Keeping up with the E-Joneses: do online social networks raise social comparisons?

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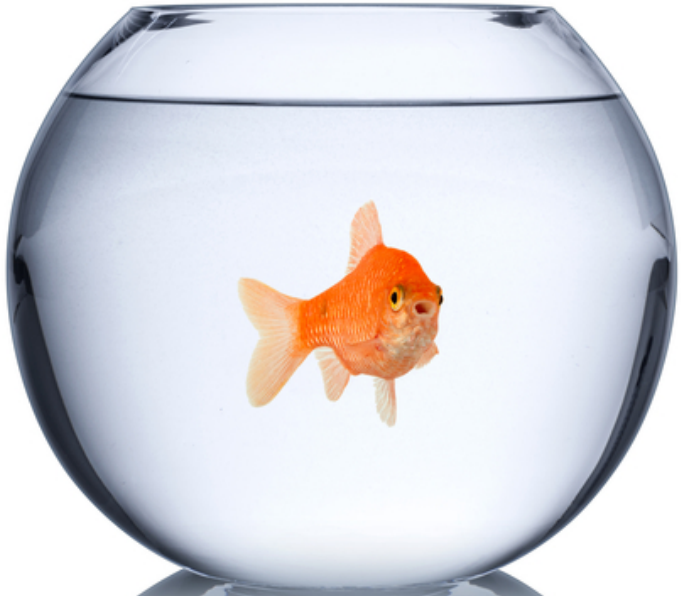
Facebook and me

Compared to others, my life is a grey routine



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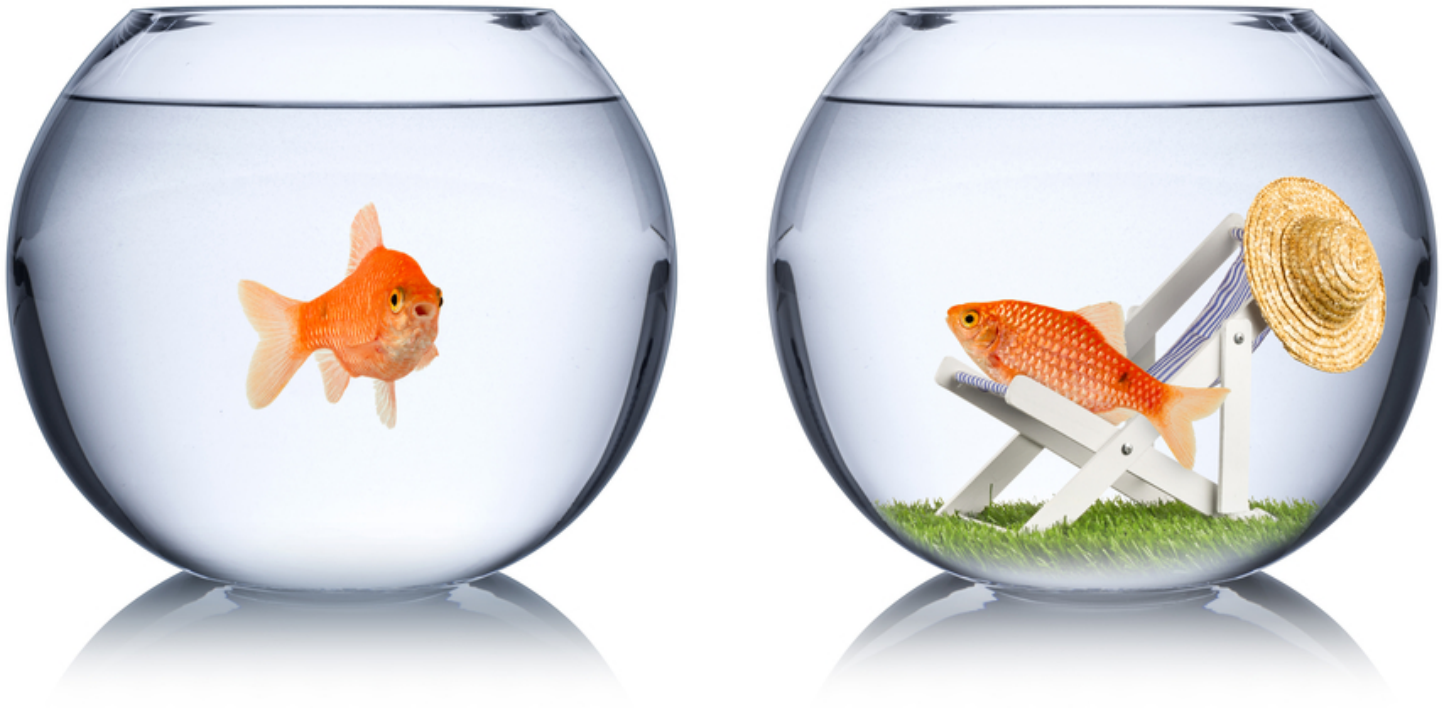


Facebook as an outlet of idealized existences:

A more intense use of Facebook makes users more likely to believe that others are "happier" and "had better lives" than people who used the online social network less frequently *(Chou and Edge, 2012)*.

What we know:

On average people report comparing themselves to others about **once per day**.

(Wheeler and Miyake, 1992.)

Online social networks may contribute because:

- number of people to interact with;
- large amount of information about distant acquaintances;
- users can keep in touch with numerous friends many times per day;
- more opportunities for upward comparisons.

The Research question

Online social networks enhance the **visibility of alternative lifestyles**.

Do online social networks increase social comparisons?

The volume of personal information disclosed by online social networks are a powerful source of social comparisons.

Our contribution:

- We use nationally representative data about the use of online social networks;
- We bridge two literatures:

role of media and **economic consequences** of social comparisons

(Stutzer, 2004; Bruni and Stanca, 2006; D'Ambrosio and Frick, 2007)

role of online social networks and **psychological consequences** in small samples of users

(de Vries and Kühne, 2015; Lim and Yang, 2015; Tandoc et al., 2015)

The datasets we used

Eurobarometer:

- years: 2011, 2012, 2013;
- $\backsim$ 84,000 obs. from 28 European countries;
- "How would you judge the current financial situation of your household". Answers from 1 ('very good') to 4 ('very bad').
- "To what extent do you use online social networks?". Answers from 1 ('everyday') to 6 ('never').
- Lewbel's method to control for endogeneity.

Multipurpose Household Survey:

- years: 2010, 2011, 2012;
- $\backsim$ 39,000 obs.
- "How satisfied do you feel with your financial conditions?". Answers from ('very satisfied') to 4 ('not at all satisfied')
- "Do you use online social networks?". Answers: Yes/No.
- 2SLS with: % of peope with DSL connection; % not covered by optical fibre;
- Lewbel's method to control for endogeneity.

Controls: Age, gender, marital status, family size, education, work status, time spent watching television, *dots*.

Financial dissatisfaction & social comparisons

Figure: Dissatisfaction is strongly linked to social comparisons

(Stouffer et al., 1949)

Methods

Ordered probit:

$$Y_i = \alpha + \beta_1 \cdot fb_i + \boldsymbol{\theta} \cdot \mathbf{X_i} + \varepsilon_i, \varepsilon_i \sim N(0,1)$$

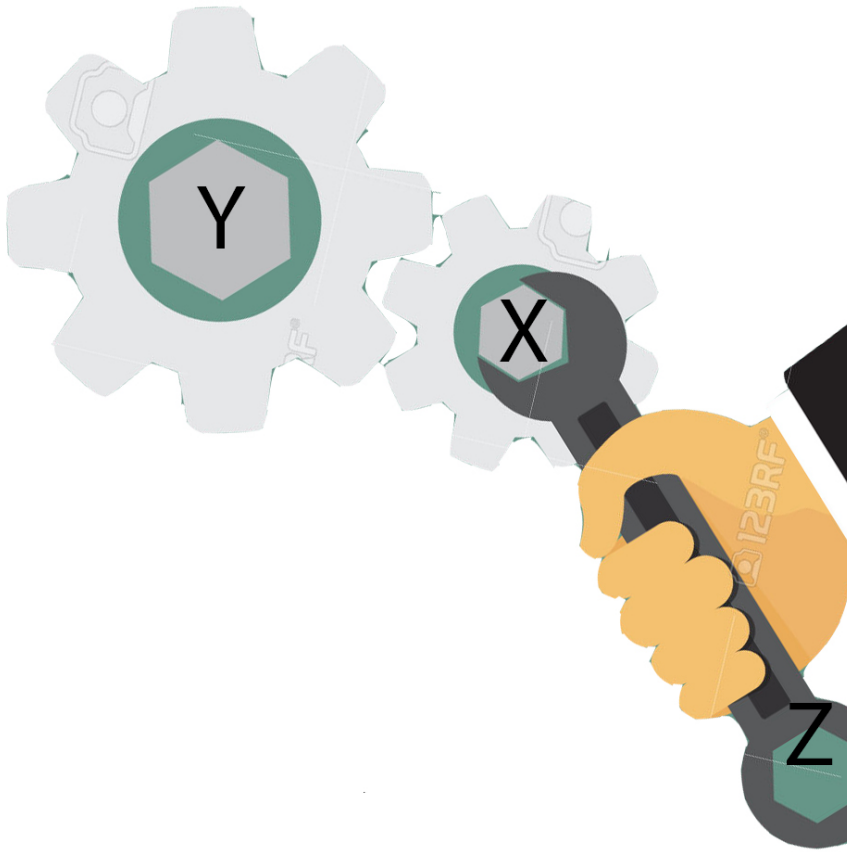
2SLS with ordered probit:

First stage

$fb_i = \pi_1 + \pi_2 \cdot z_1 + \pi_3 \cdot z_2 + \boldsymbol{\pi_4} \cdot \mathbf{X_i} + \nu_i,$
$\nu_i \sim N(0,1)$
and z_1 and z_2 are the two instruments.

Second stage

$Y_i =$
$\alpha + \beta_1 \cdot \hat{fb}_i + + \gamma_1 \cdot z_1 + \gamma_2 \cdot z_2 + \boldsymbol{\theta} \cdot \mathbf{X_i} + \epsilon_i,$
$\epsilon_i \sim N(0,1)$

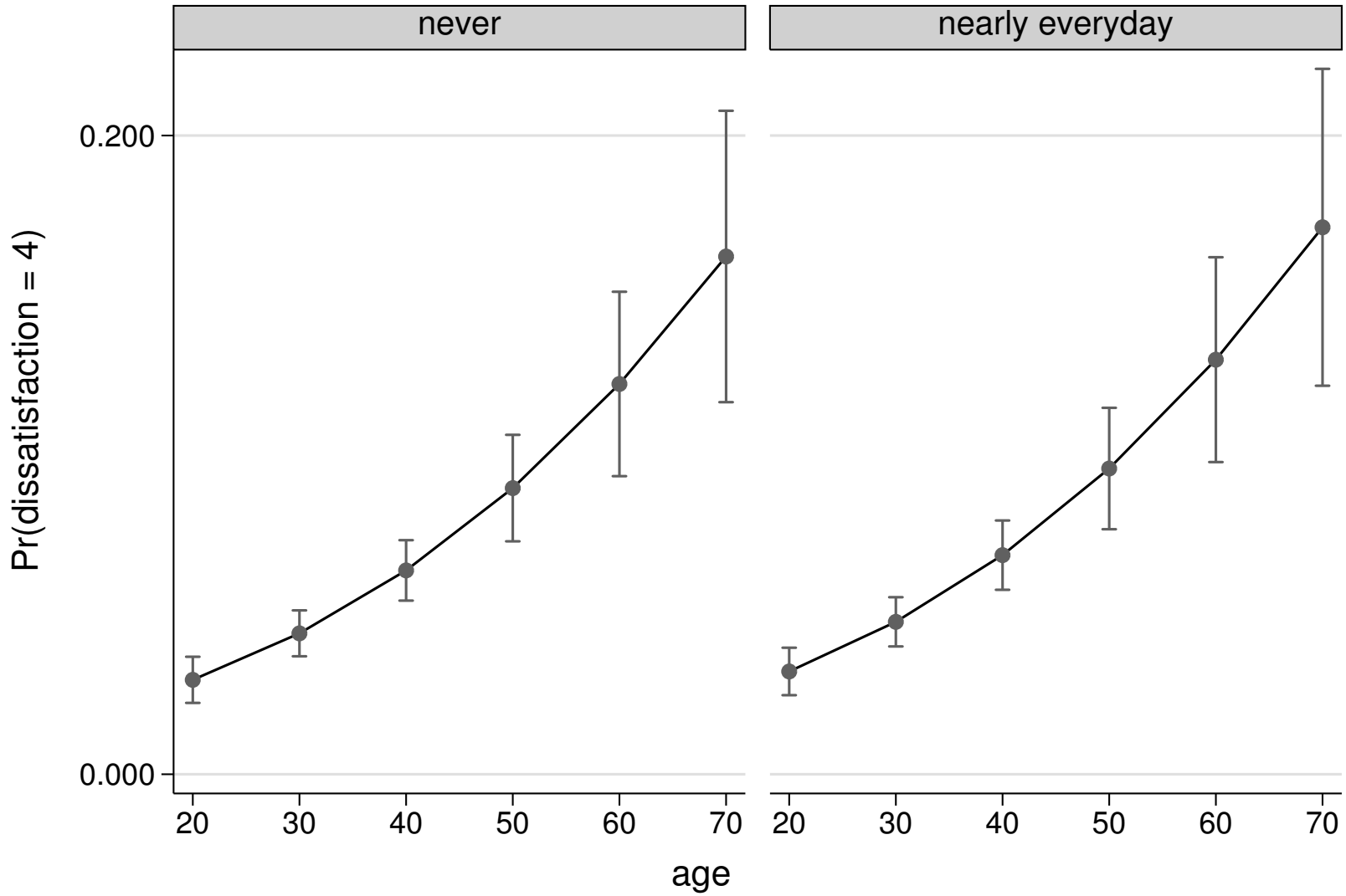


Use of SNS and financial dissatisfation

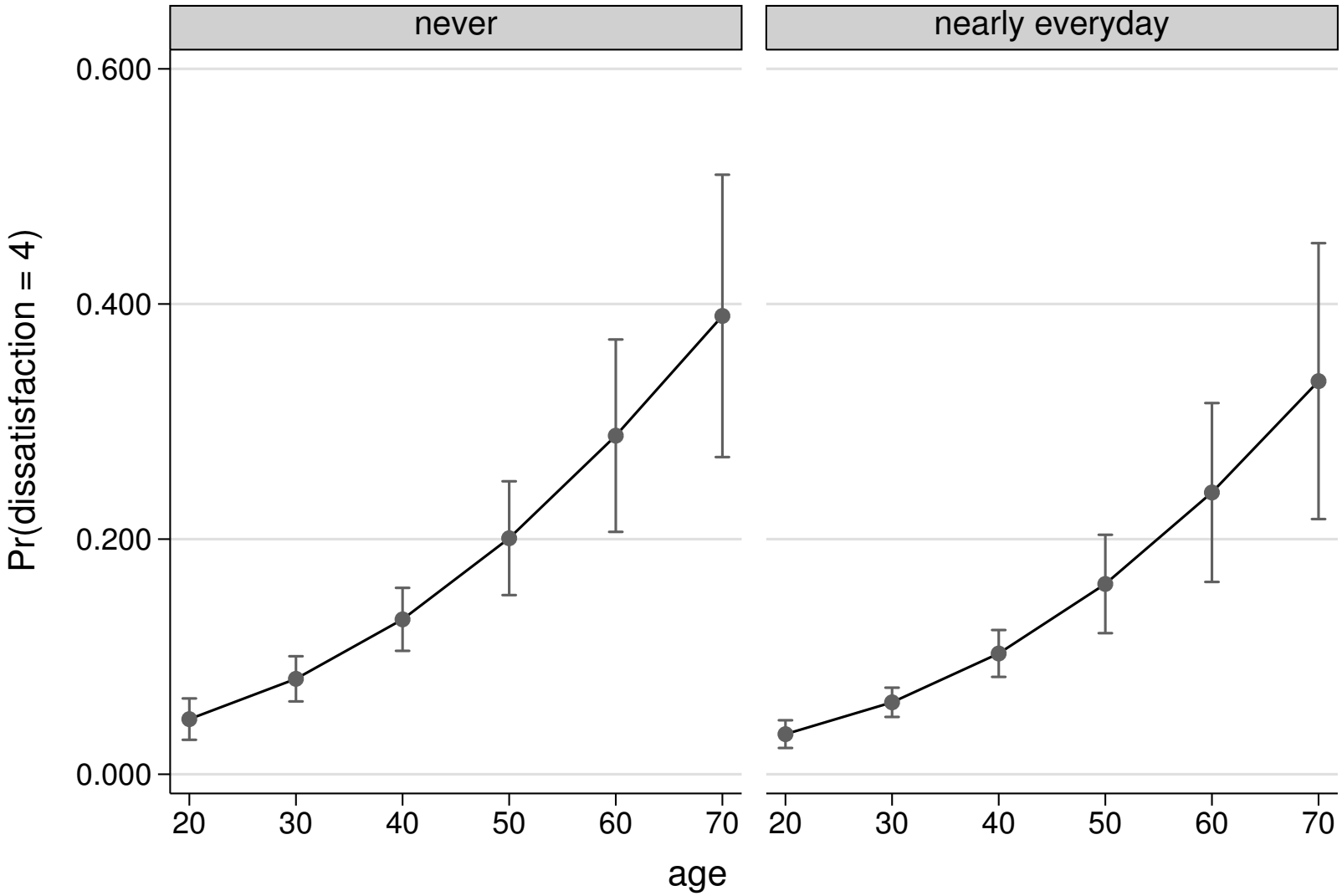
Table: Average marginal effects of the use of SNS on the probability of being financially dissatisfied.

	Western countries			Eastern countries			All countries		
Pr(dissatisfaction)	dy/dx	Std. Err.	P-values	dy/dx	Std. Err.	P-values	dy/dx	Std. Err.	P-values
very good	-0.002*	0.001	0.063	0.002***	0.001	0.000	0.001*	0.001	0.075
good	-0.001*	0.001	0.055	0.010***	0.002	0.000	0.002*	0.001	0.080
bad	0.002*	0.001	0.059	-0.006***	0.001	0.000	-0.002*	0.001	0.077
very bad	0.001*	0.001	0.063	-0.006***	0.001	0.000	-0.001*	0.001	0.079

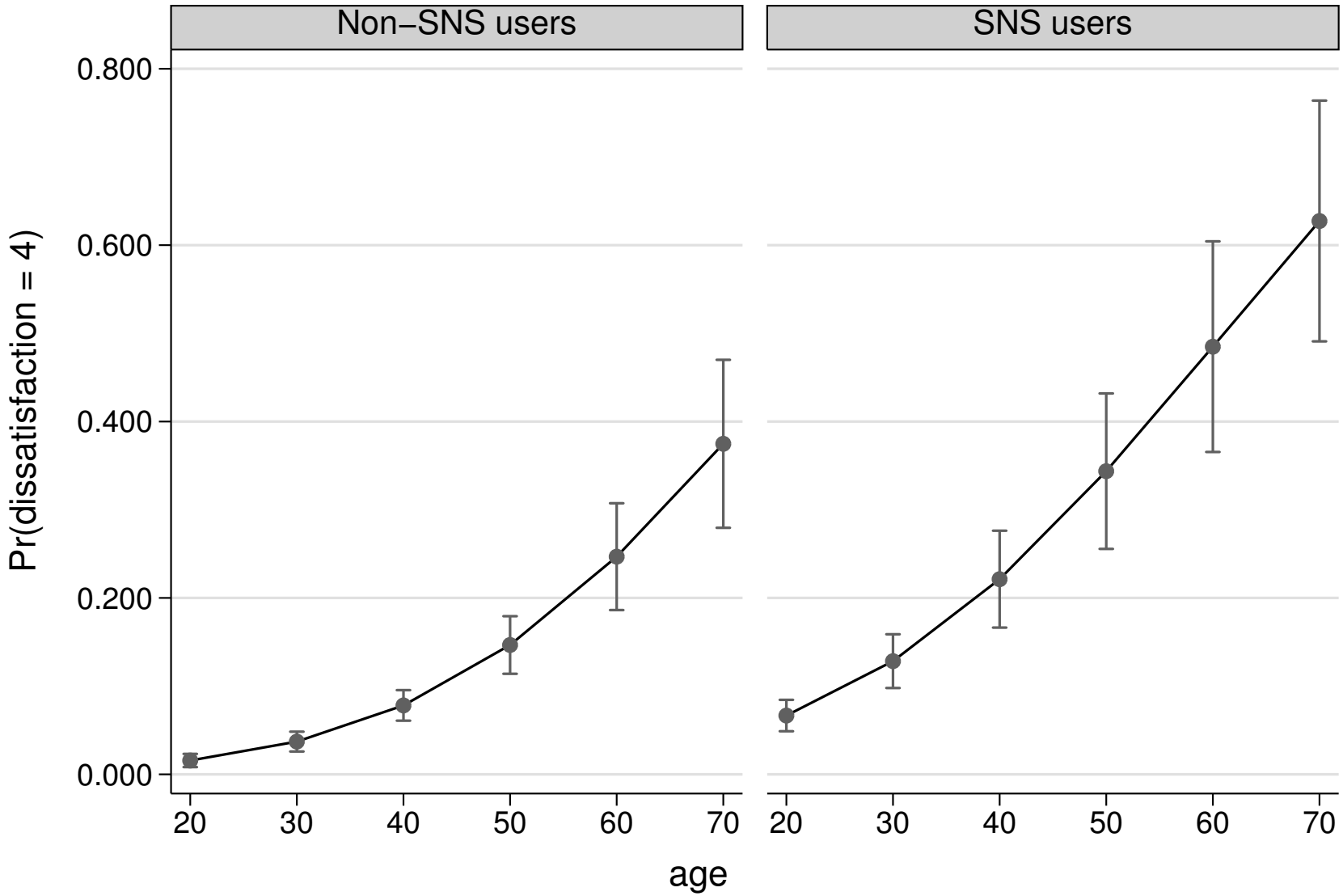
Financial dissatisfation and SNS use in Western countries



Financial dissatisfation and SNS use in Eastern countries



Evidence from Italy



Conclusions:

- SNS are a powerful source of social comparisons;
- The effects are heterogeneous: SNS increase financial dissatisfaction in Western countries, while the contrary holds true in Eastern countries;
- These findings are robust to possible endogeneity issues.

Future research

- We need information about how much time people spend on SNS;
- Availability of longitudinal data;
- We need to understand the difference between Western and Eastern European countries:

Deepening comparative cross-country research about the effects of SNS, possibly accounting for different cultural, economic and institutional factors.

Thanks a lot for your attention!

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Table: Descriptive statistics of variables in the Eurobarometer.

variable	mean	sd	min	max	obs
financial dissatisfaction	2.374	0.756	1	4	94859
online networking	3.178	2.216	1	6	83749
woman	0.536	0.499	0	1	96169
age	47.93	17.60	15	98	96169
age2/100	26.07	17.47	2.250	96.04	96169
married	0.648	0.478	0	1	96801
divorced	0.0736	0.261	0	1	96801
widow	0.0846	0.278	0	1	96801
household income scale	5.476	1.662	1	10	94156
middle education	0.146	0.354	0	1	94478
higher education	0.101	0.301	0	1	94478
student	0.0286	0.167	0	1	94478
no full-time education	0.00382	0.0617	0	1	94478
frequency of TV watching	5.792	0.730	1	6	95217
employed	0.438	0.496	0	1	96801
not working	0.488	0.500	0	1	96801
household size	–	–	1	4	96801
small or middle sized town	0.320	0.467	0	1	96491
large town	0.334	0.471	0	1	96491
log of GDP per capita	10.29	0.368	9.339	11.42	95900
year	–	–	2011	2013	95900
country	–	–	1	27	96823

Table: Descriptive statistics of variables in the Multipurpose Household Survey.

variable	mean	sd	min	max	obs
financial dissatisfaction	2.612	0.750	1	4	81499
online networking	0.460	0.498	0	1	38941
women	0.514	0.500	0	1	83092
age	49.45	18.25	18	90	83092
age squared/100	27.79	18.99	3.240	81	83092
minutes spent watching TV	5.048	0.579	2.303	6.835	62602
marital status	1.954	0.842	1	4	83092
education	2.574	0.774	1	5	83092
occupational status	2.816	2.042	1	7	83092
number of children	1.023	1.009	0	7	83092
frequency of meeting friends	–	–	1	7	82633
modem	0.107	0.309	0	1	48031
DSL	0.581	0.493	0	1	48031
fiber	0.0149	0.121	0	1	48031
satellite	0.0755	0.264	0	1	48031
3G	0.0244	0.154	0	1	48031
USB	0.178	0.382	0	1	48031
mobile	0.0193	0.138	0	1	48031
fast internet connection	0.596	0.491	0	1	48031
real GDP per capita (thousands €2005)	22.95	5.730	14.58	30.77	83092
regional share of volunteers	0.104	0.0436	0.0537	0.231	83092
region	–	–	10	200	83092
year	–	–	2010	2012	83092

List of countries in Eurobarometer

Austria
Belgium
Bulgaria
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Ireland
Italy
Latvia
Lithuania
Luxembourg
Malta
Netherlands
Poland
Portugal
Romania
Slovak Republic
Slovenia
Spain
Sweden
Turkey
United Kingdom

Lewbel's method:

Generated instrumental variables

$$Y_1 = X'\beta_1 + Y_2 \cdot \gamma_1 + \varepsilon_1; \varepsilon_1 = \alpha_1 \cdot U + V_1 \quad (1)$$
$$Y_2 = X'\beta_2 + \varepsilon_2; \varepsilon_2 = \alpha_2 \cdot U + V_2 \quad (2)$$

where Y_1 is financial dissatisfaction, Y_2 is the use of online social networks, U depicts unobserved individual characteristics and V_1 and V_2 are idiosyncratic errors. Lewbel (2012) showed that if there exists a vector Z of observed exogenous variables such that:

$$E(X'\varepsilon) = 0$$
$$Cov(Z, \varepsilon_2^2) \neq 0$$
$$Cov(Z, \varepsilon_1\varepsilon_2) = 0$$

then $[Z - E(Z)] \cdot \varepsilon_2$ can be used as valid instruments.

Ordered probit using Eurobarometer data

	Whole sample		Western countries		Eastern countries	
online networking	-0.0111*	(-1.76)	0.0105*	(1.91)	-0.0384***	(-5.41)
women	0.0318*	(1.65)	0.0516*	(1.80)	0.00318	(0.14)
age	0.0332***	(9.24)	0.0256***	(6.62)	0.0363***	(5.39)
age squared/100	-0.0444***	(-11.75)	-0.0380***	(-9.35)	-0.0457***	(-6.11)
married	-0.0787**	(-2.96)	-0.0557	(-1.62)	-0.0974*	(-2.17)
divorced	0.261***	(6.58)	0.334***	(5.69)	0.185***	(3.96)
widowed	0.0475	(1.15)	0.0139	(0.23)	0.0425	(0.77)
household income = 2	-0.262***	(-3.31)	-0.158	(-1.12)	-0.353***	(-4.09)
household income = 3	-0.563***	(-7.45)	-0.470***	(-4.11)	-0.636***	(-6.08)
household income = 4	-0.877***	(-10.84)	-0.722***	(-6.19)	-0.983***	(-8.75)
household income = 5	-1.236***	(-15.63)	-1.059***	(-10.17)	-1.359***	(-12.07)
household income = 6	-1.481***	(-17.07)	-1.327***	(-11.59)	-1.565***	(-11.88)
household income = 7	-1.760***	(-21.08)	-1.602***	(-14.48)	-1.846***	(-14.65)
household income = 8	-1.913***	(-22.48)	-1.751***	(-16.24)	-2.005***	(-14.66)
household income = 9	-2.030***	(-17.53)	-1.931***	(-13.07)	-2.046***	(-10.71)
no full-time education	-0.125	(-1.14)	-0.00928	(-0.07)	-0.276*	(-1.67)
student	-0.607***	(-11.09)	-0.717***	(-9.68)	-0.541***	(-6.69)
secondary education	-0.121***	(-4.36)	-0.141***	(-3.90)	-0.141**	(-3.16)
tertiary education	-0.334***	(-13.66)	-0.331***	(-11.73)	-0.369***	(-7.53)
frequency of TV watching	-0.00249	(-0.25)	-0.0101	(-0.75)	0.00669	(0.45)
household size = 2	-0.0657*	(-2.39)	-0.0945**	(-3.07)	-0.0237	(-0.48)
household size = 3	-0.0175	(-0.61)	-0.0145	(-0.45)	-0.00992	(-0.19)
household size = 4 & more	0.0367	(1.30)	0.0242	(0.69)	0.0593	(1.13)
small or middle sized town	-0.000476	(-0.02)	0.0144	(0.35)	-0.0128	(-0.31)
large town	-0.0154	(-0.48)	0.0326	(0.79)	-0.0628	(-1.36)
real GDP p.c. (U.S.$ 2011)	-0.963***	(-35.58)	-0.821***	(-8.86)	-2.583***	(-25.46)
cut1	-12.76***	(-38.74)	-11.28***	(-10.91)	-28.08***	(-30.27)
cut2	-10.64***	(-36.12)	-9.170***	(-9.25)	-25.91***	(-29.04)
cut3	-9.307***	(-34.24)	-7.891***	(-8.06)	-24.53***	(-27.85)
Observations	26679		14379		12300	
Pseudo R^2	0.186		0.193		0.135	

t statistics in parentheses

* $p < 0.1$, ** $p < 0.01$, *** $p < 0.001$

Year and country fixed effects are omitted for brevity.

Lewbel's method on Eurobarometer data

	Whole sample		Western countries		Eastern countries	
online networking	-0.00598*	(-2.44)	0.00795*	(2.41)	-0.0205***	(-5.64)
women	0.0149*	(1.87)	0.0249*	(2.34)	-0.000339	(-0.03)
age	0.0189***	(12.08)	0.0144***	(6.98)	0.0212***	(8.66)
age squared/100	-0.0251***	(-16.14)	-0.0211***	(-10.52)	-0.0267***	(-10.66)
married	-0.0418***	(-3.30)	-0.0298*	(-1.72)	-0.0519**	(-2.77)
divorced	0.147***	(8.08)	0.182***	(7.62)	0.111***	(3.94)
widowed	0.0292	(1.43)	0.00419	(0.15)	0.0296	(0.98)
household income = 2	-0.145***	(-3.56)	-0.0971	(-1.55)	-0.186***	(-3.45)
household income = 3	-0.336***	(-9.42)	-0.306***	(-5.70)	-0.358***	(-7.45)
household income = 4	-0.538***	(-15.52)	-0.466***	(-9.00)	-0.578***	(-12.34)
household income = 5	-0.757***	(-22.42)	-0.670***	(-13.36)	-0.805***	(-17.58)
household income = 6	-0.893***	(-26.11)	-0.818***	(-16.16)	-0.920***	(-19.67)
household income = 7	-1.034***	(-29.92)	-0.953***	(-18.69)	-1.068***	(-22.45)
household income = 8	-1.108***	(-30.82)	-1.022***	(-19.50)	-1.148***	(-22.79)
household income = 9	-1.167***	(-25.89)	-1.109***	(-17.25)	-1.166***	(-18.25)
household income = 10	-1.151***	(-22.31)	-1.070***	(-15.22)	-1.176***	(-15.06)
no full-time education	-0.0695	(-1.43)	-0.00693	(-0.11)	-0.144*	(-1.91)
student	-0.354***	(-15.55)	-0.418***	(-13.45)	-0.318***	(-9.36)
secondary education	-0.0689***	(-5.28)	-0.0817***	(-4.92)	-0.0827***	(-3.87)
tertiary education	-0.186***	(-12.99)	-0.182***	(-10.11)	-0.211***	(-8.97)
frequency of TV watching	-0.00155	(-0.32)	-0.00520	(-0.81)	0.00255	(0.35)
household size = 2	-0.0347*	(-2.53)	-0.0475**	(-2.63)	-0.0184	(-0.86)
household size = 3	-0.00903	(-0.60)	-0.00456	(-0.22)	-0.0114	(-0.50)
household size = 4 & more	0.0222	(1.50)	0.0183	(0.92)	0.0275	(1.23)
small or middle sized town	-0.00119	(-0.13)	0.00715	(0.56)	-0.00772	(-0.54)
large town	-0.00975	(-0.95)	0.0182	(1.29)	-0.0358*	(-2.40)
real GDP p.c. (U.S.$ 2011)	-0.539***	(-16.51)	-0.409**	(-3.23)	-1.437***	(-3.86)
Constant	8.607***	(26.33)	7.241***	(5.49)	17.05***	(4.83)
Sargan	38.43		42.45		43.94	
Jp	0.0552		0.0220		0.0153	

t statistics in parentheses

* $p < 0.1$, ** $p < 0.01$, *** $p < 0.001$

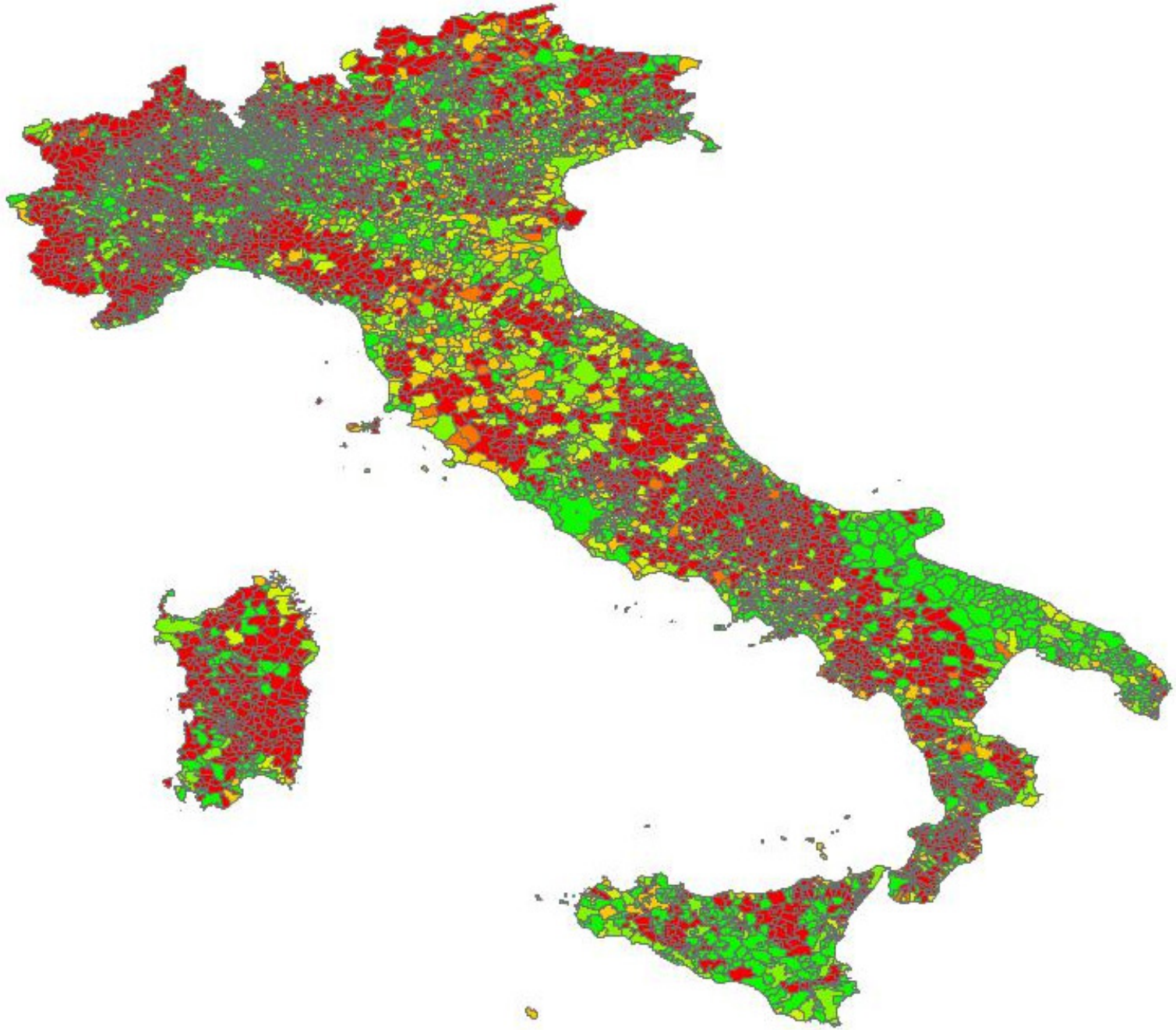
MHS data using Lewbel's method.

	lewbel's Z		lewbel + original Z	
online networking	0.130*	(2.51)	0.137**	(2.66)
women	−0.0203*	(−2.11)	−0.0201*	(−2.09)
age	0.0197***	(7.04)	0.0199***	(7.10)
age squared/100	−0.0232***	(−7.77)	−0.0233***	(−7.79)
good health	0.156	(1.27)	0.156	(1.27)
neither good nor bad health	−0.0582	(−0.49)	−0.0586	(−0.50)
bad health	−0.243*	(−2.06)	−0.243*	(−2.06)
very bad health	−0.340**	(−2.88)	−0.341**	(−2.88)
married	−0.133***	(−9.45)	−0.133***	(−9.40)
separated or divorced	0.00619	(0.30)	0.00631	(0.31)
widow	−0.0533	(−1.28)	−0.0528	(−1.27)
middle-low education	−0.190	(−1.39)	−0.192	(−1.41)
middle education	−0.294*	(−2.15)	−0.296*	(−2.17)
middle-high education	−0.414**	(−3.03)	−0.417**	(−3.05)
high education	−0.486***	(−3.45)	−0.488***	(−3.47)
unemployed	0.475***	(29.18)	0.475***	(29.17)
housewife	0.0793***	(3.78)	0.0794***	(3.78)
student	0.0114	(0.61)	0.0112	(0.60)
disabled	0.196**	(2.60)	0.196**	(2.60)
retired	−0.00318	(−0.13)	−0.00333	(−0.14)
other work condition	0.229***	(5.13)	0.229***	(5.13)
number of children	0.0362***	(7.19)	0.0363***	(7.21)
frequency of meeting friends	−0.0309***	(−7.39)	−0.0311***	(−7.44)
minutes spent watching TV	0.0363***	(4.31)	0.0361***	(4.29)
fast internet connection	0.0142	(0.84)	0.0134	(0.79)
mobile	−0.0262	(−0.72)	−0.0274	(−0.76)
USB	0.0408*	(2.17)	0.0403*	(2.14)
3G	−0.0496	(−1.57)	−0.0506	(−1.60)
satellite	−0.0268	(−1.20)	−0.0277	(−1.24)
real GDP per capita (thousands €2005)	−0.00552***	(−3.85)	−0.00555***	(−3.87)
regional share of volunteers	−0.115***	(−5.55)	−0.114***	(−5.51)
Constant	2.440***	(11.61)	2.439***	(11.60)
Sargan	54.59		60.78	
Jp	0.000136		0.0000495	

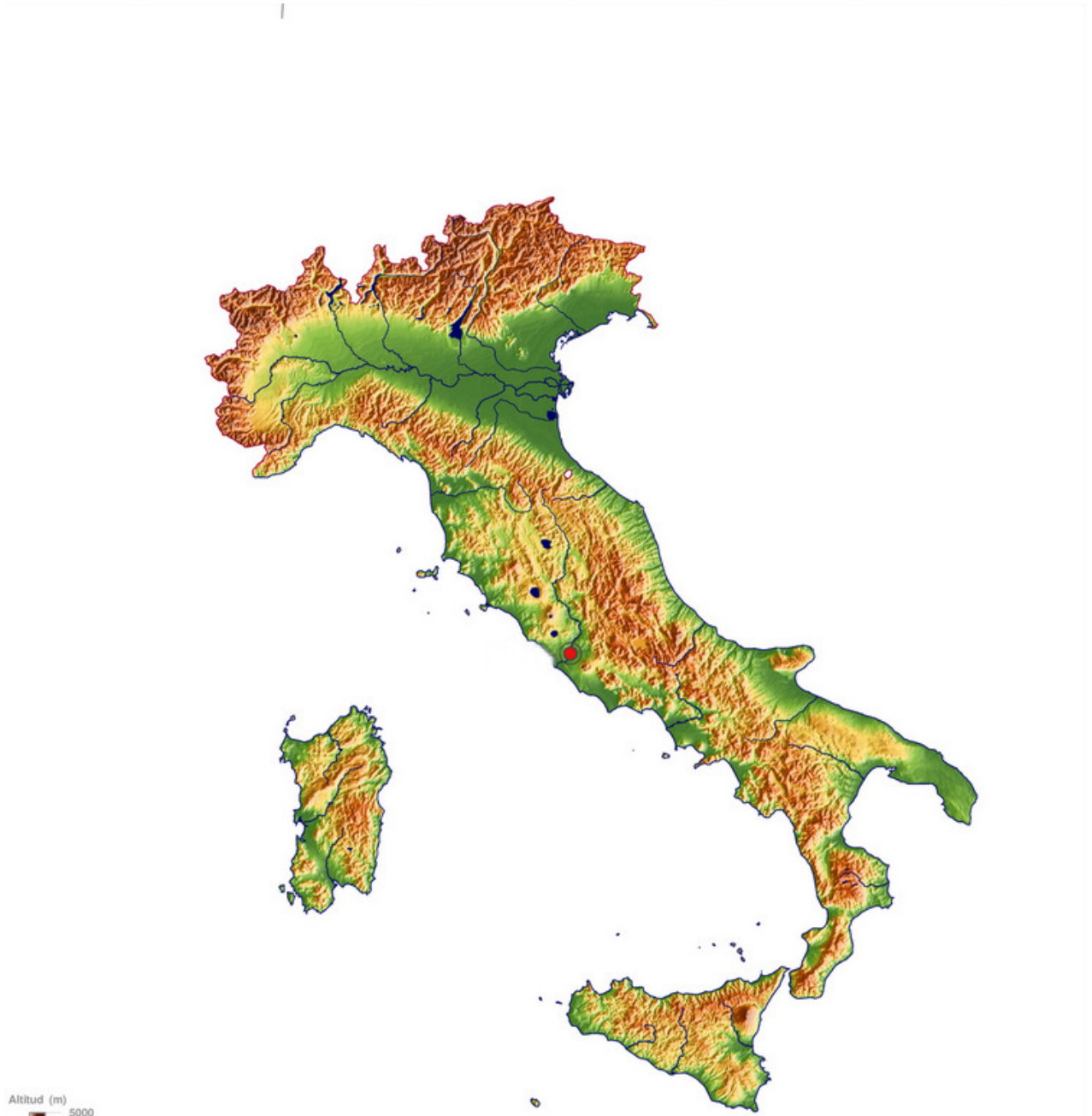
t statistics in parentheses

* $p < 0.1$, ** $p < 0.01$, *** $p < 0.001$

Percentage of the population covered by broadband in Italy.



Topographic map of Italy



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18 – 22 апреля, 2016 – НИУ ВШЭ, Москва.

https://lcsr.hse.ru/seminar2016