

SOCIAL CAPITAL, RELIGION, AND HEALTH

Exploring the Endogeneity Issue
at the Individual Level

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Rationale

The health - social capital nexus

At the individual level, it is not completely established whether good health is the result of social capital or whether social capital is the result of good health (Kawachi, 2007)

D'Hombres *et al.* (2007) → IV:

Instruments at the aggregated scale may bias the results...

but brings into play “religious beliefs” as a potential instrument?

Religious beliefs are associated with health

Control adverse health behaviors and provide social networks and support

Are health benefits attributable to religion or to social activity in general? (Yeager *et al.*, 2006)

Social participation is a potential mediator between religious beliefs and health (believers volunteer more often than others) → IV?

Social Capital

A definition based on interpersonal networks

SC made of sum of past investments (time, effort) in socializing

Focus on older people (50+)

The correlation between SC and Health is higher for this sub-population

More leisure time due to retirement, less family constraints?

A binary index of social capital (SHARE data)

Membership in associations (voluntary/charity work, training course, sport/social club, religious organization, and political/community org.)

Help family, friends, or neighbors

Social capital = 1 if respondent i is involved in any of these activities

= 0 otherwise

Share Data

Survey of Health, Aging, and Retirement in Europe

Inspired by HRS and ELSA

2 waves: 2004 and 2006

Cross sect \approx 27,000 resp. (50+) in 2004

Panel data \approx 17,000 in 11 countries

Various health measures

General (SRH)

Mental health (Euro-D, cognitive impairments)

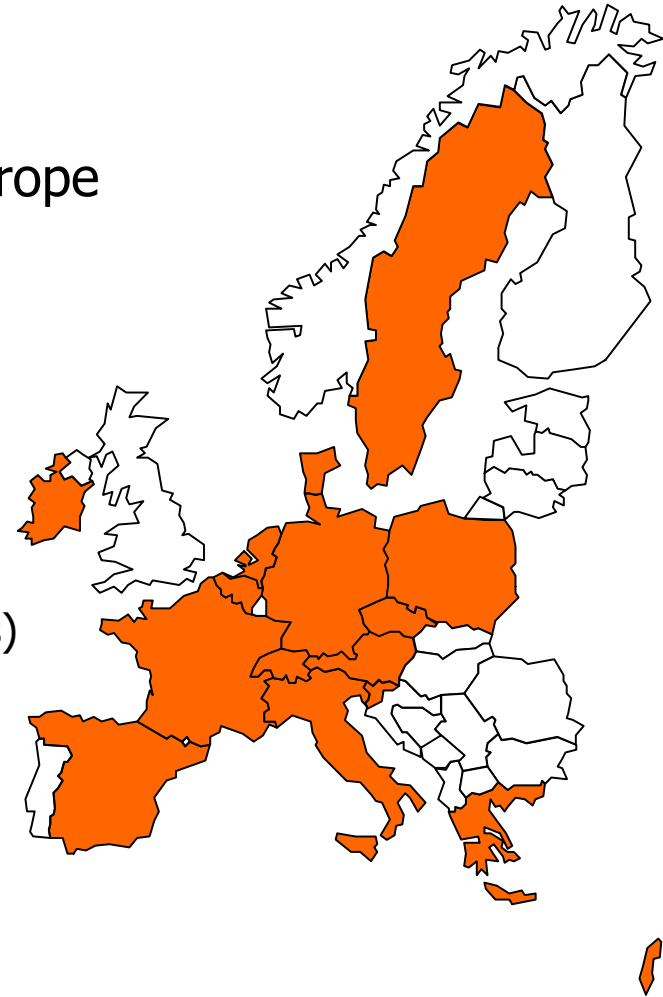
Physical health (CVD, ADL & IADL)

Question on religious beliefs

“What religion do you belong
or feel attached to mostly?”

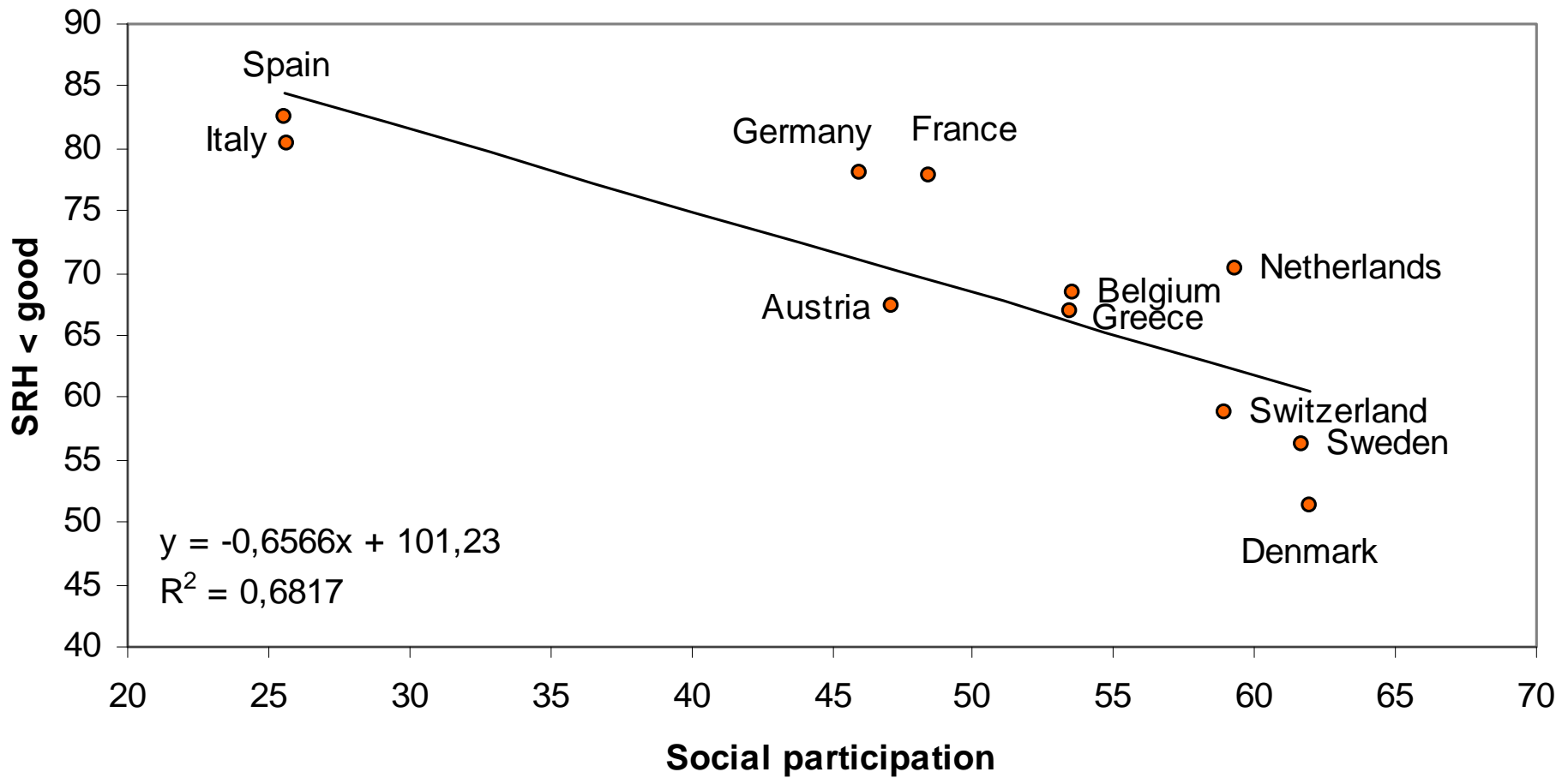
Missing data are kept

+ Other covariates



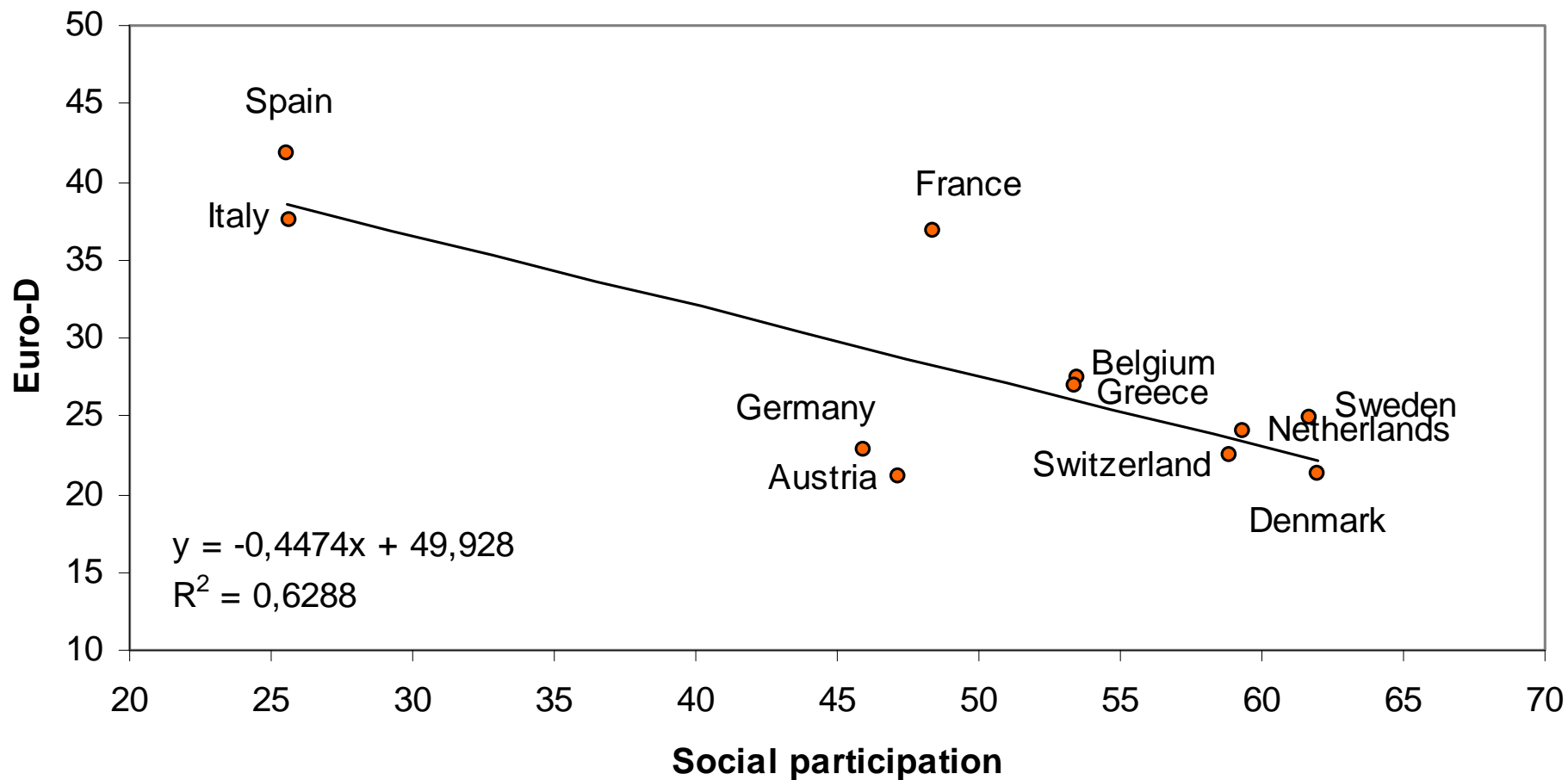
Social capital and bad SRH (SHARE 2004)

weighted statistics



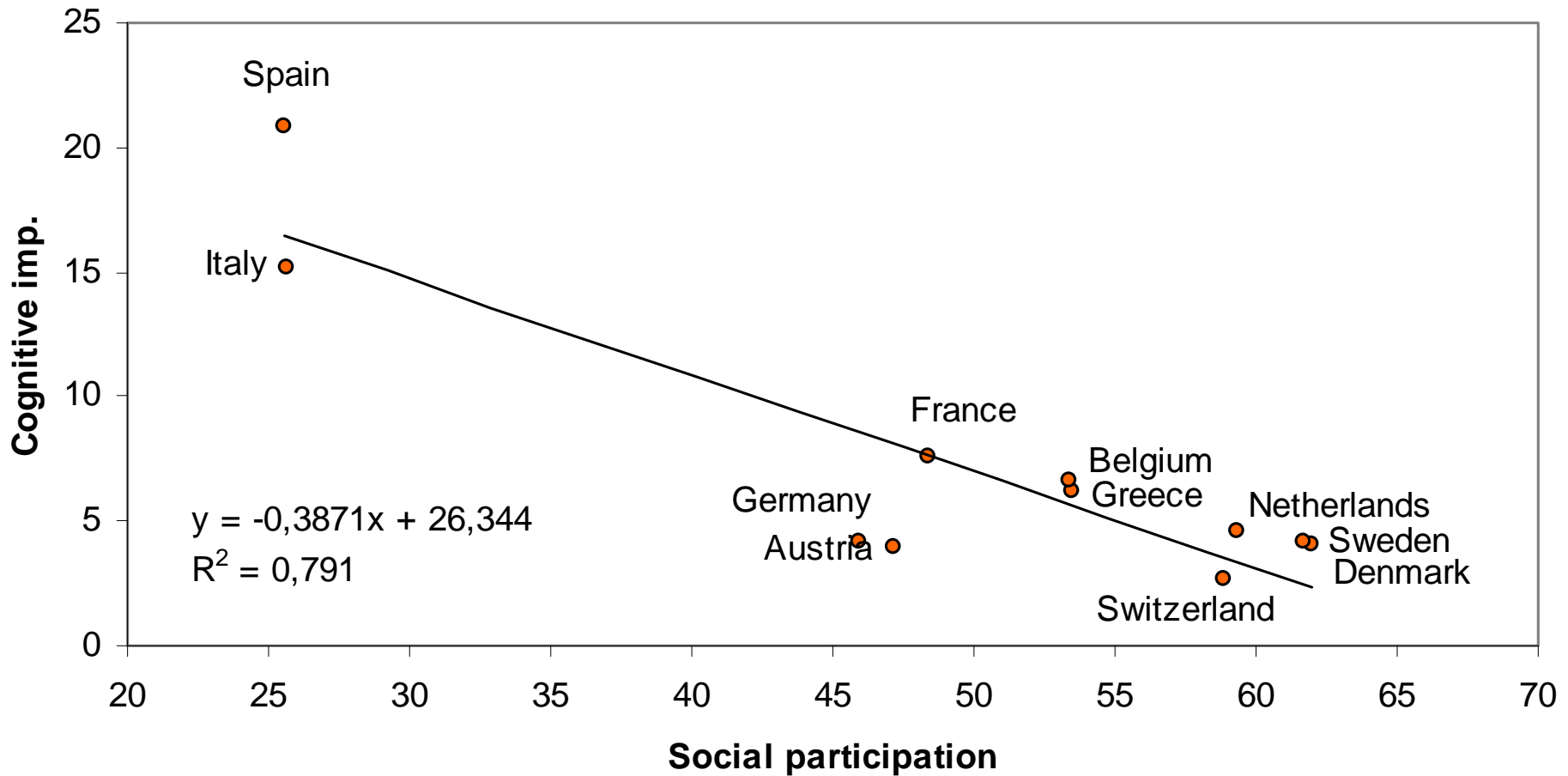
Social capital and Depression (SHARE 2004)

weighted statistics



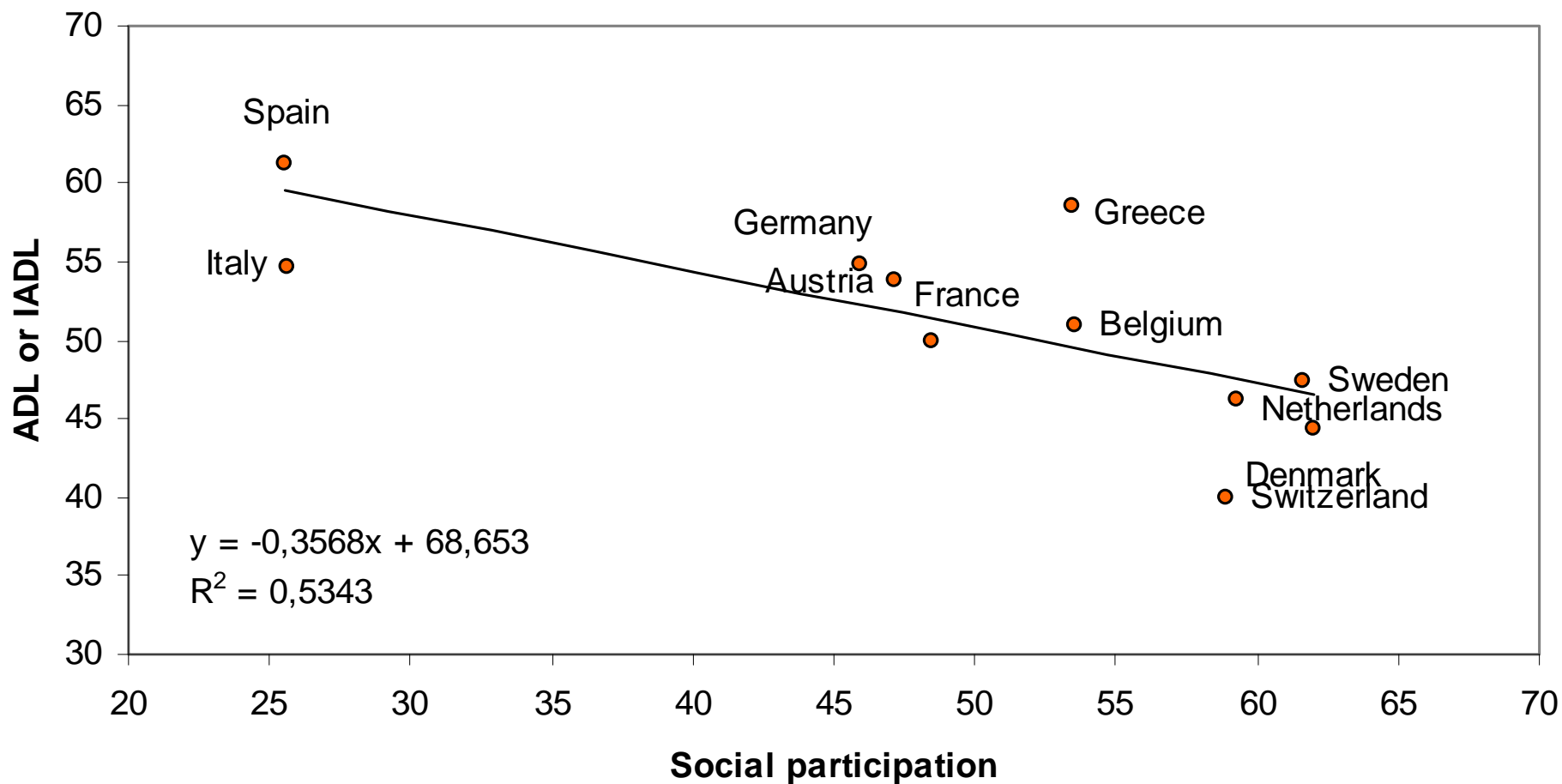
Social capital and Cognitive Impairments (SHARE 2004)

weighted statistics



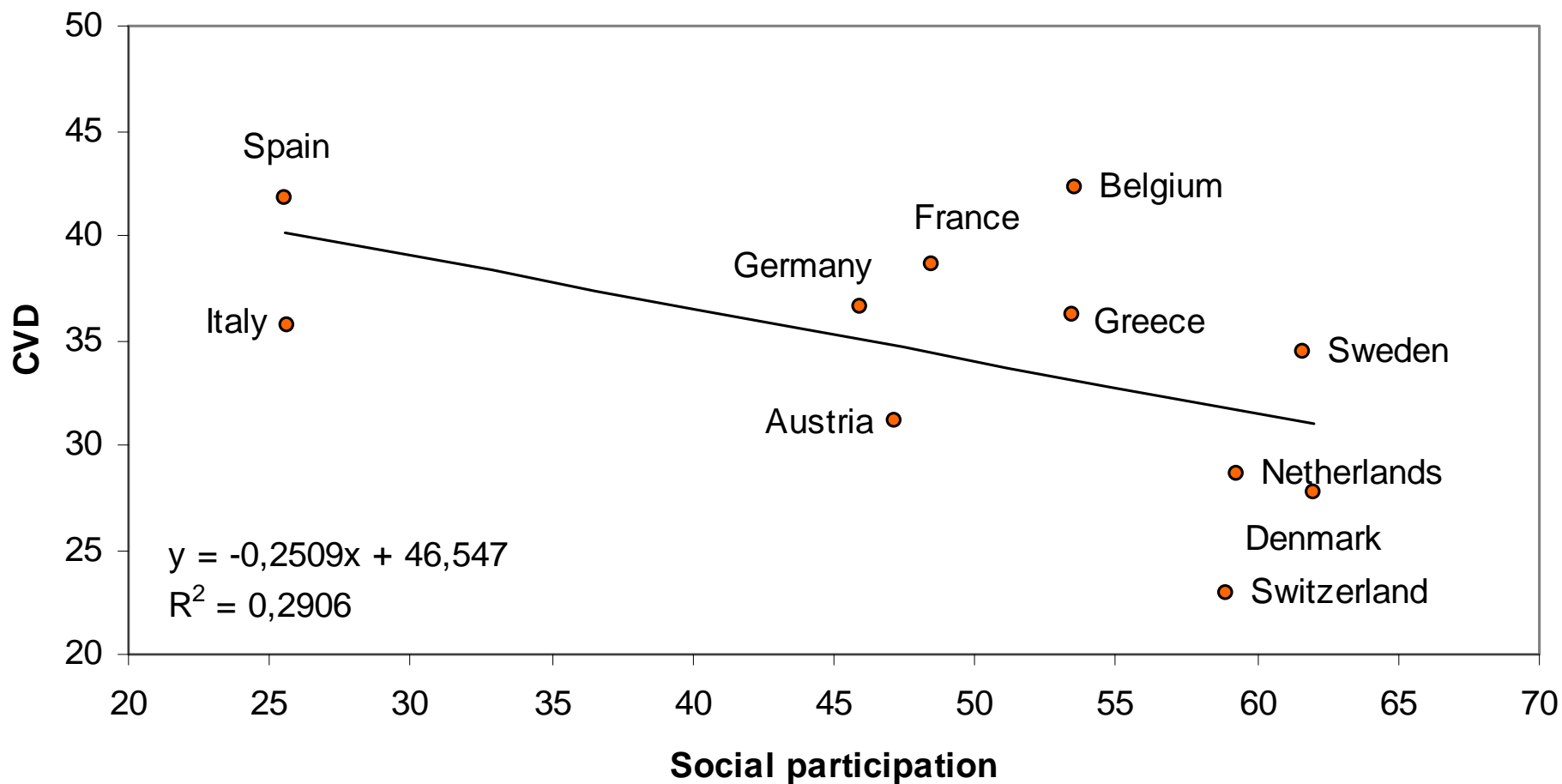
Social capital and ADL or IADL (SHARE 2004)

weighted statistics



Social capital and Cardio Vascular Disease (SHARE 2004)

weighted statistics



Method

IV Probit

$$\begin{cases} H_i^* = \beta_1' X + \delta S_i + \varepsilon_i \\ S_i^* = \beta_2' X + \lambda' Z + \mu_i \end{cases}$$

Testing for endogeneity and instrument validity

LR test for rho (H0: Log L. IV Probit = sum of Log L. univariate Probits)

Wald test for $a_1' \perp H_i$ and a_2' sig.corr. with S_i "simultaneously"

i.e. taking into account unobservable factors affecting both H_i and S_i

$$\begin{cases} H_i^* = b_1' X + a_1' Z_i + \varepsilon_i \\ S_i^* = b_2' X + a_2' Z + \mu_i \end{cases}$$

Exclusion Restrictions

	Health 2004		Health 2004 (additional covariates)		Health 2006	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
SRH						
Religious beliefs	-0,005	0,034	-0,015	0,035	-0,067	0,043
Missing values	0,040	0,037	0,039	0,037	-0,036	0,047
<i>rho</i>	-0,111 ***	0,011	-0,116 ***	0,011	-0,076 ***	0,014
Cognitive imp.						
Religious beliefs	-0,114	0,075	-0,092	0,076	-0,005	0,101
Missing values	0,148 *	0,076	0,161 **	0,077	0,167	0,104
<i>rho</i>	-0,216 ***	0,018	-0,211 ***	0,019	-0,187 ***	0,023
Euro-D						
Religious beliefs	-0,011	0,037	-0,022	0,038	-0,783	0,274
Missing values	0,022	0,039	0,009	0,040	-0,422	0,028
<i>rho</i>	-0,079 ***	0,011	-0,078 ***	0,011	0,427 **	0,170
CVD						
Religious beliefs	-0,042	0,034	-0,050	0,035	-0,048	0,042
Missing values	-0,055	0,036	-0,058	0,037	-0,068	0,045
<i>rho</i>	-0,025 **	0,010	-0,030 ***	0,011	-0,007	0,013
IADL						
Religious beliefs	-0,015	0,034	-0,034	0,035	-0,049	0,042
Missing values	-0,027	0,036	-0,036	0,037	-0,020	0,045
<i>rho</i>	-0,057 ***	0,010	-0,060 ***	0,011	-0,056 ***	0,013

Legend: * p<0.1; ** p<0.05; *** p<0.01

Determinants of SRH (\leq good)

	Probit		IV Probit			
			Health equation		Social capital equation	
	Coef.	Robust S.E.	Coef.	Robust S.E.	Coef.	Robust S.E.
Social capital	-0,183 ***	0,018	-0,676 **	0,204		
Socio-economic						
Male	-0,095 ***	0,017	-0,101 ***	0,017	-0,043 **	0,016
Age	0,025 ***	0,001	0,022 ***	0,002	-0,016 ***	0,001
Education (years)	-0,049 ***	0,002	-0,040 ***	0,005	0,040 ***	0,002
Married	-0,026	0,021	-0,030	0,021	-0,037 *	0,020
Income						
Quintile 1	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Quintile 2	-0,001	0,027	0,023	0,029	0,123 ***	0,025
Quintile 3	-0,110 ***	0,027	-0,074 **	0,031	0,179 ***	0,025
Quintile 4	-0,132 ***	0,027	-0,086 **	0,034	0,225 ***	0,026
Quintile 5	-0,172 ***	0,028	-0,130 ***	0,034	0,201 ***	0,026
Country						
...						
Constant	0,122	0,084	0,428 **	0,150	0,224 **	0,081
Instruments						
Religious beliefs					0,199 ***	0,033
Missing value					0,057	0,035
N	26751				26751	
Log L	-14754,9				-31686,8	
rho					0,306 **	0,128
LR test : Chi² (p-val.)					5,022	0,025

Sensitivity Analysis

	Sample	N	Probit		IV Biprobit					
			Coef.	S.E.	Coef.	S.E.	rho	LR test		
SRH										
2006	Panel	17358	-0,125 ***	0,022	-0,784 ***	0,288	0,411 **	3,975		
2004	Cross sect.	26751	-0,183 ***	0,018	-0,676 ***	0,204	0,306 **	5,022		
2004 add. covar.	Cross sect.	26119	-0,192 ***	0,018	-0,696 ***	0,177	0,313 ***	6,960		
Cognitive imp.										
2006	Panel	17076	-0,317 ***	0,039	-0,797 ***	0,164	0,299 ***	7,975		
2004	Cross sect.	26431	-0,377 ***	0,032	-1,237 ***	0,126	0,541 ***	29,871		
2004 add. covar.	Cross sect.	25811	-0,366 ***	0,033	-1,213 ***	0,147	0,531 ***	21,523		
Euro-D										
2006	Panel	17395	-0,093 ***	0,022	-0,783 ***	0,274	0,427 **	4,787		
2004	Cross sect.	26709	-0,128 ***	0,018	0,401	0,552	-0,324	0,795		
2004 add. covar.	Cross sect.	26079	-0,127 ****	0,018	0,398	0,495	-0,321	0,974		
CVD										
2006	Panel	17355	-0,012	0,021	-0,135	0,244	0,076	0,255		
2004	Cross sect.	26756	-0,042 **	0,017	-0,376	0,243	0,206	1,775		
2004 add. covar.	Cross sect.	26124	-0,051 ***	0,017	-0,413	0,252	0,223	1,924		
ADL or IADL										
2006	Panel	17395	-0,093 ***	0,021	-0,473 *	0,242	0,235	2,285		
2004	Cross sect.	26756	-0,092 ***	0,017	0,095	0,203	-0,115	0,845		
2004 add. covar.	Cross sect.	26124	-0,098 ***	0,017	-0,042	0,190	-0,034	0,085		

Conclusion

Social capital has a causal beneficial influence on SRH

Omitted variable bias could underestimate the influence of social capital on health in univariate analysis (measurement error?)

There is an important lagged effect of social capital on health

Even after controlling for omitted variable bias in the case of SRH and mental health outcomes

However, social capital is not the panacea...

We cannot state on the causal influence of social capital on some health domains (physical health)

Results are specific to older people (selection bias?)

Promoting **any form** of social participation for healthy aging?

Thank You

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