	2011	11	5,63	9848	1	1,00									
94	158	2001	11	3,58	3702	1	1,00									
95	158	2006	11	3,44	8693	1	1,00									
96	158	2010	11	3,57	5908	1	1,00									
97	344	2001	11	4,14	2133	1	1,00									
98	344	2006	11	4,14	2888	1	1,00									
99	344	2007	11	4,60	2981	1	1,00									
100	344	2012	11	4,40	4333	1	1,00									
101	356	2003	11	4,59	2385	1	1,00									
102	356	2005	11	4,56	3649	1	1,00									
103	360	2004	11	4,97	2444	1	1,00									
104	360	2006	11	4,51	6189	1	1,00									
105	360	2007	11	4,86	2917	1	1,00									
106	360	2011	11	4,20	5055	1	1,00									

Vue de données Vue des variables

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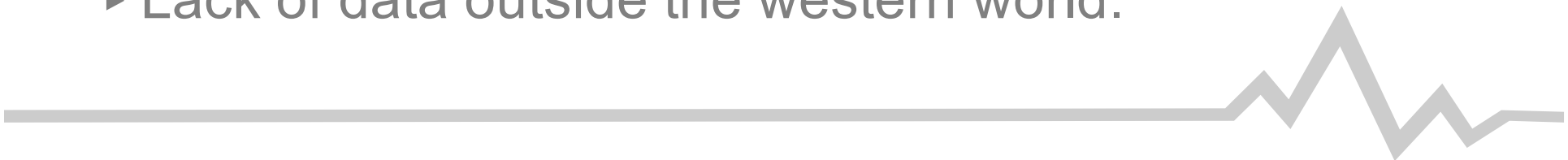
Synthesis of the data

At the time being.

- Measures: 12,340,179
 - Respondents: 1,023,681
 - Countries-years: 659 (97 double)
 - Countries-source-years: 756
 - Countries: 102 (47 double)
 - Countries-source: 149
 - Time-series: 5913
 - In progress: Complete Africa and Mena with new waves, add WVS in Asia + new waves, add Eastern Europe and Russia.
-
- 

An extra step: match external data

- Different sources of data can be matched at level 3 -
- country-year -- or at level 4 -- country:
 - ▶ Quality of government data
 - ▶ V-DEM project data
 - ▶ Word Governance indicators
- For example:
 - Solt Gini, GDP, WGI, Polity index, proportion of urban population, ethnic and religious diversity, etc.
- The main problems:
 - ▶ Some indices do not vary enough over time: preferable to introduce them at the country level.
 - ▶ Lack of data outside the western world.



Concretely : an example of results

- A complete analysis with 4 levels.

Trust in institutions - predictors at 3 & 4 levels						
	Model 0		Example 1		Example 2	
Intercept	4.145 ***		4.239 ***		3.598 ***	
Level Measure						
Media (REF)						
Church			0.817 ***		0.823 ***	
Year			-0.090 ***		-0.089 ***	
Trade Unions			-0.682 ***		-0.682 ***	
ONG- Civil Society			-0.262 ***		-0.262 ***	
Army			-0.005 n.s.		-0.005 n.s.	
Police			-0.515 ***		-0.515 ***	
Public Admin.			-0.442 ***		-0.442 ***	
Judiciary			-0.500 ***		-0.500 ***	
Finance			-0.204 ***		-0.204 ***	
Enterprises			-0.372 ***		-0.372 ***	
Governments			-0.295 ***		-0.295 ***	
Polity2			-0.031 ***		-0.031 ***	
Political Parties			-0.916 ***		-0.916 ***	
Polity2			-0.038 ***		-0.038 ***	
Elections- Elect. Commis.			-0.524 ***		-0.524 ***	
Polity2			0.016 ***		0.016 ***	
International Org.			-0.172 ***		-0.172 ***	
Level Respondent						
woman			0.002 n.s.		0.002 n.s.	
Young (Less than 30)			0.011 ***		0.011 ***	
Old (60 plus)			0.099 ***		0.099 ***	
Prop_Non-resp.			0.219 ***		0.219 ***	
Level Country-Source-Year						
Time			0.023 ***		0.021 **	
Time2			0.001 n.s.		0.001 n.s.	
Prop_urban population			-0.015 ***		-0.010 **	
LnGDP			0.128 *		0.122 *	
Polity2			-0.002 n.s.		0.004 n.s.	
Gini evolution			0.001 n.s.		-0.002 n.s.	
Level Country-Source						
Central/South America (REF)						
Asia					0.339 *	
Africa					0.574 ***	
West Asia N. Africa					0.444 *	
LAPOP					0.267 *	
WVS					0.417 **	
Variance						
Measures	2.537	63.6%	2.294	61.5%	2.294	62.7%
Respondents	1.046	26.2%	1.064	28.6%	1.064	29.1%
Country-Source-Year	0.099	2.5%	0.168	4.5%	0.167	4.6%
Country-Source	0.304	7.6%	0.202	5.4%	0.132	3.6%
Total	3.986		3.728		3.657	
Deviance	38255971		32450232	5805739	32450199	33
dl	5		34	29	37	3



At level 1: Trust in institutions

Trust in institutions - predictors at 3 & 4 levels						
	Model 0		Example 1		Example 2	
Intercept	4.145389	***	4.239	***	3.598344	***
Level Measure						
Media (REF)						
Church			0.817	***	0.823	***
Year			-0.090	***	-0.089	***
Trade Unions			-0.682	***	-0.682	***
ONG- Civil Society			-0.262	***	-0.262	***
Army			-0.005	n.s.	-0.005	n.s.
Police			-0.515	***	-0.515	***
Public Admin.			-0.442	***	-0.442	***
Judiciary			-0.500	***	-0.500	***
Finance			-0.204	***	-0.204	***
Enterprises			-0.372	***	-0.372	***
Governments			-0.295	***	-0.295	***
Polity2			-0.031	***	-0.031	***
Political Parties			-0.916	***	-0.916	***
Polity2			-0.038	***	-0.038	***
Elections- Elect. Commis.			-0.524	***	-0.524	***
Polity2			0.016	***	0.016	***
International Org.			-0.172	***	-0.172	***

In blue:
cross-level
interactions

- Church highest, but decreasing.
- Political parties & trade unions lowest.
- More democratic: Hi Elections; Low GVT & pol. parties.

At level 2: Respondents

Trust in institutions - predictors at 3 & 4 levels					
	Model 0		Example 1		Example 2
Intercept	4.145 ***		4.239 ***		3.598 ***
Level Measure					
Media (REF)					
Church			0.817 ***		0.823 ***
Year			-0.090 ***		-0.089 ***
Trade Unions			-0.682 ***		-0.682 ***
ONG- Civil Society			-0.262 ***		-0.262 ***
Army			-0.005 n.s.		-0.005 n.s.
Police			-0.515 ***		-0.515 ***
Public Admin.			-0.442 ***		-0.442 ***
Judiciary			-0.500 ***		-0.500 ***
Finance			-0.204 ***		-0.204 ***
Enterprises			-0.372 ***		-0.372 ***
Governments			-0.295 ***		-0.295 ***
Polity2			-0.031 ***		-0.031 ***
Political Parties			-0.916 ***		-0.916 ***
Polity2			-0.038 ***		-0.038 ***
Elections- Elect. Commis.			-0.524 ***		-0.524 ***
Polity2			0.016 ***		0.016 ***
International Org.			-0.172 ***		-0.172 ***
Level Respondent					
woman			0.002 n.s.		0.002 n.s.
Young (Less than 30)			0.011 ***		0.011 ***
Old (60 plus)			0.099 ***		0.099 ***
Prop_Non-resp.			0.219 ***		0.219 ***

- No difference in average trust according to sex
- Both younger and older people are more trustful than middle-aged people.
- More Item non response = more trust.



At level 3: Country-year-source

Level Country-Source-Year						
Time			0.023 ***		0.021 **	
Time2			0.001 n.s.		0.001 n.s.	
Prop_urban population			-0.015 ***		-0.010 **	
LnGDP			0.128 *		0.122 *	
Polity2			-0.002 n.s.		0.004 n.s.	
Gini evolution			0.001 n.s.		-0.002 n.s.	
Level Country-Source						
Central/South America (REF)						
Asia					0.339 *	
Africa					0.574 ***	
West Asia N. Africa					0.444 *	
LAPOP					0.267 *	
WVS					0.417 **	
Variance						
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Country-Source-Year	0.099	2.5%	0.168	4.5%	0.167	4.6%
Country-Source	0.304	7.6%	0.202	5.4%	0.132	3.6%
Total	3.986		3.728		3.657	
Deviance	38255971		32450232	5805739	32450199	33
dl	5		34	29	37	3

- Trust increase with time.
- Hi Prop urban population = lower trust.
- Hi GDP = higher trust.



At level 4: Country-source

Level Country-Source-Year						
Time			0.023	***	0.021	**
Time2			0.001	n.s.	0.001	n.s.
Prop_urban population			-0.015	***	-0.010	**
LnGDP			0.128	*	0.122	*
Polity2			-0.002	n.s.	0.004	n.s.
Gini evolution			0.001	n.s.	-0.002	n.s.
Level Country-Source						
Central/South America (REF)						
Asia					0.339	*
Africa					0.574	***
West Asia N. Africa					0.444	*
LAPOP					0.267	*
WVS					0.417	**
Variance						
Measures	2.537	63.6%	2.294	61.5%	2.294	62.7%
Respondents	1.046	26.2%	1.064	28.6%	1.064	29.1%
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Total	3.986		3.728		3.657	
Deviance	38255971		32450232	5805739	32450199	33
dl	5		34	29	37	3

- Higher trust when source is LAPOP or WVS.
- Higher trust outside Latin America, even more in Sub Saharan Africa.



Distribution of Variance

Level Country-Source-Year						
Time			0.023	***	0.021	**
Time2			0.001	n.s.	0.001	n.s.
Prop_urban population			-0.015	***	-0.010	**
LnGDP			0.128	*	0.122	*
Polity2			-0.002	n.s.	0.004	n.s.
Gini evolution			0.001	n.s.	-0.002	n.s.
Level Country-Source						
Central/South America (REF)						
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- 63% of the variance is within individuals, between measures.
- Explained variance:
- At level 1: 9,6%
- Between countries: 56.6%

Questions to be resolved:

- What should we do about weighting?
 - ▶ At the individual level: not all files have equivalent weights, or even weights.
 - ▶ At the country-level: It would give a weight that is way too large to countries like Brasil in Latin America or China in Asia.
- Decide on the level at which external data should be matched.
- Find more relevant indicators of the context of each country.



Conclusion

- The method is now well developed, systematized and described.
- The distribution of variance between levels show how important it is to take into account the within individuals-between measures variance.
- Another advantage is the possibility of cross-level interactions.
- There is some more recent data to add in order to have more powerful analyses.
 - ▶ With the introduction of Eastern Europe this summer and new data for Asia and Africa, we will have covered all the countries outside of the “western world”.

