

Soviet communism and health: the role of education*

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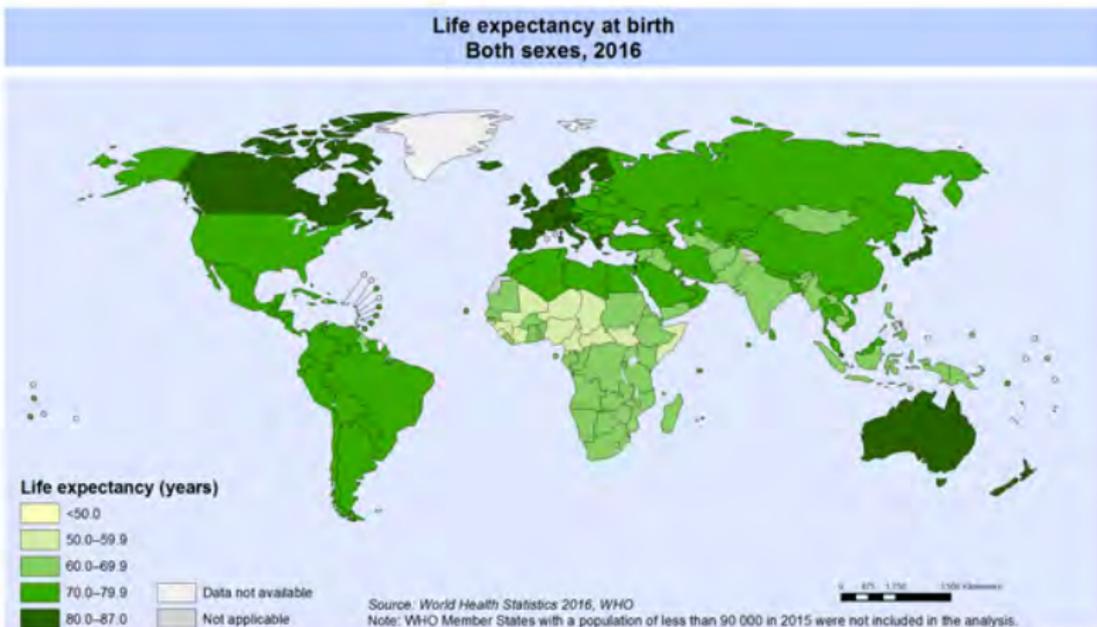
*The research was supported by the Polish National Agency for Academic Exchange Bekker programme (grant no. PPN/BEK/2019/1/00039) and Polish National Science Centre (grant no. 2019/33/B/HS4/00387).

Research conducted in cooperation with Joan Costa-Font, Jorge García-Hombrados, Melcior Rosello-Roig, and Andrzej Żak.

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Striking differences in health indicators between post-communist countries and Western Europe

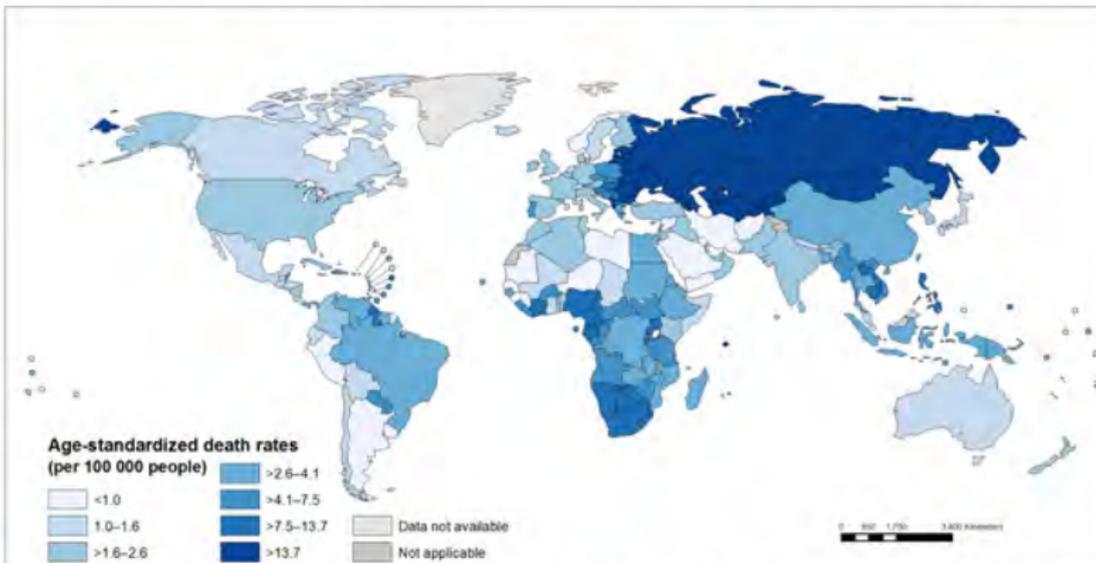


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Data Source: World Health Organization
Map Production: Information Evidence and Research (IER)
World Health Organization

The differences concern also health-related behaviors...

Global age-standardized alcohol-attributable cardiovascular disease death rates, 2016



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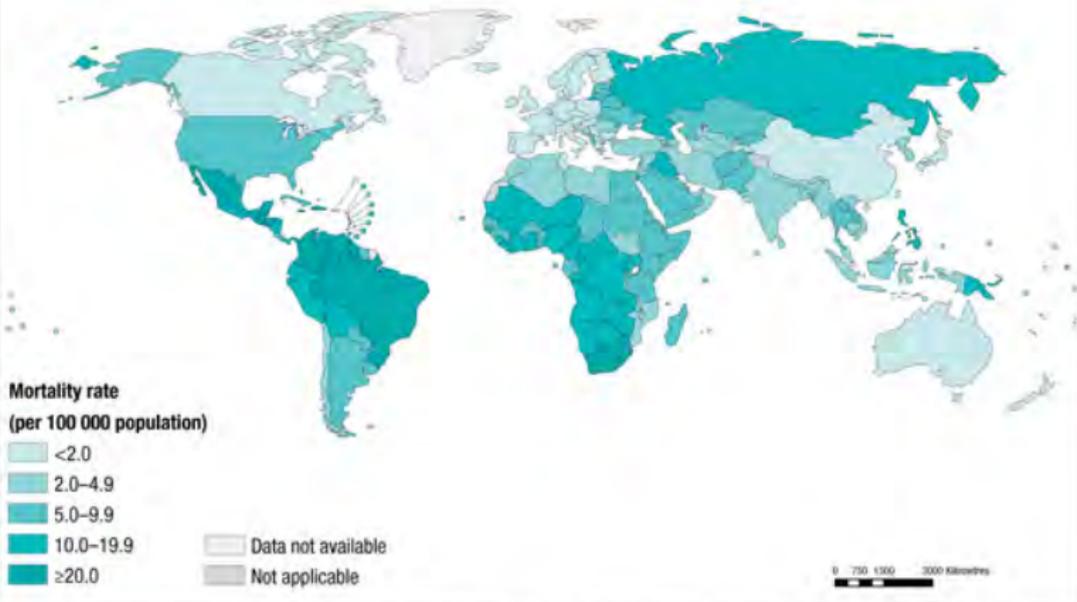
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... and more ▶ more maps

Mortality due to homicide, 2012



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Data Source: World Health Organization
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Main research questions

- 1 What are the long-lasting effects of the exposure to Soviet communism on health?
- 2 What mechanisms are responsible for these effects?
- 3 Is communist education the main mechanism?

Focus on education

The positive correlation between Socio-Economic Status (SES) and health, often referred to simply as 'the gradient' is a universal phenomenon.

SES is most often defined as a combined measure of individual education, occupation, and income.

Education seems to be responsible for most of the channels through which SES might affect health (Grossman 2005), because it largely affects income and occupation.

→ Education is observable for whole population, unlike other components of SES (income and occupation).



Fot. Chris Niedenthal, "Polityka"

Evidence on health effects

- Heterogeneous in economic development of post-communist countries
- In some Eastern European countries expectancy has improved after communism (diets and cardiovascular health (Zatonski et al. 1998))
- Other countries exposed to communism exhibited a reduction in life expectancy after transition (alcohol consumption, poor diets (Connor et al. 2004) and deterioration of health care system (Münich et al. 2005))
- In the 1960s life expectancy was higher in East than West Germany, by the 1970s the numbers reversed (Nolte et al. 2000)
 - it declined dramatically in the 1990 especially for males
 - high premature mortality: drop in male life expectancy by 6.2 years between 1990 and 1994
 - small improvements until the second half of 2000s when it began to improve steadily

Transition effects

- Tuberculosis and lung cancer among women targeted by tobacco companies (McKee and Fister, 2004)
- Deep changes in SES and relative income (Bobak et al. 2000)
- The sense of instability and work related stress (Salavecz et al. 2010; Jenkins et al. 2005)
- Alcohol consumption in Russia after the demise of the 1985-88 Gorbachov Anti-Alcohol Campaign (Bhattacharya et al. 2013)
 - Mortality raise by 40 % from 1990 to 1994
 - Drop of male life expectancy by about 6 years from 1989 to 1994

Soviet health system

- Soviet system of health care focused on communicable disease control (Rechel et al. 2014)
 - mass vaccinations and malaria surveillance
 - sanitary control of water supplies
 - hygienic waste disposal and sewage
 - pasteurization of milk
- Rather low funding for health considered as an unproductive sector
- Deteriorating infrastructure and poor qualifications of medical workers (Feshbach and Rubin 1991)
- Inefficiencies due to heavily decentralised authority with limited budgetary responsibilities
- 'Universal' coverage but the package of services is limited
 - out of pocket and informal payments
 - in some countries make the large source of health financing



Fot. unknown, Farkhad Tursanov archives

Soviet communism

A political-economic regime based on the collectivist planning of human needs

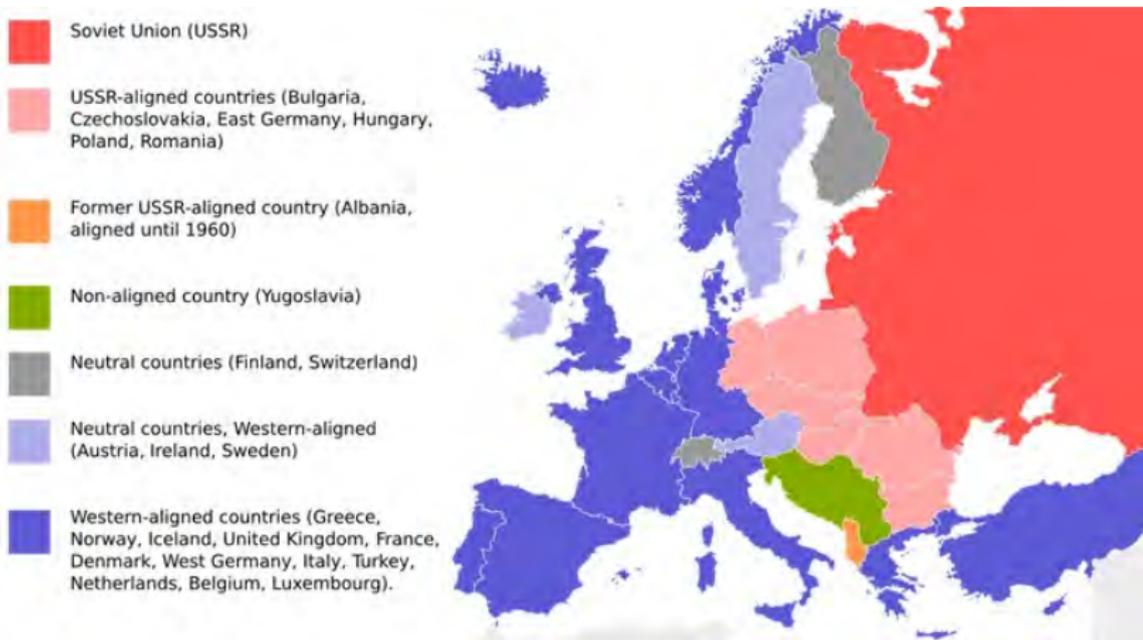
1922: Union of Soviet Socialist Republics with Stalin in power

1947: Soviet bloc of aligned countries controlled by Stalin

1991: Dissolution of Soviet Union

- state control over all institutions
- nationalization and dispossession
- political persecution
- Cold War
- protests against the regime
- transition to democracy

Regime transition in Central and Eastern Europe



Source: Wikipedia, Eastern bloc

Adoption of communism as a politico-economic regime

The Dates of the Beginning and the End of the Exposure to Soviet Communism in Selected Post-Communist Countries.

Exit	Entry						
	1936	1939	1940	1947	1948	1949	1952
1989					Romania		Poland
1990	Georgia	Lithuania		Bulgaria	Czech Republic, Slovakia	Germany, Hungary	
1991	Belarus, Ukraine		Latvia				
1992		Estonia					
1995	Russia						

Source: Authors' own tabulation based on dates of the socialist constitution and first free democratic elections.

Transformation and institutional change

Heterogeneity in pre-existing institutions

- lands of former Prussian, Habsburg, and Russian empires
- countries gaining independence after the Treaty of Versailles
- religion differences
- ...

Heterogeneity in the transformation process

- novelty of democratic and market institutions (Roland 2002)
- (re-)privatization (Bodnar 1996)
- structural unemployment
- hyperinflation and overall macroeconomic volatility (Guriev and Zhuravskaya 2009)
- scrutiny of socio-political activity during communism
- deterioration of public goods provision
- ...

Education under communism

Schools were responsible for development of “new Soviet men” and training suitable for centrally planned economy

- Marxist-Leninist ideological contents and ‘politechnicization’
- values of socialism, anti-religion, atheism, anti-individualism, anti-family
- respect for physical labour, technological development and gender equality
- superiority of communism over capitalistic exploitation
- appreciation of folklore culture
- focus on vocational training
- no alternative to free public schooling with uniform curriculum

Communist versus Western European education systems

Despite numerous reforms to the education systems, the systems in Western and communist Europe differed with respect to the below characteristics throughout the whole communist period:

- state control over curricula
- prevalence of non-public schools
- length of school day
- homework load
- extra-curricular activities
- physical education

Some of these differences between Western and Eastern European approach to education system have remained.

Communist education: some examples from Poland

Decreasing role of religion

- ☞ First school year after war in Poland (1945)
- ☞ The following school year in Poland (1946)

State control, infrastructure, and physical education:

- ☞ Tricity school opening promotion video (1960's)

Some heterogeneity in education systems and adoption of Soviet education system (e.g. Poland, Romania)

Communist education: post-Stalinism reforms

- a series of reforms in education systems (e.g USSR 1958, Poland 1954)
- aim is to bring school closer to (real) life and further building of communism
- sustaining the goal of building 'a new Soviet man' as a permanent aim of education
- technological progress combining physical and intellectual effort
- education of key-workers for future communist economies
- 2 years of compulsory physical work (in factories or kolchozes) as a part of secondary education
- equal conditions and opportunities to all pupils
- new elites with tertiary education

Implementation of the reform in USSR

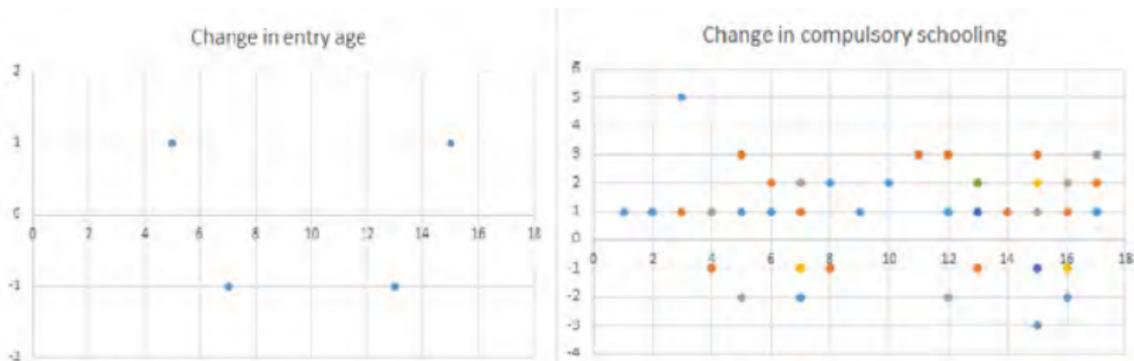
- poorly prepared
- execution by the Communist Party (not the Ministry of Education)
- substantial increase in secondary and tertiary education within 20 years (Coulmel 2014)
- specialization after 8 years of general education
- education of key-workers for future communist economies
- additional year of education in vocational training since 1964
- reduced gap between scientific research and education
- development of Akademgorodok in Nowosybirsk



Fot.: Musa Selimkhanov, Akademgorodok

Compulsory schooling laws

Compulsory Education Reforms in Selected European Countries.



Note: Changes in Austria, Bulgaria, Belgium, Czech Republic, Estonia, France, Georgia, Germany (East and West), Hungary, Italy, Lithuania, Netherlands, Poland, Romania, Russia, Sweden.

Source: UNESCO (1949 to 1970); Kurian (1988), Marlow-Ferguson (2003), Nica and Birzea (1973), Szakacs (2018), Gathmann et al. (2015), Oosterbeek and Webbink (2007).

Differential exposures

Heterogeneity between countries and birth cohorts with respect to:

- exposure to Soviet communism
- years of compulsory schooling
- transformation and exogenous shocks

provide the opportunity to examine causal effects of Soviet communism on later-life outcomes, especially of communist education on health.

We use data from Survey on Health, Ageing and Retirement waves 4-6, and retrospective waves 3 and 7 from SHARELFE along with the data from Generation and Gender Studies (waves 1 and 2) providing rich information on (older) adults from large number of European countries.

Objective and subjective general health measures

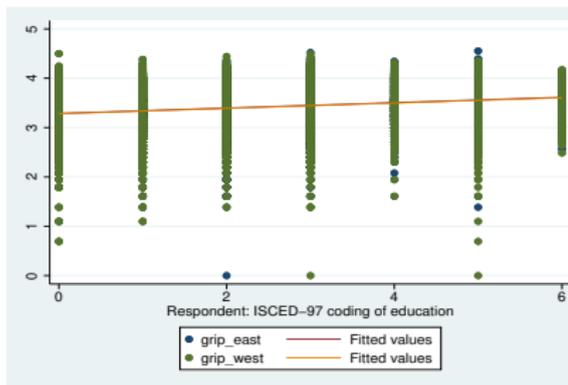


Figure 1: Grip strength (log)

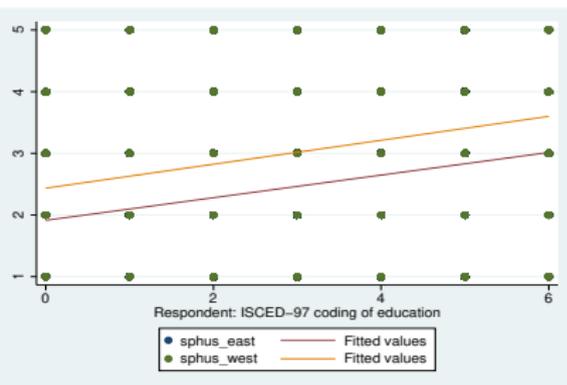


Figure 2: Self-reported health

Gradient: well-being and mental health

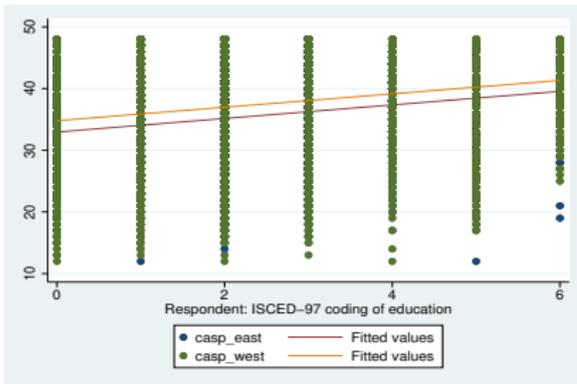


Figure 3: Quality of life (CASP)

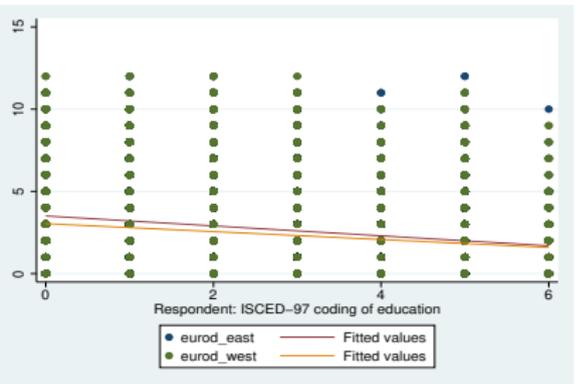


Figure 4: Depression (EURO-D)

Gradient: Functional status

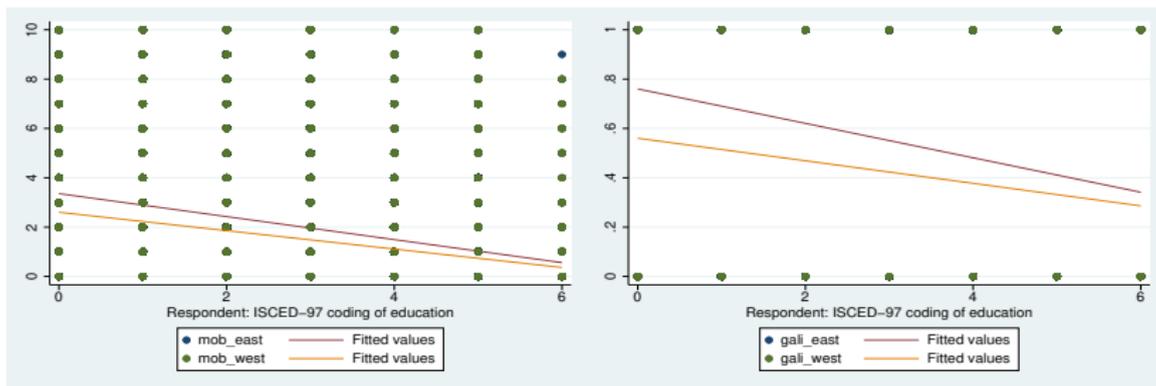


Figure 5: Mobility limitations

Figure 6: Daily living limitations

Gradient: Behavioural risks

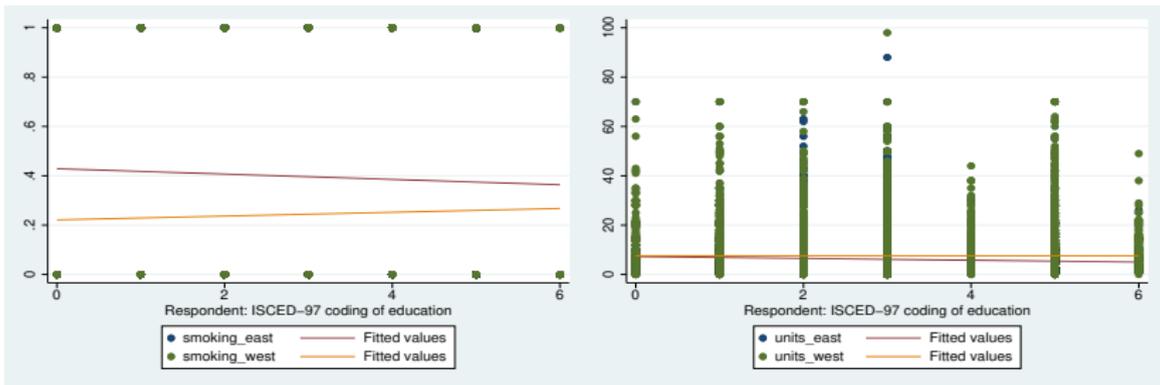


Figure 7: Currently smoking

Figure 8: Alcohol consumption

Gradient: Pro-health behaviours

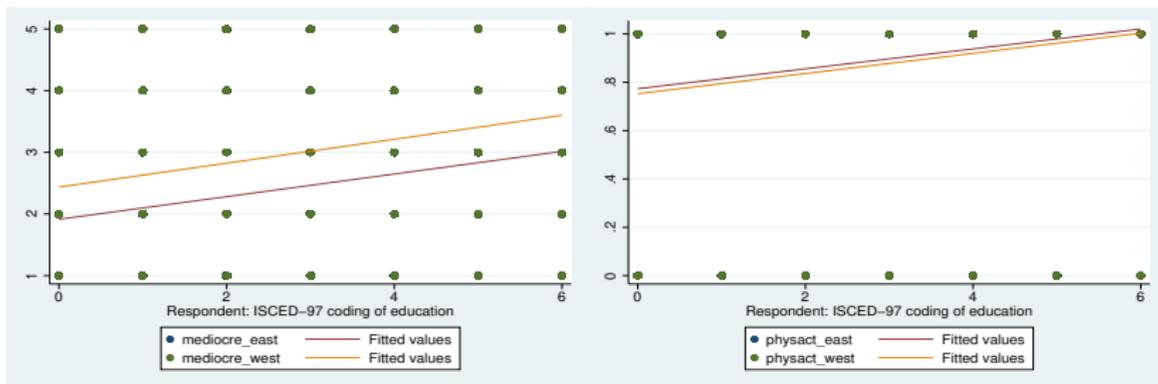
[▶ more context](#)

Figure 9: Mediocre activity (1-5)

Figure 10: Physical activity (0-1)

Research questions

Why individuals living in post-communist countries differ from individuals in Old Europe with respect to health?

- Do shocks relevant for health and well-being pose differential effects between politico-economic regimes?

Well-being and transition shocks with *Joan Costa-Font* and *Melcior Rosello-Roig*

- Are the protective effects of education less or more pronounced in post-communist countries?

Communist education and later life health with *Joan Costa-Font* and *Jorge Garcia-Hombrads*

Well-being and transition shocks

- 1 Is there an effect of politico-economic legacy on the health outcomes?
- 2 Do shocks specific to communism pose long-lasting impact on health?
 - political persecution
 - dispossession
- 3 Do shocks to health pose differential effects on health depending on regimes?
 - hunger
 - other extraordinary periods in life
- 4 How shocks experienced during regime transformation affect health?

Communist education and later life health

- 1 Are causal effects of education on health the same in post-communist and other European countries?
- 2 What mechanisms underlie the education gradient in post-communist countries?
 - school curriculum: indoctrination [▶ spin-off](#)
 - school curriculum: physical education
 - extra-curricular school activities
 - medical care in school (e.g vaccination, dental care)

Theoretical background

Health production function (Grossman 1972, 2005)

Health production function H with inputs of medical care (M) and individual own time (T):

$$H = e^{\rho_H S} F(M, T)$$

where F is linear and homogeneous in M and T . An increase in schooling S raises the marginal products of M and T by the same percentage (ρ_H).

Effects of the regime on health production can be direct, and indirect, also via education.

Education effects

Unclear whether they are causal, or even the direction is not reversed.

Direct and indirect education effects:

- Education *per se*
- Better decision-making
- Behavioral choices (health production being more efficient, reduced behavioral risks, enhanced pro-health behaviours, and medical literacy)
- Endogenous preferences (pro-healthy habits formation, discount factor enhancing valuing distant future more)

Limitations to the existing research

Our understanding of education effects is limited with respect to:

- examined countries (a subset of developed ones: US, UK, certain Western European countries)
- politico-economic regime (matured free market economies)
- causal effects of education on health
- the underlying mechanisms
- the direction of causal effects between SES and health

Education effects on health and its heterogeneity

Causal effects of education examined using the exogenous shocks to compulsory schooling laws document positive effects of compulsory schooling in first half of the 20th century on health in the US and UK (Lleras-Muney 2005; Mazumder 2008).

Analyses for other times and spaces yield ambiguous results.

Consensus in the economic literature that casual education effects are vastly heterogeneous between countries (Galama and Lleras-Munay 2018).

→ Politico-economic regimes seem to be one possible candidate for explaining the heterogeneity.

Health related behaviors

Brunello (2016):

Relatively rare set-up of more than one country

Health related behaviours as a mechanism of education effects
(smoking, drinking, BMI, exercising)

Mediatory effects analyzed in short-run and in long-run (SHARE + SHARELIFE)

The only study with a post-communist country included (Czech Republic)

Identification of causal effects of education

Exogenous shocks to education attainment

Following Adler et al. (1994) and Acemogly and Angrist (1999), reforms to compulsory education became widely used as an instrument for an additional year of education.

Estimation techniques referring either to instrumental variable (IV) or recently to discontinuity design (RDD) approach.

Accurate identification of a cut-off date critical for RDD.

Mostly reforms were implemented gradually and incorporated not only rising of school leaving age (or reduction of entry age), but also gradual changes to the school curriculum contents and teaching hours in total and of particular courses.



Fot. Jerzy Michalski, "Polityka"

Causal effects of education - accuracy issues

Inconsistencies in Compulsory Education Reforms in Europe Used for Identification of Causal Effects on Health

Country	Bill	Implementation	Age at entry	Cut-off	Pivotal cohort	Compulsory education
Austria	1962	1966	6 (Fort et al. 2016; Schneeweis et al. 2014)		1951	8 to 9
	1962	1966	6		1952	8 to 9
Denmark	1971	1972-1975	7	August 1st	1961	7 to 9
	1971	1971	7		1957	7 to 9
	1971	1975	7		1961	7 to 9
Italy	1963	1963	6 (Fort et al. 2016; Schneeweis et al. 2014)		1949	5 to 8
	1962	1963	7		1949	5 to 8

Source: Author's own tabulation based on Fort et al. 2016; Brunello 2009; Brunello et al. 2016; Schneeweis et al. 2014; Arendt 2005; Cavaille and Marshall 2019; Gathmann et al 2015; Courtin et al. 2019

Positive effects of education

Using GGS data we document

Positive effects of communist education on top of the effect of non-communist education

Causal education effects: IV approach, reduced form

Education effects using GGS self-reported health measures of adults in Europe

	Self-reported general health (1-5)	Chronic diseases (0-1)	Disability (0-1)	Need for regular personal care (0-1)
Compulsory education	0.008104*** (0.0026)	-0.007740*** (0.0015)	0.001017 (0.0010)	0.0001663 (0.0013)
<i>N</i>	122785	98713	101662	40494
<i>R</i> ²	0.400	0.195	0.112	0.048
Sex	Yes	Yes	Yes	Yes
Age (quadratic)	Yes	Yes	Yes	Yes
Making ends meet	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Time trend	Yes	Yes	Yes	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Causal communist education effects: IV approach, reduced form

Communist education effects using GGS self-reported health measures of adults in Europe

	Self-reported general health (1-5)	Chronic diseases (0-1)	Disability (0-1)	Need for regular personal care (0-1)
Communist compulsory education	0.007103*** (0.0012)	-0.002210*** (0.0007)	-0.004851*** (0.0005)	-0.003919*** (0.0008)
Compulsory education	0.005510** (0.0026)	-0.006827*** (0.0016)	0.003494*** (0.0011)	0.001772 (0.0013)
Post-communist country	-0.09159*** (0.0252)	0.02884** (0.0133)	0.02086** (0.0086)	0.02131*** (0.0070)
<i>N</i>	122785	98713	101662	40494
<i>R</i> ²	0.400	0.195	0.113	0.048
Sex	Yes	Yes	Yes	Yes
Age (quadratic)	Yes	Yes	Yes	Yes
Making ends meet	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Time trend	Yes	Yes	Yes	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Causal effects on health-related behaviors

Using SHARE data

Negative effects of communist education are found with respect to risky behaviours, insignificant for diet and physical activity

▶ more

Education effects on risky behaviours

Communist education effects using SHARE data on nicotine and alcohol consumption

	Nicotine consumption			Alcohol consumption	
	Currently smoking (0-1)	Total years smoking (in logs)	Any alcohol (0-1)	Units of alcohol (in logs)	>6 drinks (0-1)
Compulsory education	0.003541 (0.0068)	0.01096*** (0.0022)	0.03724*** (0.0031)	0.04740*** (0.0082)	0.02216*** (0.0023)
<i>N</i>	2677	18828	16914	9229	16902
<i>R</i> ²	0.159	0.250	0.121	0.106	0.054
Communist compulsory education	0.02085*** (0.0059)	-0.007314*** (0.0014)	0.02352*** (0.0027)	0.1030*** (0.0108)	0.01271*** (0.0021)
Compulsory education	0.003553 (0.0069)	0.01224*** (0.0023)	0.04927*** (0.0031)	0.05819*** (0.0084)	0.01892*** (0.0024)
Post-communist country	-0.1311*** (0.0419)	0.03831*** (0.0084)	-0.3511*** (0.0204)	-1.0350*** (0.0846)	-0.05445*** (0.0148)
<i>N</i>	7092	25339	18233	9980	18219
<i>R</i> ²	0.144	0.605	0.158	0.123	0.064
Sex	Yes	Yes	Yes	Yes	Yes
Age (quadratic)	Yes	Yes	Yes	Yes	Yes
Marital status	Yes	Yes	Yes	Yes	Yes
Household wealth	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes
Time trend	Yes	Yes	Yes	Yes	Yes

Robust standard errors clustered by respondents in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Education effects on pro-health behaviours

Communist education effects using SHARE data on physical activity and dietary choices

	Physical activity			Dietary choices			
	Vigorous activity (1-4)	Mediocre activity (1-4)	Any physical activity (0-1)	Dairy (1-5)	Eggs (1-5)	Fish or meat (1-5)	Fruits or vegetables (1-5)
Compulsory education	-0.03036*** (0.0077)	0.02259*** (0.0067)	0.005722*** (0.0021)	0.08160*** (0.0148)	-0.03429** (0.0154)	0.1163*** (0.0120)	-0.02722*** (0.0089)
<i>N</i>	18812	18815	18817	4142	4140	4142	4143
<i>R</i> ²	0.115	0.097	0.108	0.038	0.014	0.074	0.040
Communist compulsory education	-0.0002923 (0.0065)	0.006600 (0.0070)	0.002019 (0.0023)	0.01939 (0.0178)	-0.005921 (0.0175)	0.01515 (0.0134)	-0.001843 (0.0119)
Compulsory education	-0.03543*** (0.0079)	0.01371** (0.0068)	0.003616* (0.0021)	0.09420*** (0.0148)	-0.02909* (0.0157)	0.1182*** (0.0123)	-0.009928 (0.0089)
Post-communist country	0.07086 (0.0488)	0.07030 (0.0545)	0.01318 (0.0185)	-0.3243** (0.1379)	-0.03985 (0.1370)	-0.1318 (0.1044)	-0.2532*** (0.0919)
<i>N</i>	25243	25247	25251	9450	9444	9450	9452
<i>R</i> ²	0.146	0.143	0.138	0.120	0.070	0.224	0.090
Sex	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Marital status	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household wealth	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors clustered by respondents in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Regime effects on top of the education effects

Is it the effect of the shocks experienced during communism or the regime transition?

	BMI	Obesity (1,0)	Underweight (1,0)	Max grip in logs	CASP index	Depression scale
Regime	1.3603*** (0.1057)	0.1010*** (0.0092)	-0.005315*** (0.0016)	0.04094*** (0.0055)	-2.2466*** (0.1650)	0.05960 (0.0516)
Hunger between 1983 and 1995	-0.2826 (0.5241)	-0.02540 (0.0480)	-0.01872** (0.0083)	0.02340 (0.0313)	-0.01483 (0.6964)	0.3779 (0.2716)
Hunger before 1983	0.4530 (0.4313)	-0.02012 (0.0393)	-0.006034 (0.0115)	0.01318 (0.0246)	2.7831*** (0.5746)	-0.8443*** (0.2388)
Hunger after 1995	0.09202 (0.4234)	0.06597* (0.0384)	0.008903 (0.0114)	-0.06627*** (0.0232)	-4.7082*** (0.5494)	1.5271*** (0.2311)
<i>N</i>	37783	37783	37783	35834	36818	37467
Regime	1.3401*** (0.1048)	0.1000*** (0.0090)	-0.005474*** (0.0016)	0.03878*** (0.0056)	-2.2301*** (0.1670)	0.04381 (0.0536)
Dispossession between 1983 and 1995	0.004316 (0.5670)	0.02286 (0.0538)	-0.004896 (0.0096)	-0.03510 (0.0381)	-1.7526** (0.8834)	0.1279 (0.3335)
Dispossession before 1983	-0.1888 (0.4450)	-0.001399 (0.0400)	-0.001323 (0.0099)	0.05934** (0.0255)	0.3672 (0.6623)	0.01734 (0.2574)
Dispossession after 1995	0.3169 (0.4165)	0.001325 (0.0388)	-0.001756 (0.0096)	-0.03609 (0.0246)	-0.3930 (0.6504)	0.1383 (0.2549)
<i>N</i>	38081	38081	38081	35979	36987	37634
Regime	1.3594*** (0.1055)	0.1009*** (0.0092)	-0.005394*** (0.0016)	0.04061*** (0.0057)	-2.2787*** (0.1684)	0.08565 (0.0535)
Stress between 1983 and 1995	0.0003528 (0.0708)	0.002428 (0.0064)	-0.001172 (0.0017)	0.004098 (0.0041)	0.2102** (0.0993)	-0.08236** (0.0335)
Stress before 1983	-0.03787 (0.0756)	-0.002983 (0.0066)	-0.0007089 (0.0019)	0.008071* (0.0044)	0.5868*** (0.1136)	-0.1417*** (0.0391)
Stress after 1995	0.1262** (0.0589)	0.01471*** (0.0053)	-0.00007353 (0.0014)	-0.006492* (0.0034)	-1.1058*** (0.0800)	0.6784*** (0.0292)
<i>N</i>	37532	37532	37532	35651	36621	37258
Age (quadratic)	YES	YES	YES	YES	YES	YES
Gender	YES	YES	YES	YES	YES	YES
Childhood SES	YES	YES	YES	YES	YES	YES
Childhood health	YES	YES	YES	YES	YES	YES

Standard errors clustered by wave and country in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Shocks and regime change effects

The regime effects remains significant adding to the effects of shocks

	Short-term health		Long-term health		Well-being	
	BMI	Obesity (1,0)	Underweight (1,0)	Max grip in logs	CASP index	Depression scale
Hunger × Regime change	1.5140*** (0.2033)	0.1294*** (0.0197)	-0.003834 (0.0050)	-0.0004143 (0.0140)	-4.0587*** (0.3175)	0.8175*** (0.1249)
Regime change	1.3778*** (0.1058)	0.1021*** (0.0092)	-0.005289*** (0.0016)	0.04023*** (0.0055)	-2.2815*** (0.1653)	0.06548 (0.0516)
Hunger	0.6440*** (0.1522)	0.05763*** (0.0132)	0.002450 (0.0046)	-0.06012*** (0.0105)	-2.6218*** (0.2527)	0.8777*** (0.0914)
<i>N</i>	37783	37783	37783	35834	36818	37467
Dispossession × Regime change	1.4857*** (0.1382)	0.1004*** (0.0141)	-0.01013*** (0.0026)	0.06380*** (0.0082)	-2.3497*** (0.2103)	0.1711** (0.0703)
Regime change	1.3397*** (0.1059)	0.1002*** (0.0091)	-0.005150*** (0.0016)	0.03708*** (0.0057)	-2.2299*** (0.1713)	0.05045 (0.0545)
Dispossession	0.1512 (0.1911)	0.003594 (0.0178)	0.001456 (0.0061)	-0.01353 (0.0117)	-0.2291 (0.2885)	0.2611*** (0.0956)
Persecution × Regime change	1.4673*** (0.2038)	0.1141*** (0.0177)	-0.007098** (0.0034)	0.03662*** (0.0095)	-2.8979*** (0.2668)	0.3321*** (0.0953)
Regime change	1.3585*** (0.1042)	0.09961*** (0.0091)	-0.005325*** (0.0017)	0.04067*** (0.0058)	-2.2111*** (0.1723)	0.05298 (0.0543)
Persecution	0.4592** (0.1949)	0.02482* (0.0149)	0.007582 (0.0053)	-0.01584 (0.0117)	-1.4430*** (0.2558)	0.7614*** (0.0871)
Period of particular happiness × Regime change	1.4874*** (0.1152)	0.1121*** (0.0099)	-0.004344** (0.0019)	0.02631*** (0.0063)	-3.3496*** (0.1764)	0.5359*** (0.0595)
Regime change	1.1795*** (0.1155)	0.09023*** (0.0104)	-0.004099** (0.0020)	0.04137*** (0.0065)	-2.3610*** (0.1927)	0.1021* (0.0580)
Period of particular happiness	-0.01853 (0.0528)	0.005106 (0.0046)	0.002470* (0.0015)	-0.01509*** (0.0032)	-1.3976*** (0.0920)	0.5910*** (0.0319)
<i>N</i>	37393	37393	37393	35530	36502	37129
Period of particular stress × Regime change	1.5287*** (0.1139)	0.1198*** (0.0100)	-0.006337*** (0.0021)	0.03206*** (0.0068)	-3.2928*** (0.1885)	0.6998*** (0.0619)
Regime change	1.2265*** (0.1170)	0.09066*** (0.0104)	-0.004786** (0.0020)	0.05520** (0.0064)	-1.9305*** (0.1897)	0.07568 (0.0565)
Period of particular stress	0.02213 (0.0583)	0.007655 (0.0052)	-0.0003526 (0.0015)	0.007811** (0.0035)	-0.5938*** (0.0866)	0.5929*** (0.0315)

Standard errors clustered by wave and country in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Further research

- RDD analysis of schooling reforms conditional on cut-off dates and identification of pivotal cohorts in post-communist countries (solves the problem of contaminating effects of age)
- Countries of Eastern Europe with different education system
- Post-communist education vs non-communist education
- Few analysis with objective health measures
- Mechanisms: Physical education? Extra-curricular physical activities for free? Access to facilities and equipment?
- Heterogeneity analyses (heterogeneity beyond gender and cohort are rarely examined)
- Other potential IV: schooling hours, length of semester (number of weeks)
- ...

Summary

Negative effects of Soviet communism regime
and **mainly positive** effects of communist education,
even **more pronounced** than non-communist education on **health**.

Motivation
○○○○○

Literature review
○○○

Soviet communism and education
○○○○○○○○○

Stylized facts
○○○○○

Current research
○○○○○○○○○

First results
○○○○○○○○○●

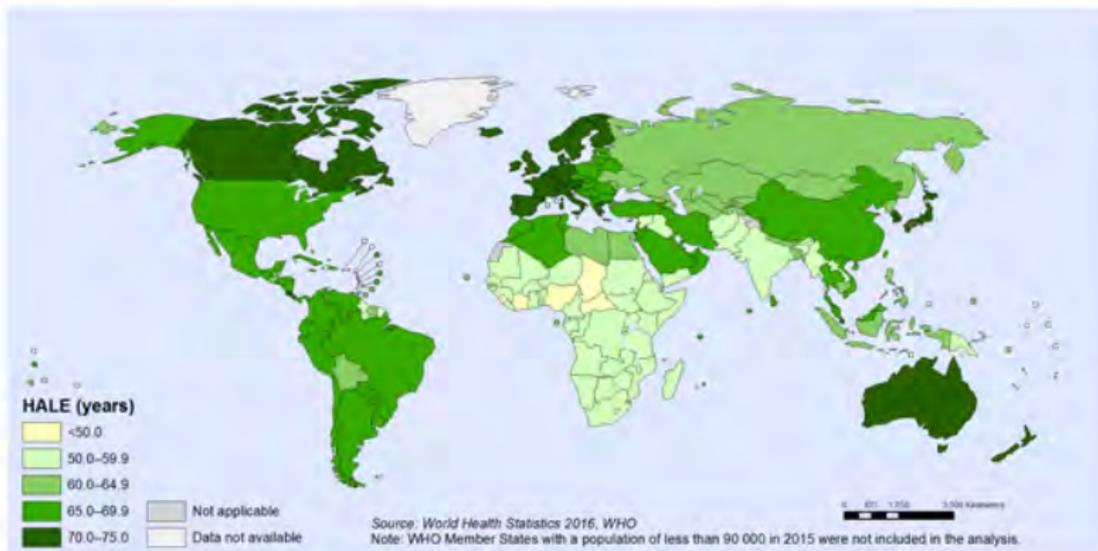
Q & A



WHO maps continued

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Healthy life expectancy (HALE) at birth, both sexes, 2016



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Data Source: World Health Organization
Map Production: Information Evidence and Research (IER)
World Health Organization

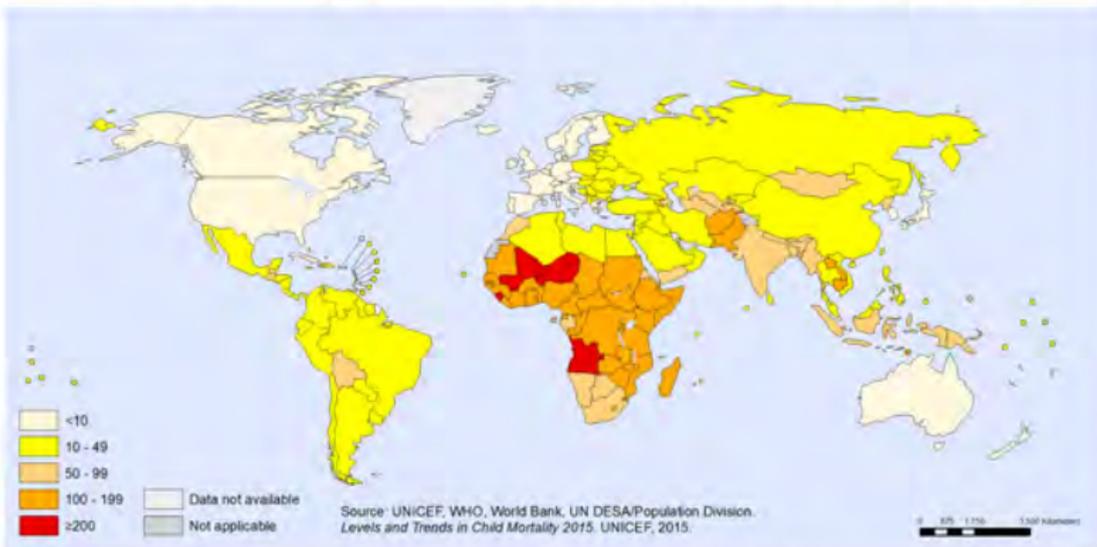


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WHO maps continued

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Under-five mortality rate (probability of dying by age 5 per 1000 live births), 2000



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Data Source: World Health Organization
Map Production: Health Statistics and
Information Systems (HSI)
World Health Organization

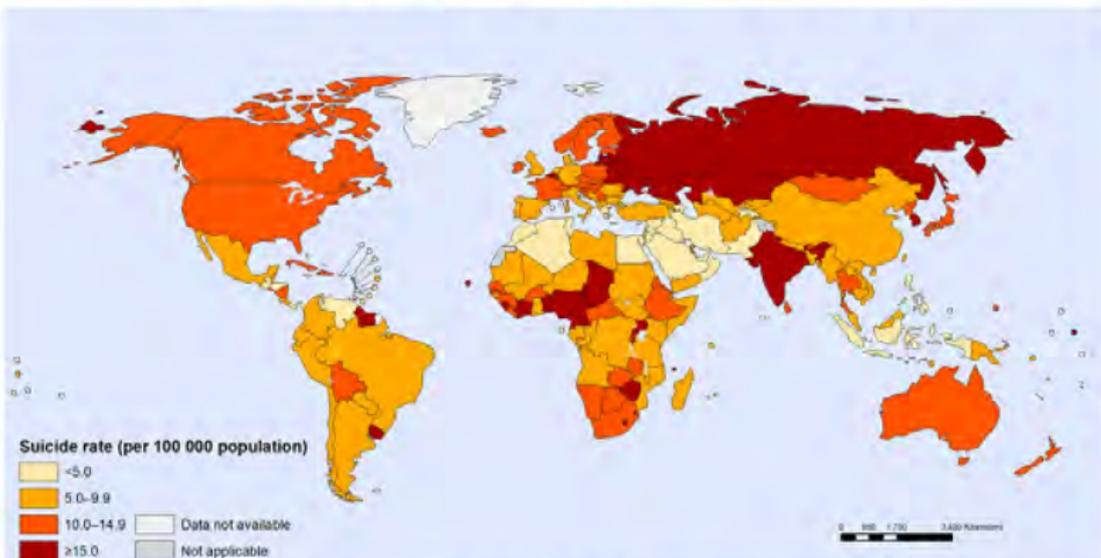


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WHO maps continued

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Age-standardized suicide rates (per 100 000 population), both sexes, 2016



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Data Source: World Health Organization
Map Production: Information Evidence and Research (IER)
World Health Organization

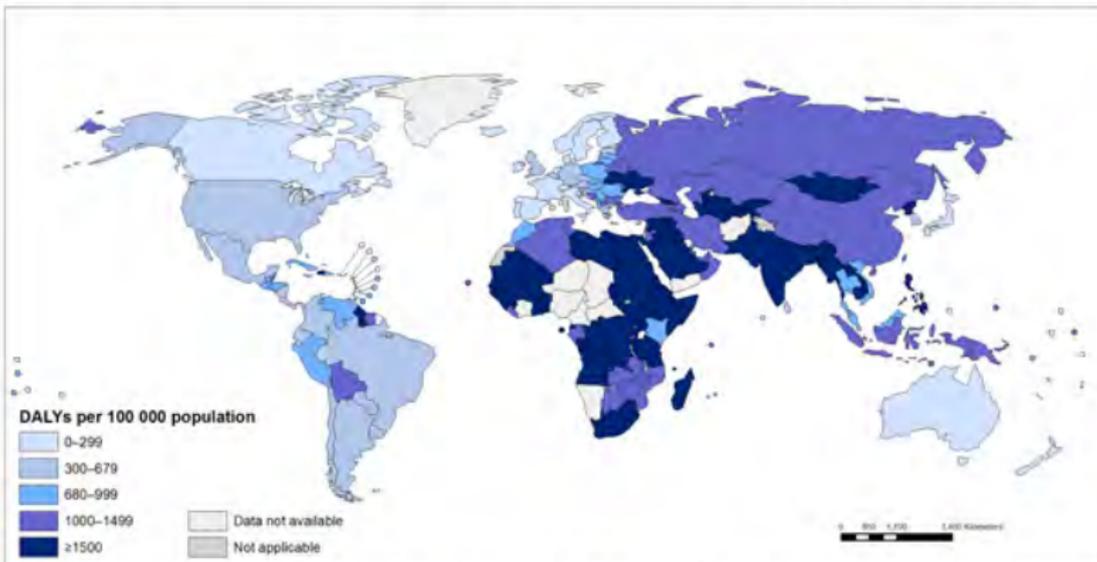


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WHO maps continued

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DALYs attributable to ambient air pollution (age-standardized, per 100 000 population), 2016



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Data Source: World Health Organization
Map Production: Information Evidence and Research (IER)
World Health Organization

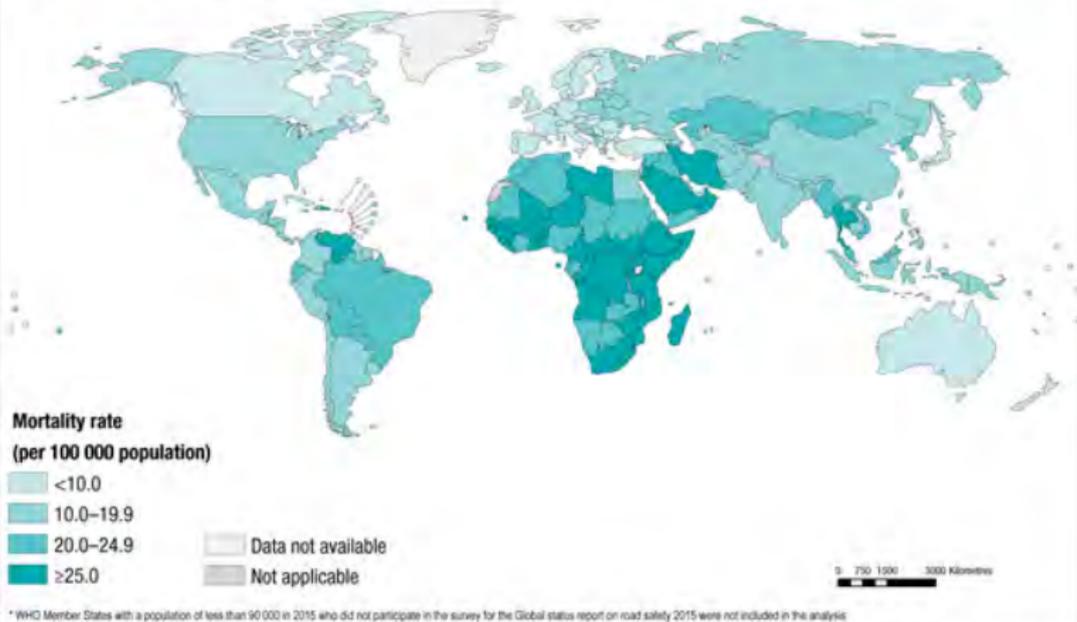


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WHO maps continued

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Road traffic mortality rate, 2013*



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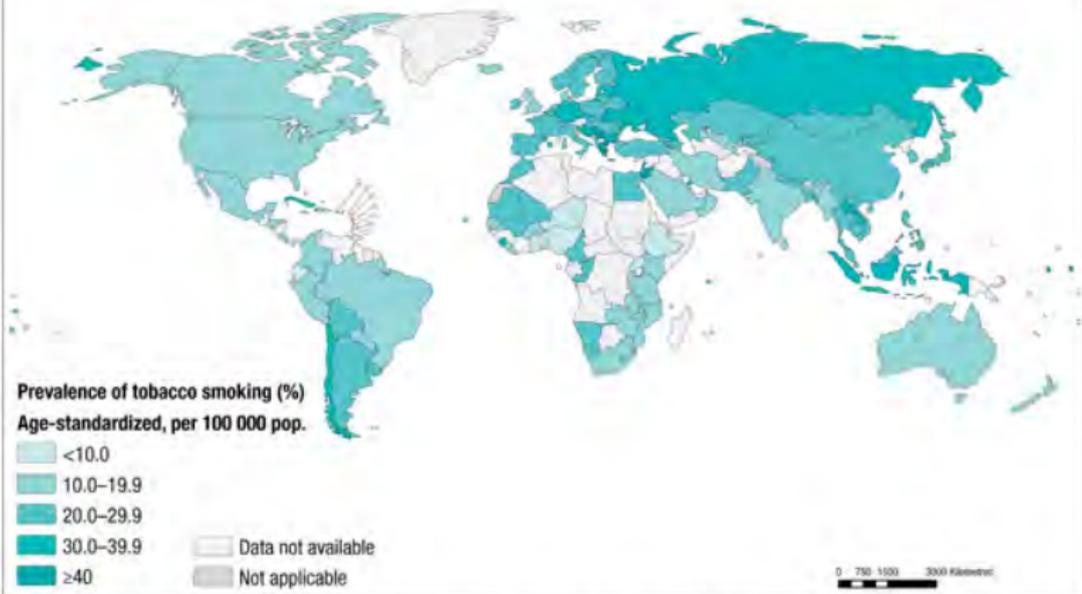
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WHO maps continued

◀ BACK

Age-standardized prevalence of tobacco smoking among persons aged 15 years and older, 2015

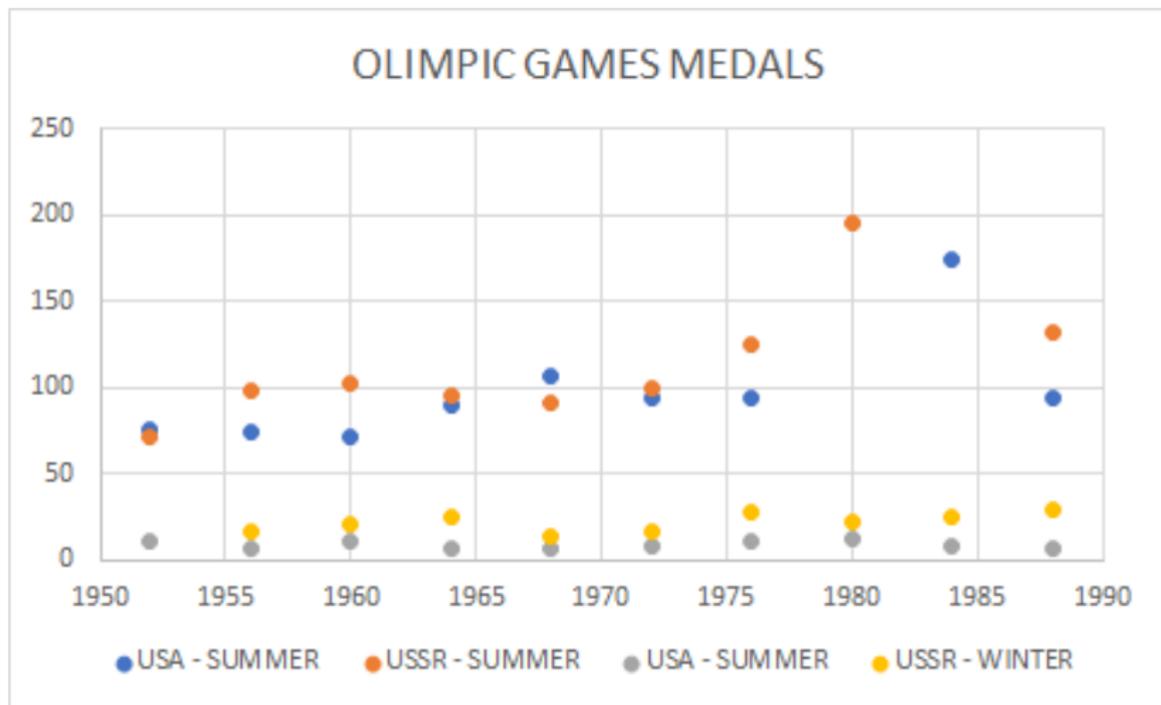


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Data Source: World Health Organization
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Olympics medals in USSR and USA ← BACK



Source: The International Olympic Committee

Within-Soviet-bloc competition (Edelman et al. 2014)
and conflicts  Moscow 1980

Ambiguous education effects using SHARE

◀ BACK

Communist education effects using selected health measures in SHARE

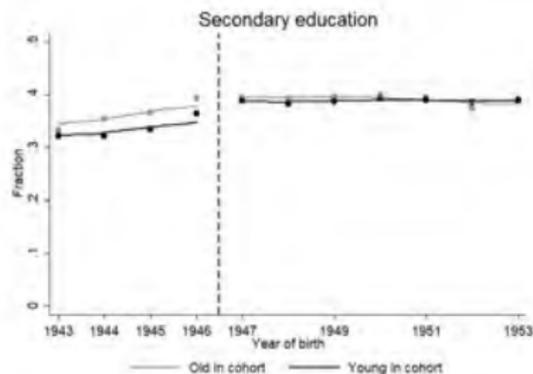
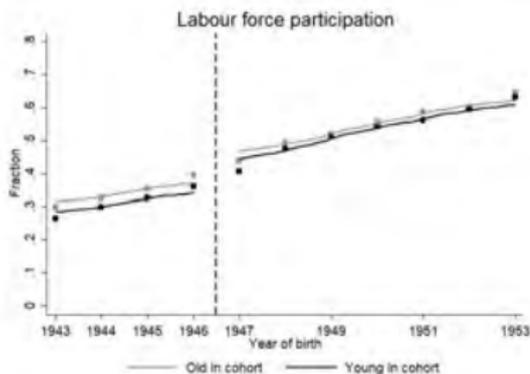
	BMI	Obesity (0-1)	Underweight (0-1)	Max grip in logs	Depression scale	Self-reported health (1-5)	Diabetes (0-1)	Height decay
Compulsory education	-0.04876 (0.0439)	-0.006224 (0.0038)	-0.0008173 (0.0013)	-0.0009986 (0.0023)	0.01333 (0.0211)	0.01115 (0.0099)	0.0006843 (0.0027)	-0.005102 (0.0232)
N	24797	24797	24797	23225	24305	25283	25265	12193
R ²	0.055	0.034	0.014	0.592	0.097	0.184	0.029	0.048
Communist compulsory education	0.1012*** (0.0220)	0.01207*** (0.0020)	0.002155*** (0.0007)	-0.002343 (0.0015)	-0.1466*** (0.0106)	0.09005*** (0.0035)	-0.002843* (0.0016)	0.06723*** (0.0146)
Compulsory education	-0.02576 (0.0444)	-0.003481 (0.0038)	-0.0003275 (0.0013)	-0.001481 (0.0023)	-0.06150*** (0.0111)	0.07138*** (0.0051)	-0.008326*** (0.0015)	0.04001** (0.0170)
Post-communist country	0.7140*** (0.2410)	0.01524 (0.0220)	-0.02584*** (0.0074)	-0.03439** (0.0161)	1.3327*** (0.0879)	-1.2226*** (0.0317)	0.06334*** (0.0137)	-0.4588*** (0.1295)
N	24797	24797	24797	23225	24305	25283	25265	12193
R ²	0.056	0.035	0.015	0.592	0.097	0.184	0.030	0.027
Sex	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age (quadratic)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Marital status	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household wealth	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors clustered by respondents in parenthesis

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Ideological indoctrination in school curriculum ◀ BACK

Human capital and labour force participation by year of birth



Note: Lines represent fits from a local polynomial with a bandwidth of 1.

Source: Polish Census 2002

Ideological indoctrination in school curriculum continued

◀ BACK

Effect of an additional year of post-Marxist-Leninist education

VARIABLES	(1) Work	(2) Secondary educ.	(3) Tertiary educ.
Old in cohort × Affected cohort	0.0147*** (0.00474)	0.0163*** (0.00468)	0.0113*** (0.00349)
Old in cohort	0.0155*** (0.00308)	0.00683** (0.00300)	0.00132 (0.00222)
Observations	198,200	200,706	200,706
Cohort FE	YES	YES	YES
Year of Survey FE	YES	YES	YES
Age	YES	YES	YES
Sex	YES	YES	YES

Note: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: Polish Census 2002

Gender heterogeneity in shock effects during transition

◀ BACK

Shock and regime change effects: gender heterogeneity

	BMI	Obesity (1,0)	Underweight (1,0)	Max grip in logs	CASP index	Depression scale
Hunger × Regime change × Female	1.3449*** (0.2857)	0.1685*** (0.0257)	0.007169 (0.0064)	-0.5167*** (0.0176)	-5.3107*** (0.3730)	1.8324*** (0.1573)
Regime change × Female	0.8571*** (0.1199)	0.1087*** (0.0107)	0.005656*** (0.0018)	-0.4557*** (0.0063)	-2.8344*** (0.1689)	0.8055*** (0.0542)
Hunger × Female	0.1938 (0.2269)	0.08869*** (0.0179)	0.01966*** (0.0075)	-0.5727*** (0.0144)	-3.7732*** (0.3357)	1.9443*** (0.1269)
<i>N</i>	37783	37783	37783	35834	36818	37467
Dispossession × Regime change × Female	1.1357*** (0.1821)	0.1161*** (0.0181)	0.0005621 (0.0036)	-0.4288*** (0.0107)	-2.8973*** (0.2491)	0.9011*** (0.0852)
Regime change × Female	0.8336*** (0.1215)	0.1095*** (0.0107)	0.005928*** (0.0019)	-0.4605*** (0.0063)	-2.8556*** (0.1732)	0.8201*** (0.0583)
Dispossession × Female	-0.7397*** (0.2849)	-0.001980 (0.0223)	0.02174* (0.0112)	-0.5308*** (0.0163)	-0.8932** (0.3878)	1.0110*** (0.1497)
<i>N</i>	38081	38081	38081	35979	36987	37634
Persecution × Regime change × Female	1.0361*** (0.2619)	0.1097*** (0.0212)	-0.001535 (0.0040)	-0.4663*** (0.0137)	-3.5971*** (0.3403)	1.1266*** (0.1267)
Regime change × Female	0.8454*** (0.1187)	0.1094*** (0.0108)	0.006050*** (0.0019)	-0.4567*** (0.0065)	-2.8257*** (0.1740)	0.8153*** (0.0573)
Persecution × Female	0.09659 (0.2870)	0.04323** (0.0213)	0.02419*** (0.0084)	-0.5109*** (0.0127)	-2.2569*** (0.3380)	1.6413*** (0.1245)
<i>N</i>	38113	38113	38113	36006	37010	37663
Period of particular stress × Regime change × Female	1.0877*** (0.1282)	0.1376*** (0.0119)	0.004546** (0.0022)	-0.4664*** (0.0078)	-3.8667*** (0.1907)	1.3856*** (0.0661)
Regime change × Female	0.7378*** (0.1380)	0.09734*** (0.0125)	0.006389*** (0.0023)	-0.4301*** (0.0073)	-2.3670*** (0.1998)	0.6986*** (0.0623)
Period of particular stress × Female	-0.7349*** (0.0765)	0.01196* (0.0070)	0.01543*** (0.0020)	-0.4942*** (0.0044)	-1.2611*** (0.1128)	1.3383*** (0.0393)
<i>N</i>	37532	37532	37532	35651	36621	37258

Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

An illustration: Sterile operating area [◀ BACK](#)

A medicine student in Chelyabinsk, 2006



Fot.: Alieksiej Sharovij, Author's family archives