Capitale sociale, crescita economica e spazio

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Motivation

What's this all about?

How do we decide? Standard approach: *homo oeconomicus*;

> *'It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity, but to their self-love, and never talk to them of our own necessities, but of their advantages.'*
>
> Adam Smith (1776)

Decision maker maximizes utility function which is constant across choice situations (Woodford, 2014). Choices is completely deterministic.

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"Homo sum, humani nihil a me alienum puto"

Departing from standard setting we have:

- behavioural economics;
- neuroeconomics;
- values and beliefs.

'As every employer knows, the lack of **coscienziosità** *of the labourers of such countries, for instance Italy as compared with Germany, has been, and to a certain extent still is, one of the principal obstacles to their capitalistic development.'*

Max Weber (1905)

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Theory

What is social capital?

A journey back from *homo economicus* to *homo sapiens*

- until recently, stated preferences/beliefs treated as exogenous;
- origin of the term is unknown;
- multidisciplinary theme: sociology, political science, economics.

Key issue - we need:

1. a clear definition;
2. more complex models;
3. better data.

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Better definition

'If social capital is to be more than a buzzword (...) there needs to be an identifiable process of investment that adds to the stock, and possibly a process of 'depreciation' that subtracts from it. The stock of social capital should somehow be measurable, even inexactly.'

Robert Solow (1995)

A possible solution: civic capital

Definition of civic capital

'Those persistent values and shared beliefs, which allow a group to overcome the free rider problem in the pursuit of socially valuable activities.'

Guiso, Sapienza and Zingales (2006)

Models of cultural transmission

3 channels:

1. intergenerational transmission of values (parents)
2. indirect socialization (friends, mass media, society)
3. education (school)

A list of available models: Bisin and Verdier (2001), Benabou and Tirole (2006), Tabellini (2008), GSZ (2008).
Open issues:

- determinants are still unclear; some hints from neuroeconomics;
- role of institutions (Heineck and Sussmuth, 2010 for East Germany; Acemoglu and Robinson, 2012, Ariely et al. 2014, Meier et al. 2014 mafia and Palermo);
- long term persistence (GSZ 2008, Borsig-Koch et al. 2011).

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Available measures

A long road ahead...

'One of the greatest weaknesses of the social capital concept is the absence of consensus on how to measure it'

Francis Fukuyama (2000)

Available empirical literature can be grouped according to type of data source:

1. survey data;
2. experiments;
3. outcome based data.

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Rich empirical literature

A (non definitive) list of possible channels:

1. Crime and corruption (Glaeser et. al, 1996; Giordano and Tommasino, 2011, Barone and Narciso, 2013, Buonanno and Pazzona, 2014, Meier et al, 2014);
2. trust (Arrow, 1972; Fukuyama, 1995; La Porta et al., 1997; Knack and Keefer, 1997; Alesina and La Ferrara, 2002; Guiso et al., 2004);
3. thriftiness (Guiso et al., 2006); redistribution (Alesina and Fuchs-Schundeln, 2007; Borsig-Koch et al. 2011)
4. productivity (de Blasio and Nuzzo, 2010);
5. ethnicity (Alesina et al., Alesina and La Ferrara, 2005; Alesina and Angeletos, 2005; 1999; Dahlberg et al., 2012);
6. religion (Guiso et al., 2003) and autonomy (Tabellini, 2010; Bavetta and Navarra, 2014);
7. migration (Ichino and Maggi, 2000; Fernandez, 2004; Giuliano, 2007; Fernandez and Fogli, 2009; Algan and Cahuc, 2010; Luttmer and Singhal, 2011; LeSage and Ha, 2012; Buonanno and Pazzona, 2014).

Social capital and space

- Traditional utility/profit maximisation approach is *a-spatial* (*'A merchant, it has been said very properly, is not necessarily the citizen of any particular country'* - Smith,1776)
- However, spatial agglomerations do matter also for values (Cipolla, 1974; Putnam, 1993; GSZ, 2008)
- Remember the first law of geography: *'everything is related to everything else, but near things are more related than distant things'* (Tobler, 1970)
- Models of cultural transmission are grounded on space/distance (Dixit, 2003, 2004; Tabellini 2008)

Unfortunately, spatial data are hard to use because:

- usually they are available at country level
- modifiable areal unit problem (MAUP)

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Empirical exercise No.1: SC and space

Why a new measure?

Three reasons:

1. few multidimensional measures;
2. scant evidence at subnational level in Europe;
3. poor use of spatial statistics and econometrics tools.

- What: 9 variables (more details here)
- Data sources: Eurobarometer, MOSAiCH, EVS, EED-NSD
- Where: 16 countries, 156 regions (here)
- Methodology: PCA and ESDA/LISA

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Correlations matrix

	Relational	VoterT	NewsUse	TvUse	RadioUse	Respect	Control	G.Trust	Autonomy
Relational	1.00								
Voter T.	-0.01	1.00							
Newsp. Use	0.41***	0.26***	1.00						
Tv Use	-0.03	0.20***	0.02	1.00					
Radio Use	0.19**	-0.01	0.53***	0.06	1.00				
Respect	0.10	0.20***	0.09	0.13	-0.02	1.00			
Control	0.32***	-0.07	0.27***	-0.14*	0.32***	0.09	1.00		
Gen. trust	0.45***	0.25***	0.45***	-0.01	0.26***	0.19**	0.34***	1.00	
Autonomy	0.19**	0.04	0.39***	-0.02	0.22***	-0.01	0.27***	0.38***	1.00

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PCA of the full set of variables

	Comp.1	Comp.2	Comp.3	Comp.4	Comp.5	Comp.6	Comp.7	Comp.8	Comp.9
Eigenvalues	2.7	1.4	1.0	0.9	0.8	0.7	0.6	0.5	0.3
Prop. of variance	0.30	0.16	0.11	0.10	0.09	0.09	0.07	0.05	0.03
Cumulative prop.	0.30	0.46	0.58	0.67	0.76	0.85	0.92	0.97	1.00

Loadings of the 1st and 2nd component →

	Comp.1	Comp.2
Relational intensity	-0.38	0.09
Voter Turnout	-0.14	**-0.62**
Newspapers Use	-0.48	-0.07
TV Use	0.00	**-0.52**
Radio Use	-0.36	0.13
Respect	-0.12	**-0.45**
Control	-0.36	0.29
G. Trust	-0.46	-0.11
Autonomy	-0.35	0.11

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PCA of the *refined* dataset

	Components						Loadings	
	Comp.1	Comp.2	Comp.3	Comp.4	Comp.5	Comp.6	Variable	Comp.1
							Relational intensity	-0.39
Eigenvalues	2.7	0.9	0.8	0.7	0.5	0.4	Newspapers Use	-0.48
Prop. of variance	0.45	0.15	0.14	0.12	0.08	0.06	Radio Use	-0.38
Cumulative prop.	0.45	0.60	0.74	0.86	0.94	1.00	Control	-0.37
							G. Trust	-0.45
							Autonomy	-0.36

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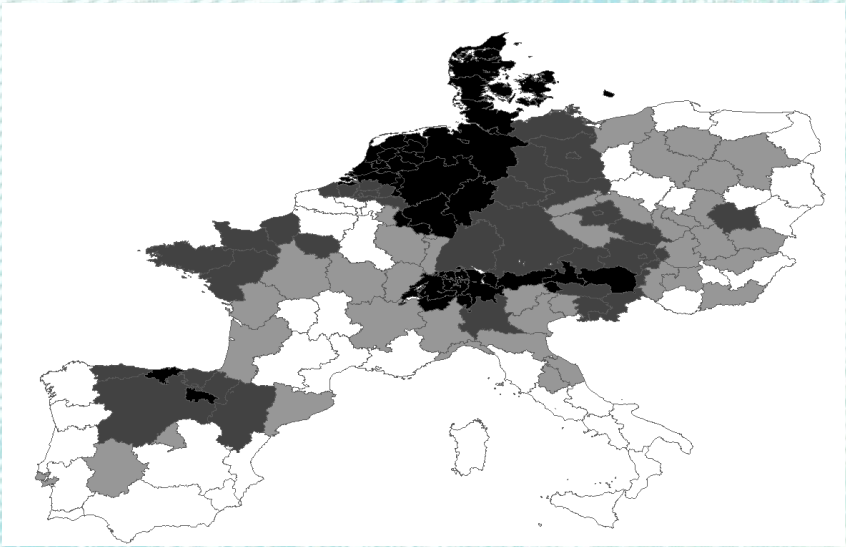
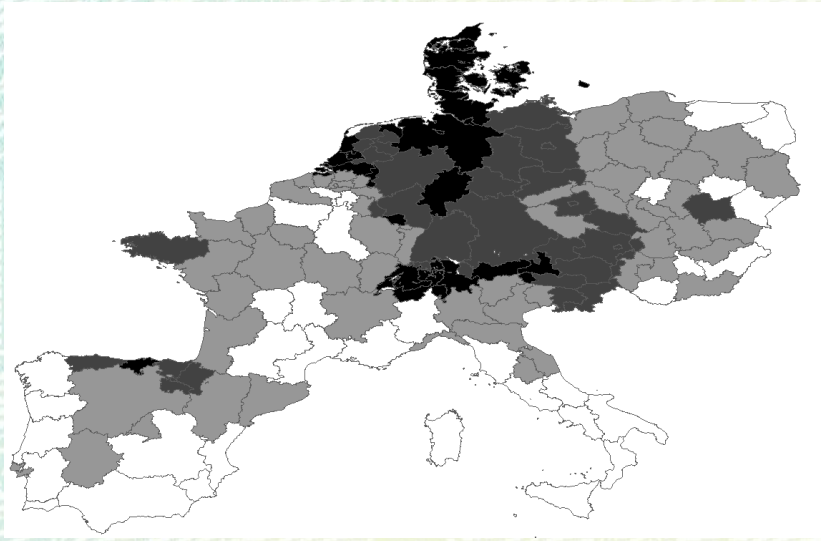
Quartiles of the full set of variables



1st PC



1st PC *robust*

Darker colours denote higher quartiles

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Global spatial autocorrelation

	First PC	Second PC
Full set of variables dataset	0.69***	0.58***
Refined set of variables	0.68***	-
Structural component	0.66***	-
Cognitive component	0.51***	-

Pseudo p-values: *** p<0.01, ** p<0.05, * p<0.1
First order, row standardized, queen contiguity weighting matrix

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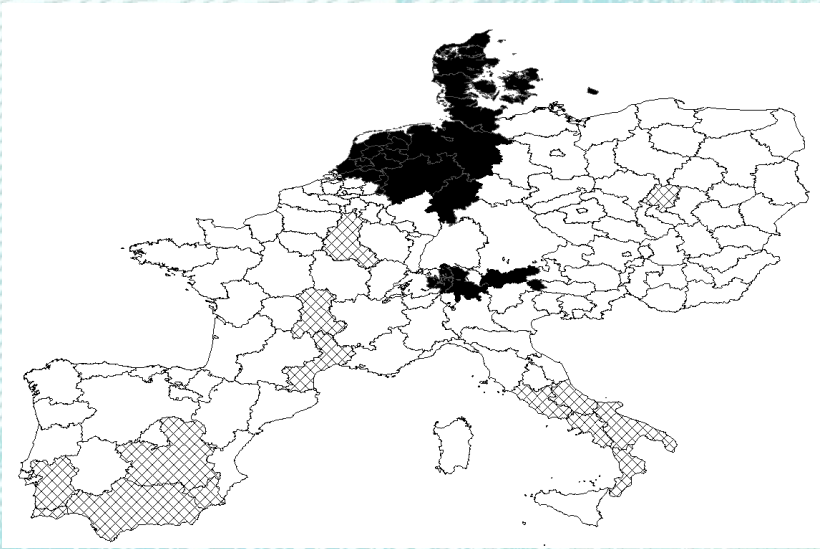
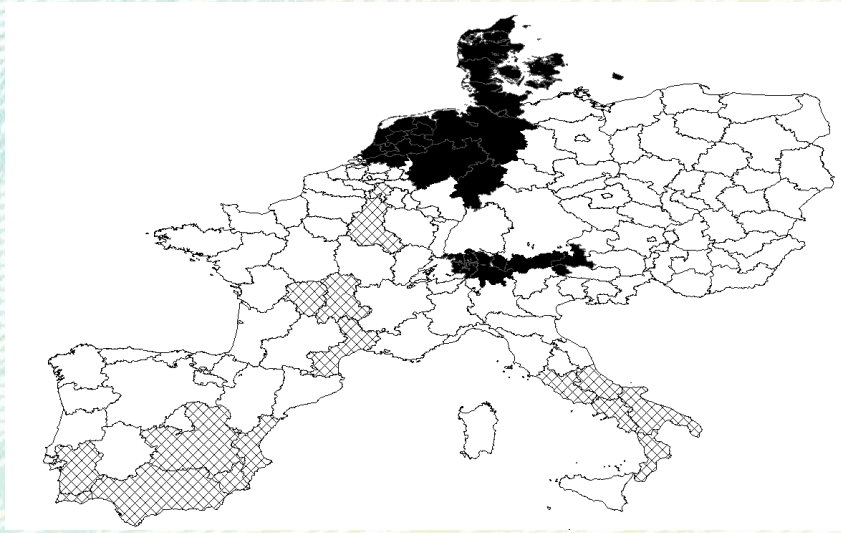
Cluster maps of the full set of variables



1st PC



1st PC *robust*

Dark regions: HH clusters; grid pattern: LL clusters

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Main results

- correlation structure suggests careful handling data;
- however results from PCA are robust;
- evidence of positive spatial autocorrelation across european regions

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Empirical exercise No.2: SC and growth

Identification strategy

Tabellini (2010) estimates:

$$Y = \alpha + \delta C + \beta Y_0 + \gamma X + e$$

Three problems with Tabellini (2010):

1. weak instruments;
2. only *cognitive* measure of social capital used:
3. no spatial techniques used.

We propose two new measures of social capital:

- *pc1*, the first principal component of the aforementioned variables
- *pc1_val*, the first principal component from latest EVS (2008) wave of autonomy, control of life, respect, generalized trust

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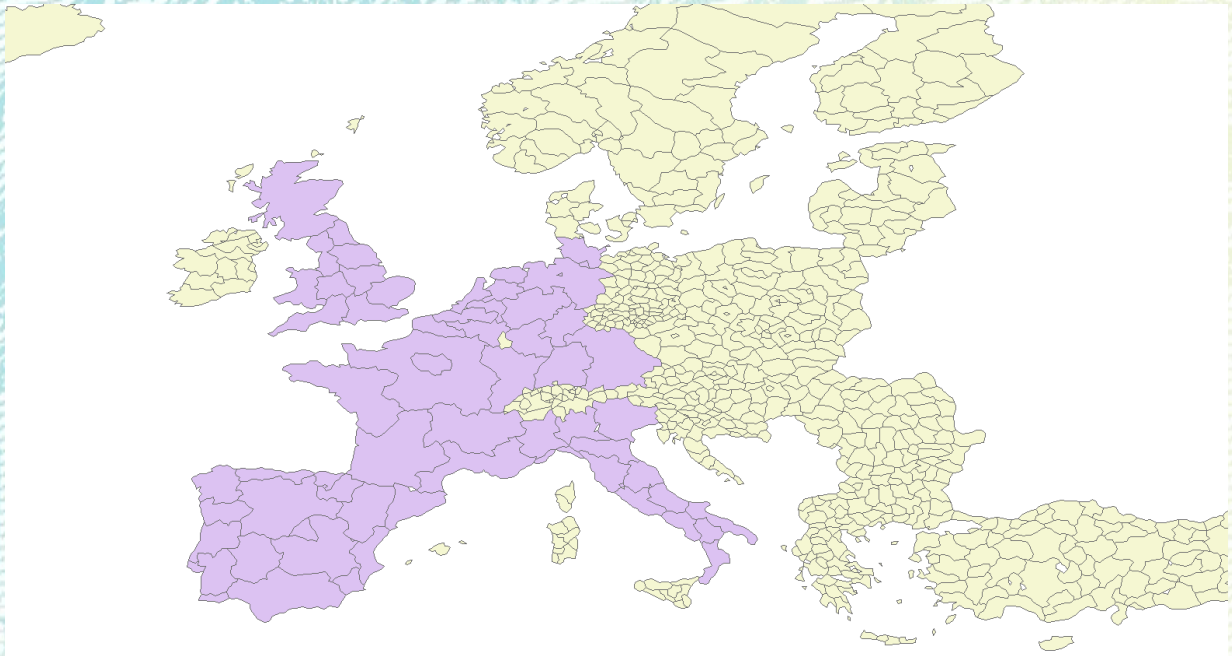
Data

- 8 countries (France, West Germany, the UK, Italy, the Netherlands, Belgium, Spain and Portugal
- 63 regions



9 Variables included: autonomy, control of life, respect, generalized trust, blood donations, TV/radio/newspapers use and voter turnout (more)
Data sources: Eurobarometer, MOSAiCH, EVS, NSD-European election database

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Ordinary least squares

VARIABLES			yp9500		
school	0.54	0.79	0.62	0.32	0.50
	(0.53)	(0.52)	(0.54)	(0.58)	(0.55)
	[0.31]*	[0.30]**	[0.37]*	[0.37]	[0.38]
urb_rate1850	0.63	0.70	0.63	0.65	0.51
	(0.21)***	(0.21)***	(0.22)***	(0.23)***	(0.23)**
	[0.18]***	[0.17]***	[0.17]***	[0.21]***	[0.21]**
pc_culture	0.58				
	(0.15)***				
	[0.13]***				
pc_culture_pos		0.71			
		(0.18)***			
		[0.17]***			
pc_children			0.61		
			(0.18)***		
			[0.20]***		
pc1				9.70	
				(3.43)***	
				[3.40]***	
pc1_val					11.9
					(3.66)***
					[3.76]***
Observations	63	63	63	63	63
R-squared	0.62	0.62	0.60	0.57	0.59
Breusch-Pagan chi2	0.00	0.00	0.01	0.00	0.00
Jarque-Bera chi2	0.00	0.00	0.00	0.00	0.00

[Robust] Standard errors in parentheses. *** p<0.01, ** p<0.05,* p<0.1.
Breusch-Pagan tests the null of homoskedasticity. Jarque-Bera tests normality
Country dummies are included.

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Addressing endogeneity

C is endogenous. Need to modify our identification strategy:

$$C = a + dC_0 + bY_0 + cX + u$$

i.e. culture is the result of contemporaneous social interactions (X) and inherited traditions (C_0). Unfortunately, C_0 is unobserved. Tabellini (2010) suggests to iterate the argument (inherited traditions depend on past social interactions, X_0), and it follows that:

$$C = \lambda_1 + \lambda_2 X_0 + \lambda_3 Y_0 + \lambda_4 X + v$$

where X_0 is literacy rate in 1880 (*literacy*) and political institutions between 1600-1885 (*pc_institutions*).

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Verifying IV conditions (homog. case)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Reduced form				*First-stage*		
VARIABLES		*yp9500*		pc_culture	pc_culture_pos	pc_children	pc1	pc1_val
school	0.76	0.60	0.56	0.31	-0.14	0.24	0.05**	0.02
	(0.56)	(0.53)	(0.52)	(0.39)	(0.31)	(0.37)	(0.02)	(0.02)
urb_rate1850	0.65***	0.57**	0.51**	0.04	-0.12	0.08	0.01	0.01*
	(0.23)	(0.22)	(0.22)	(0.16)	(0.13)	(0.16)	(0.01)	(0.01)
pc_institutions	9.93**		6.73*	10.2***	10.4***	8.08***	0.038	0.48***
	(3.99)		(3.80)	(2.87)	(2.24)	(2.74)	(0.15)	(0.13)
literacy		0.94***	0.82***	0.51**	0.43***	0.28	0.03***	0.01
		(0.25)	(0.25)	(0.19)	(0.15)	(0.18)	(0.01)	(0.01)
Constant	30.5	-17.6	-1.61	-89.3**	-32.6	-52.4	-6.49***	-2.94*
	(50.4)	(47.6)	(47.5)	(35.8)	(28.0)	(34.2)	(1.89)	(1.64)
Observations	63	63	63	63	63	63	63	63
R-squared	0.56	0.61	0.63	0.79	0.81	0.69	0.77	0.73
F	6.64	8.21	8.06	17.2	20.1	10.5	15.9	12.3

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Country dummies included.

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Verifying IV conditions (heter. case)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Reduced form				*First-stage*		
VARIABLES		*yp9500*		pc_culture	pc_culture_pos	pc_children	pc1	pc1_val
school	0.76*	0.60*	0.56	0.31	-0.14	0.24	0.048**	0.023
	(0.40)	(0.35)	(0.35)	(0.32)	(0.24)	(0.27)	(0.02)	(0.02)
urb_rate1850	0.65***	0.57**	0.51**	0.04	-0.12	0.08	0.01	0.01
	(0.19)	(0.26)	(0.23)	(0.16)	(0.13)	(0.13)	(0.01)	(0.01)
pc_institutions	9.93**		6.73	10.2***	10.4***	8.08***	0.04	0.48***
	(4.35)		(4.45)	(3.12)	(2.68)	(2.47)	(0.13)	(0.17)
literacy		0.94***	0.82***	0.51***	0.43***	0.28	0.03***	0.01
		(0.24)	(0.24)	(0.16)	(0.10)	(0.17)	(0.01)	(0.01)
Constant	30.5	-17.6	-1.61	-89.3***	-32.6	-52.4**	-6.49***	-2.94*
	(34.4)	(31.6)	(30.7)	(29.8)	(21.3)	(25.9)	(2.21)	(1.54)
Observations	63	63	63	63	63	63	63	63
R-squared	0.56	0.61	0.63	0.79	0.81	0.69	0.77	0.73
F	35.7	31.1	27.7	25.2	28.4	25.4	35.6	24.0

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Country dummies included.

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Two stage least square (2SLS) estimation [with robust s.e.]

VARIABLES	(1)	(2)	(3)	(4)	(5)
			yp9500		
school	0.28	0.76	0.30	-0.90	0.14
	(0.53)	(0.48)	(0.59)	(0.87)	(0.58)
	[0.31]	[0.27]	[0.38]***	[0.66]	[0.38]
urb_rate1850	0.52	0.67	0.44	0.40	0.25
	(0.21)**	(0.20)***	(0.25)*	(0.29)	(0.27)
	[0.19]***	[0.16]***	[0.20]**	[0.25]	[0.31]
pc_culture	1.02				
	(0.26)***				
	[0.27]***				
pc_culture_pos		1.04			
		(0.25)***			
		[0.30]***			
pc_children			1.38		
			(0.40)***		
			[0.43]***		
pc1				30.6	
				(9.91)***	
				[9.34]***	
pc1_val					23.5
					(7.16)***
					[10.7]**
Sargan's stat. p-value	0.17	0.08	0.09	0.25	0.02
Hansen J stat. p-value	0.20	0.10	0.10	0.13	0.03
F	17.2	20.1	10.5	15.9	12.3
F [robust s.e.]	25.2	28.4	25.4	35.6	24.0
Cragg-Donald stat.	13.3	19.9	7.24	5.21	8.84
Kleibergen-Paap rk	12.1	22.9	5.48	7.21	8.32

[Robust] Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

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GMM-TSE and CUE estimation (with robust s.e)

	(1) TSE	(2) CUE	(3) TSE	(4) CUE	(5) TSE	(6) CUE	(7) TSE	(8) CUE	(9) TSE	(10) CUE
VARIABLES						yp9500				
school	0.29	0.25	0.82***	0.82**	0.35	0.41	-1.17*	-1.31*	0.11	-0.20
	(0.31)	(0.34)	(0.27)	(0.40)	(0.38)	(0.34)	(0.64)	(0.78)	(0.38)	(0.75)
urb_rate1850	0.54***	0.52**	0.71***	0.65***	0.54***	0.56***	0.31	0.29	0.24	-0.11
	(0.19)	(0.21)	(0.15)	(0.18)	(0.19)	(0.18)	(0.25)	(0.30)	(0.31)	(0.68)
pc_culture	1.02***	1.14***								
	(0.27)	(0.31)								
pc_culture_pos			1.09***	1.64***						
			(0.30)	(0.43)						
pc_children					1.21***	1.17***				
					(0.42)	(0.38)				
pc1							38.3***	40.8***		
							(7.86)	(8.62)		
pc1_val									26.2**	58.7**
									(10.6)	(23.7)
Constant	77.4***	84.2***	38.7**	55.7*	67.1**	62.4**	208***	221***	80.5***	136**
	(25.2)	(28.4)	(18.1)	(28.7)	(29.7)	(26.0)	(51.4)	(59.4)	(30.1)	(57.2)
Observations	63	63	63	63	63	63	63	63	63	63
F	25.2	25.2	28.4	28.4	25.4	25.4	35.6	35.6	24.0	24.0
Hansen J p-value	0.20	0.23	0.10	0.18	0.10	0.14	0.13	0.23	0.03	0.17
Kleibergen-Paap rk	12.1	12.1	22.9	22.9	5.48	5.48	7.21	7.21	8.32	8.32

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Hansen J tests the null of exogeneity. Kleibergen-Paap tests the presence of weak iv with critical values by Stock and Yogo (2002) (For 10 percent max size= 19.93 (GMM-TSE) or 8.68 (GMM-CUE))

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A spatial approach

Why a spatial approach?

- Anselin and Arribas-Bel (2011): fixed effects do not solve spatial heterogeneity
- LeSage and Fischer (2008) and LeSage and Pace (2008): under specific conditions, linear model can lead to Spatial Durbin, SAR or SEM, particurarly:
  - a) the existence of an omitted explanatory variable;
  - b) spatially correlated OLS residuals.

a) is suggested by theory and verified by previous analysis

b) instead requires specific tests: Global Moran's I, *LM Lag* and *LM Error* (and their robust counterparts)

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Spatial tests

Test/OLS Specification	*pc_culture*	*pc_culture_pos*	*pc_children*	*pc1*	*pc1_val*
Moran's I	0.06	0.53	0.05	0.60	0.97
LM Error	0.23	0.93	0.19	0.98	0.67
LM Lag	0.87	0.84	0.90	0.98	0.76
LM Error *robust*	0.12	0.74	0.05	0.99	0.76
LM Lag *robust*	0.32	0.71	0.13	0.99	0.99

Moran's I null: no spatial autocorrelation. LM Error/Lag null: OLS specification

Results

Only *pc_culture* and *pc_children* reject the null of no spatial autocorrelation and both point in the direction of a SEM. It follows that both conditions of LeSage and Pace (2008) are met. Moreover, the use of spatial lags of instruments as new IVs did not produce significant results.

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Spatial models

A *spatial-autoregressive model with spatial autoregressive disturbances* (SARAR), is defined as:

$$y_i = \lambda \sum_{j=1}^{n} w_{ij} y_j + \sum_{p=1}^{k} x_{ip} \beta_p + u_i$$

$$u_i = \rho \sum_{j=1}^{n} w_{ij} u_j + \epsilon_i$$

where y is a $n \times 1$ vector of observation, W and M are $n \times n$ spatial weighting matrices, X is a $n \times k$ matrix of k exogenous regressors.
Overall, SARAR has 4 parameters, $\theta = \left[\lambda, \rho, \beta, \sigma^2\right]$ and SAR and SEM are just particular cases of SARAR (respectively, when $\rho = 0$ or $\lambda = 0$)

$$\begin{cases} y = \lambda W y + X\beta + u \\ u = \rho W u + \epsilon \end{cases}$$

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SARAR(1,1) regression

VARIABLES	yp9500				
school	0.36	0.58*	0.4	-0.08	0.29
	(0.35)	(0.35)	(0.36)	(0.39)	(0.33)
urb_rate1850	0.78***	0.81***	0.77***	0.81***	0.65***
	(0.18)	(0.17)	(0.18)	(0.17)	(0.18)
pc_culture	0.32**				
	(0.14)				
pc_culture_pos		0.49***			
		(0.17)			
pc_children			0.33*		
			(0.17)		
pc1				5.32**	
				(2.54)	
pc1_val					9.30***
					(3.27)
λ	0.74***	0.60***	0.82***	1.08***	0.82***
	(0.21)	(0.22)	(0.19)	(0.15)	(0.16)
ρ	-0.87***	-0.87***	-0.84***	-1.02***	-0.92***
	(0.25)	(0.24)	(0.25)	(0.19)	(0.21)
Observations	63	63	63	63	63

GS2SLS estimator with *standard instruments*. Standard errors in parentheses

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Spatial error model (SEM)

VARIABLES	yp9500				
school	0.64	0.92**	0.69	0.33	0.6
	(0.45)	(0.4)	(0.48)	(0.53)	(0.47)
urb_rate1850	0.66***	0.75***	0.63***	0.66***	0.51**
	(0.2)	(0.19)	(0.2)	(0.21)	(0.22)
pc_culture	0.61***				
	(0.13)				
pc_culture_pos		0.79***			
		(0.13)			
pc_children			0.62***		
			(0.16)		
pc1				9.83***	
				(3.1)	
pc1_val					13.0***
					(3.34)
ρ	-0.29	-0.48**	-0.12	-0.074	-0.23
	(0.25)	(0.23)	(0.23)	(0.18)	(0.23)
Observations	63	63	63	63	63

GS2SLS estimator with *standard instruments*. Standard errors in parentheses. *** p¡0.01, ** p¡0.05, * p¡0.1

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SARAR(1,1) with additional instruments

	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
VARIABLES					yp9500					
school	0.38	0.35	0.63*	0.64*	0.45	0.42	0.07	0.017	0.26	0.09
	(0.38)	(0.39)	(0.36)	(0.37)	(0.41)	(0.38)	(0.45)	(0.42)	(0.35)	(0.38)
urb_rate1850	0.74***	0.72***	0.79***	0.78***	0.71***	0.74***	0.82***	0.81***	0.57***	0.60***
	(0.19)	(0.19)	(0.18)	(0.18)	(0.2)	(0.19)	(0.17)	(0.18)	(0.2)	(0.21)
pc_culture	0.46**	0.54***								
	(0.2)	(0.18)								
pc_culture_pos			0.63***	0.70***						
			(0.24)	(0.21)						
pc_children					0.55**	0.44*				
					(0.27)	(0.24)				
pc1							5.47*	6.28**		
							(3.32)	(2.79)		
pc1_val									13.0**	11.1*
									(5.14)	(6.08)
λ	0.53**	0.47**	0.45*	0.39	0.55**	0.69***	0.88***	0.85***	0.68***	0.97***
	(0.25)	(0.23)	(0.26)	(0.24)	(0.25)	(0.22)	(0.15)	(0.14)	(0.2)	(0.26)
ρ	-0.73**	-0.70**	-0.80***	-0.77***	-0.63**	-0.74***	-0.90***	-0.88***	-0.87***	-0.91***
	(0.29)	(0.3)	(0.26)	(0.26)	(0.3)	(0.28)	(0.2)	(0.21)	(0.23)	(0.22
First-stage F	8.48	7.67	9.78	9.81	5.42	4.71	6.55	6.65	5.31	6.05
Observations	63	63	63	63	63	63	63	63	63	63

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. (1) instruments used: *standard instruments* plus ***literacy*** and ***pc_institutions***. (2) instruments used: *standard instruments* plus ***literacy***, ***pc_institutions***, $W * literacy\_spl$,

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Spatial error model (SEM) with additional instruments

	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
VARIABLES						yp9500				
school	0.39	0.43	0.86**	0.88**	0.48	0.56	0.13	0.18	0.44	0.44
	(0.48)	(0.47)	(0.4)	(0.4)	(0.54)	(0.51)	(0.58)	(0.56)	(0.48)	(0.47)
urb_rate1850	0.59***	0.60***	0.74***	0.74***	0.47*	0.51**	0.63***	0.64***	0.37	0.36
	(0.21)	(0.21)	(0.19)	(0.19)	(0.24)	(0.23)	(0.21)	(0.21)	(0.24)	(0.24)
pc_culture	0.94***	0.89***								
	(0.18)	(0.17)								
pc_culture_pos			0.95***	0.91***						
			(0.17)	(0.16)						
pc_children					1.34***	1.17***				
					(0.29)	(0.26)				
pc1							13.2***	12.4***		
							(4.75)	(4.13)		
pc1_val									19.7***	20.6***
									(5.36)	(4.87)
ρ	-0.33	-0.34	-0.53**	-0.53**	-0.3	-0.29	-0.12	-0.11	-0.43	-0.46*
	(0.29)	(0.29)	(0.24)	(0.23)	(0.3)	(0.29)	(0.19)	(0.19)	(0.27)	(0.27)
First-stage F	8.62	9.95	11.33	10.55	5.28	5.28	8.67	8.86	6.12	6.25
Observations	63	63	63	63	63	63	63	63	63	63

S.e. in parentheses.*** p<0.01, ** p<0.05, * p<0.1. (1) instruments used: *standard instruments* plus *literacy,pc_institutions*.

(2) instruments used:*standard instruments* plus *literacy*, *pc_institutions*, $W * literacy\_spl$, $W * pc\_institutions$.

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Spatial Durbin

VARIABLES			yp9500		
yp9500_spl	0.07	-0.25	0.14	-0.32	-0.36
	(0.21)	(0.22)	(0.20)	(0.20)	(0.25)
school	0.36	0.60	0.39	-0.23	0.50
	(0.56)	(0.56)	(0.56)	(0.60)	(0.61)
urb_rate1850	0.47**	0.66***	0.49**	0.86***	0.59***
	(0.22)	(0.21)	(0.21)	(0.22)	(0.22)
school_spl	-0.31	-0.44	-0.16	-3.05**	-1.06
	(0.99)	(0.95)	(0.97)	(1.23)	(0.97)
urb_rate1850_spl	0.34	0.74*	0.30	1.30***	0.59
	(0.37)	(0.40)	(0.35)	(0.41)	(0.37)
pc_culture	0.65***				
	(0.16)				
pc_culture_spl	-0.41				
	(0.36)				
pc_culture_pos		0.64***			
		(0.18)			
pc_culture_pos_spl		0.42			
		(0.47)			
pc_children			0.76***		
			(0.20)		
pc_children_spl			-0.86**		
			(0.36)		
pc1				11.9***	
				(3.28)	
pc1_spl				19.8**	
				(8.47)	
pc1_val					10.0***
					(3.43)
pc1_val_spl					11.8
					(8.77)

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Main results

Estimator	Measures of social capital	Coef. of *pc_culture_pos*
OLS	all measures	0.71
2SLS	pc_culture_pos	1.04
GMM	pc_culture and pc_culture_pos	1.09 (TSE) / 1.64 (CUE)
SARAR	all measures	0.49
SEM	all measures	0.79
SARAR_IV	pc_culture_pos	0.63 (1) / 0.80 (2)
SEM_IV	pc_culture_pos	0.95 (1) / 0.91 (2)
Spatial Durbin	all measures	0.64

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Open issues/Further developments

- Determinants of SC;
- role of institutions (Barone and Mocetti, 2009; Acemoglu and Robinson, 2012; Paccagnella e Sestito, 2014);
- long term persistence;
- iteraction policymaking and low SC;
- policy issue?

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Thank you for your attention!

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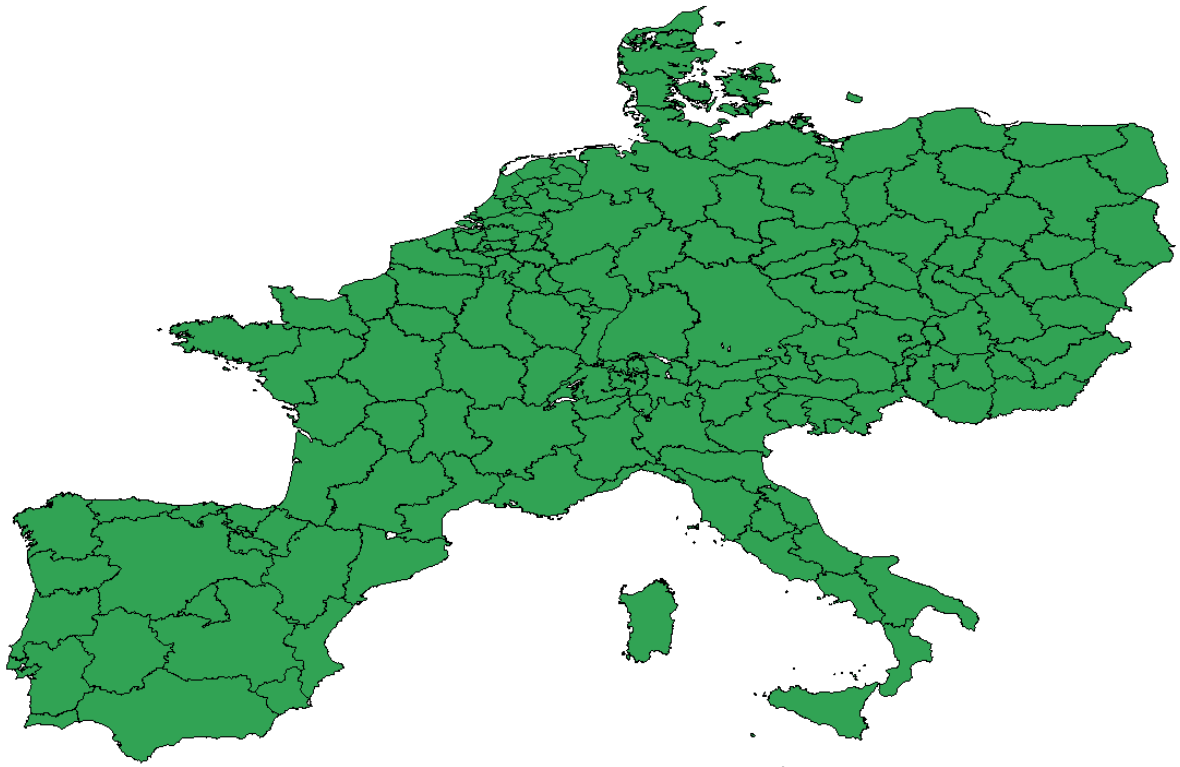
Map of involved regions



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Taxonomy of social capital measures

Structural component	**Cognitive component**
Media Use: Newspapers	Respect for others
Media Use: TV	Control of your life
Media Use: Radio	Autonomy
Relational intensity	Generalized Trust
Voter turnout	

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Descriptive statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
		Dep. Variable (Y)			
yp9500	63	97.33	30.46	50.17	215.33
		Covariates (X, Y_0)			
school	63	73.52	11.55	51.55	95.48
urb_rate1850	63	11.66	13.64	0	57.43
		Measures of social capital (C)			
pc_culture	63	-1.09	30.12	-56.69	57.22
pc_children	63	-0.49	23.90	-57.62	58.28
pc_culture_pos	63	-2.25	25.00	-49.99	39.47
pc1	63	0	1.54	-3.50	3.35
pc1_val	63	0	1.21	-2.30	4.51
		Instrumental variables (Z)			
pc_institutions	63	0.06	2.00	-2.09	3.58
literacy	63	55.98	25.52	14.6	96.5

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