Equal before luck? Well-being consequences of personal deprivation in planned and free-market economies [*]
Work in progress. Please do not cite

Joan Costa-Font

London School of Economics

Anna Nicińska

University of Warsaw

Melcior Rosello-Roig

Università degli Studi di Perugia

October 21, 2021

Abstract

Political regime change does not solely effect on public life, but also encompasses important consequences on the well-being of individuals that have mostly subsumed in the study of the transition itself. This paper draws on longitudinal data to first establish the effect of past individual level shocks (such as huger, persecution, dispossession, as well as exceptional stress and unhappiness) on current measures of individuals health and mental well-being. Next, we examine the effect of the timing of the personal shocks depending on the major regime changes which adds institutional uncertainty to the effects shocks have on individuals well-being. We find evidence of consistent detrimental effects of such shocks experienced by individuals living in countries that underwent regime transformation, on top of the direct effects of shocks and regime change. Finally, we disentangle the effects of a shocks during, before and after the transition period.

Keywords: transition shocks; Soviet communism; later life health
JEL: I18

1 Introduction

Later-life health is shaped by relevant factors that occurred over a life course, and their impact varies depending on individual education level and type. The politico-economic regime and its institutional environment are likely to affect individual health production (Grossman, 1972, 2005) directly (via the health care system, availability and prices of medical care), and indirectly (via individual choices on health related-behaviours, medical literacy as well as preferences and other factors). Our understanding of factors shaping health in previously communist political-economic regimes remains scarce, because majority of research and available data concern North America and Western Europe. We aim to examine how the shocks experienced in the past affect health of older adults, and whether their impact differs between politico-economic regime and over time, with a particular focus on the shocks experienced during transformation to capitalism from Soviet communism.

Education is a main force of secondary socialization that, along with primary socialization taking place in a family, shapes attitudes and lifelong health habits as it overlaps with impressionable years, when preferences are moulded (Neundorf et al., 2013). This period is also critical for trajectories of physical health in later life (Leopold, 2018) as well as behavioural risks undertaken habitually throughout life course (Jamner et al., 2003). The strong relationship between education and health is well-established (Cutler and Lleras-Muney, 2006; Conti et al., 2010)

Social institutions concerned with health care and behavioral risks varied substantially between communist and non-communist countries. Specifically, the transition from communism to free market regime brought institutional and economic shocks (such as re-privatization, hyperinflation, structural unemployment, foreign direct investment, etc.) (Balcerowicz, 1994; Sachs and Woo, 1994). This instability brought about increased levels of stress (Lipowicz et al., 2016). Furthermore, free public Soviet education system with relatively low number of years in compulsory schooling, heavy load of homework at school, extensive and free extra-curricular programme, particular attention paid to physical education, as well as political indoctrination, differed significantly from Western education systems which is documented to play a major role in explaining health status (Matthews, 2011). The regime differences might have long-lasting effects especially if associated with the exposures during periods of life characterized by particular vulnerability (e.g. impressionable years at school ages, periods of unusual stress at transformation).

We refer to SHARE longitudinal and SHARELIFE retrospective data to apply a panel data analysis of later-life physical and mental health, depending on the differential shocks experienced over life course, in particular during transition from communist to free market regimes, controlling for individual fixed effects and childhood conditions.

The paper is structured as follows. Section 2 provides a background review of relevant literature. Section 3 describes the dataset and methods, while 4 the results of empirical

analysis. Section 6 reports the mechanisms and heterogeneity analyses. Final section 7 concludes.

2 Relevant literature

Evidence on health effects. The health effects of countries exposed to Soviet communism are heterogeneous in part due to their differences in economic development. Yet, one should distinguish Easter European countries, where life expectancy has improved after communism due to improvement in diets and cardiovascular health (Zatonski et al., 1998), from countries exposed to direct Soviet Union rule, were importantly evidence reveals that it was one of the few regions of the world exhibiting a reduction in life expectancy after transition, primarily attributed due to a rise in alcohol consumption and poor diets (Connor et al., 2004).

Although in the 1960s life expectancy was higher in former East Germany than in former West Germany, by the 1970s the numbers reversed (Nolte et al., 2000), and it declined dramatically in the 1990 especially for males which exhibited high premature mortality (male life expectancy fell by 6.2 years between 1990 and 1994), as the transformation continued, longevity had small improvements until the second half of 2000s when it began to improve steadily.

Transition effects. Transition itself had some effects, especially in rising tuberculosis and lung cancer among women increasingly targeted by tobacco companies (McKee and Fister, 2004). Possible explanations to a gap in health between post-communist and other developed countries in the existing literature were searched for in the transformation period, with main focus on SES and relative income (Bobak et al., 2000), as well as the sense of instability and work related stress (Salavecz et al., 2010; Jenkins et al., 2005) as well as the deterioration of public goods provision, an increase in macroeconomic volatility during the transition to capitalism (Guriev and Zhuravskaya, 2009). Alcohol consumption in Russia after the demise of the Gorbachov Anti-Alcohol Campaign (Bhattacharya et al., 2013) resulted in a drop of male life expectancy by about 6 years from 1989 to 1994.

Health system. Countries of former Soviet bloc adopted the Semashko system of health care with a particular emphasis on communicable disease control through mass vaccinations and malaria surveillance, the sanitary control of water supplies, hygienic waste disposal and sewage, and the pasteurization of milk (Rechel et al., 2014). However, health was considered an unproductive sector and priority was given to other government responsibilities and hence funding for health tends to be low, authority was heavily decentralised with limited budgetary responsibilities. Although the breadth of coverage in the other former Soviet countries is 'universal', the package of services covered is limited and the depth does entail large out of pocket and informal payments which in some countries can make the large source of health financing (Lewis, 2007; Ensor, 2004). Collecting mandatory insurance payments and taxes is a challenge due to tax evasion, unemployment and the size of the informal sector (Rechel

et al., 2014). Deterioration infrastructure and poor qualifications of medical workers in Soviet Union (Adam, 1991) continued during transformation.

3 Data and methods

We use the data from Survey on Health, Ageing and Retirement in Europe (SHARE) (Börsch-Supan et al., 2013), a cross-national panel survey on health, socioeconomic status, and community and family groups of people aged 50 or over in continental Europe. In addition to a standard set of demographic controls, SHARE data include health, psychological economic and net wealth variables. The sixth, fifth and fourth waves include nationally representative samples of nineteen countries (Austria, Sweden, Netherlands, Spain, Italy, France, Denmark, Greece, Switzerland, Belgium, Israel, Czech Republic, Poland, Luxembourg, Hungary, Portugal, Slovenia, Estonia and Croatia) drawn from population registries or from sampling. SHARE's third and seventh wave of data collection, SHARELIFE, collect detailed retrospective life accounts. The evidence in the life history includes family composition, type of home and health status when the respondent was a child.

We draw on a number of measures of short-term health (Body Mass Index (BMI), obesity, and underweight), long-term health (grip strength measured with dynamo-meter) as well as well-being and mental health (CASP-19 index[1] of the quality of life and well-being, and EURO-D depression scale[2], respectively) observed in waves 4, 5, and 6 of SHARE. On top of that we use the data on mobility limitations and limitations in daily living activities (including instrumental, GALI), diabetes, heart attack, and self-reported health (SPHUS).

As far as the exogenous shocks are concerned, experience of hunger, material dispossession due to nationalization, and persecutions due to political and other reasons are observed in SHARELIFE retrospective. Furthermore, we use the information on periods of particular stress and happiness ever experienced in the past as reported by respondents. The timing of majority of the shocks is provided in the data.

Furthermore, we refer to the information on childhood circumstances relevant for health trajectories, i.e. immunization in early life, selected diseases (asthma and cancer) diagnosed during childhood (before the age of 15 years), hospitalisation during childhood and socio-economic status when respondents were 10 years old (the presence of absence and the SES index). The childhood SES status is an index built using a principal component analysis that includes three principal areas: the number of people living in the house divided by the number of rooms, the number of books, and features of the house (whether there was a bath, running water (cold and hot), inside toilet, central heating, or none of these).

Table 1 depicts descriptive statistics of the total research sample and divided by gender. We observe an exposure to such shocks as hunger, dispossession, and persecution at similar

---

[1]For more methodological details see Hyde et al. (2003).
[2]For more methodological details see Prince et al. (1999).

level of about 6%. About half of female respondents reports that their lives were free from an exceptionally stressful or happy times, and in the case of men, this proportion is larger. We document differences in health between genders in line with previous studies.

Table 1: Descriptive statistics

	N	Mean	Total St.d.	Min	Max	Males only Mean	St.d.	Females only Mean	St.d.
Regime change	51364	.3204384	.4666496	0	1	.2979128	.4573511	.3381565	.4730903
Age	51356	66.95512	10.07715	50	105	67.01597	9.735727	66.90726	10.33767
Married	51364	.6959544	.4600065	0	1	.7904838	.4069724	.6216	.4849965
ISCED 0	50551	.0438171	.2046901	0	1	.0389219	.1934132	.0476577	.2130447
ISCED 1	50551	.1583154	.3650401	0	1	.1406138	.3476305	.1722032	.3775636
ISCED 2	50551	.1897094	.392075	0	1	.1722012	.3775637	.2034455	.4025682
ISCED 3	50551	.3385096	.4732074	0	1	.3578114	.479367	.3233664	.4677695
ISCED 4	50551	.0464086	.2103704	0	1	.0459863	.2094601	.0467399	.2110849
ISCED 5	50551	.2147139	.4106278	0	1	.2326764	.4225472	.2006213	.4004723
ISCED 6	50551	.008526	.091943	0	1	.0117891	.1079379	.005966	.0770107
Hunger	50049	.06126	.2398089	0	1	.0598794	.2372687	.0623335	.2417646
Dispossession	50856	.0696083	.2544882	0	1	.0671645	.2503123	.0715263	.2577065
Persecution	50953	.0550704	.2281198	0	1	.0580959	.23393	.0526979	.2234337
Period of particular stress	49448	.4951869	.4999819	0	1	.4415765	.4965864	.5368308	.4986506
Period of particular happiness	49230	.4645135	.4987442	0	1	.4153925	.492801	.5026522	.500002
Body Mass Index (BMI)	49973	26.99279	4.670651	12.48699	74.74049	27.25805	4.141462	26.78115	5.04335
Max grip strength	46722	33.5256	11.87081	1	95	42.67117	10.27791	26.22899	7.006597
CASP Quality of Life Index	48022	37.39767	6.269771	12	48	37.83298	6.071604	37.0584	6.39959
Depression scale	49022	2.441822	2.257986	0	12	1.982518	2.032377	2.799173	2.357948
Mobility limitations	51255	1.706721	2.434964	0	10	1.322429	2.188698	2.008852	2.572364
Limitations in daily living (GALI)	51260	.4821693	.4996868	0	1	.4531596	.4978122	.5049836	.4999839
Self-reported health (SPHUS)	51251	3.215469	1.074871	1	5	3.166113	1.079899	3.254288	1.069319
Net wealth (log)	49340	11.38646	2.417037	-29.80533	17.40668	11.58153	2.205377	11.23152	2.562249
Diabetes	51232	.1358721	.3426561	0	1	.1501352	.3572118	.1246557	.3303338
Age of retirement	51363	68.15967	9.784206	43	104	68.18033	9.403071	68.14341	10.07401
Childhood SES: father absent	50878	.1195016	.3243809	0	1	.1140214	.3178443	.1238028	.3293623
Childhood SES: low status	48083	.2019217	.4014382	0	1	.2066131	.404885	.1982313	.3986748
Childhood SES: medium status	48083	.3519123	.4775718	0	1	.3638167	.4811081	.3425482	.4745707
Childhood SES: high status	50034	.2223288	.4158151	0	1	.2229374	.4162261	.2218489	.4154974
Childhood hospitalization	50691	.0641139	.2449582	0	1	.066478	.2491214	.0622626	.2416361
Childhood asthma	50472	.0180694	.1332039	0	1	.0199503	.1398328	.0165978	.1277611
Childhood cancer	50623	.0012445	.0352558	0	1	.0011238	.033505	.0013391	.03657
Childhood immunization	50287	.963589	.1873124	0	1	.9656201	.1822072	.961992	.1912189

Source: SHARE (waves 4, 5, 6) and SHARELIFE (waves 3, 7), release 7.0.0.

Formally, we conduct the following panel data estimations:

$$Outcome_{i,g,t} = \beta_0 + \beta_1 Shock_{i,g} \times Regime\ change_{i,g}$$
$$+ \beta_2 Regime\ change_{i,g} + \beta_3 Controls_{i,g,t} + \beta_4 Individual\ FE_{i,g} + \eta_{i,g,s}$$

$$
\begin{aligned}
Outcome_{i,g,t} = {} & \delta_0 + \delta_1 Shock_{i,g} \times\ Transition\ period_{i,g} \times\ Regime\ change_{i,g} \\
& + \delta_{2,1} Shock_{i,g} \times\ Transition\ period_{i,g} + \delta_{2,2} Shock_{i,g} \times\ Regime\ change_{i,g} \\
& + \delta_{2,3} Transition\ period_{i,g} \times\ Regime\ change_{i,g} + \delta_{2,4} Transition\ period_{i,g} \\
& + \beta_{2,5} Regime\ change_{i,g} + \delta_3\ Controls_{i,g,t} + \delta_4 Individual\ FE_{i,g} + \mu_{i,g,t}
\end{aligned}
$$

where $Outcome_{i,g,s}$ is a measure of well-being of individual i living in country g being exposed in the past to regime s; $Shock_{i,g}$ is a dummy for the experience of a shock to health in the past by individual i living in country g; and $Controls_{i,g,s}$ include age (2nd polynomial), gender, Socio-Economic Status (SES) in childhood (a 3-point scale combined with father's presence) and a number of measures of health during childhood (any hospitalization, asthma, cancer, immunization). The interaction of $Shock_{i,g}$ with $Regime\ change_{i,g}$ denotes whether individual i experienced country g's regime transformation and the shock, while the triple interaction between $Shock_{i,g}$, $Transition\ period_{i,g}$ and $Regime\ change_{i,g}$ denotes the shocks experienced by individual i during the transformation period in countries g that underwent regime transition.

3.1 Stylized facts

Exogenous shocks that individuals experience over their life course pose long-lasting impact on individual well-being and using SHARE retrospective data we document detrimental effects on health and well-being of hunger, dispossession, and persecution experienced in the past as well as the instability with respect to periods of particular happiness or stress in individual life history (cf. Table 2).

We confirm relations established in the literature that hunger has detrimental impact on well-being, and so have dispossession and other destabilizing events such as periods of particular stress or happiness. Individuals with levelled amounts of stress and happiness over their lives are better off in their later life as far as health and well-being are concerned as compared to those with major shifts, either negative (particular stress) or positive (particular happiness). In the following section, we examine differential shocks effects depending on their timing.

The significant association between well-being and health in later life with the experience of transition is documented in Table 3. Despite the individuals who experienced regime transformation have on average greater grip strength and we find protective effects of transition on being underweight among women, the overall effects of the transition on health and well-being are vastly negative. In particular, we document higher BMI and prevalence of obesity, lower quality of life and more depression symptoms among those exposed to

transition.

Table 2: Shock effects adjusted for age

	Short-term health		Long-term health		Well-being	
	BMI	Obesity (1,0)	Underweight (1,0)	Max grip in logs	CASP index	Depression scale
Hunger						
Total	0.4843***	0.04976***	0.002261	-0.06209***	-2.8067***	0.9956***
	(0.1158)	(0.0102)	(0.0032)	(0.0082)	(0.1935)	(0.0695)
N	40387	40387	40387	38191	39236	39985
Males only	0.1872	0.01944	0.002758	-0.03648***	-1.7076***	0.5247***
	(0.1531)	(0.0155)	(0.0043)	(0.0106)	(0.2607)	(0.0916)
N	16640	16640	16640	15807	16038	16310
Females only	0.6479***	0.06725***	0.002670	-0.06637***	-2.7472***	1.0714***
	(0.1796)	(0.0148)	(0.0052)	(0.0111)	(0.2509)	(0.0982)
N	21143	21143	21143	20027	20780	21157
Dispossession						
Total	0.7109***	0.04055***	-0.005598**	0.03576***	-0.7166***	0.2299***
	(0.0930)	(0.0091)	(0.0022)	(0.0066)	(0.1567)	(0.0513)
N	40992	40992	40992	38509	39595	40345
Males only	0.2721*	0.02059	-0.003420	0.02117**	-0.8186***	0.2632***
	(0.1445)	(0.0142)	(0.0021)	(0.0083)	(0.2303)	(0.0770)
N	16826	16826	16826	15897	16136	16411
Females only	0.5620***	0.02507*	-0.005178	0.02704***	-0.5202***	0.09423
	(0.1509)	(0.0139)	(0.0038)	(0.0086)	(0.1876)	(0.0706)
N	21255	21255	21255	20082	20851	21223
Persecution						
Total	0.4927***	0.03670***	0.001775	0.002417	-1.4107***	0.5237***
	(0.1343)	(0.0113)	(0.0031)	(0.0072)	(0.1714)	(0.0660)
N	41040	41040	41040	38549	39633	40390
Males only	0.2967*	0.04439***	0.005071	-0.0004468	-1.4674***	0.4545***
	(0.1708)	(0.0171)	(0.0041)	(0.0112)	(0.2343)	(0.0833)
N	16838	16838	16838	15907	16145	16422
Females only	0.8061***	0.03746**	-0.001956	-0.001506	-1.4971***	0.5698***
	(0.1967)	(0.0153)	(0.0046)	(0.0095)	(0.2333)	(0.0893)
N	21275	21275	21275	20099	20865	21241
Period of particular happiness						
Total	0.09341*	0.01057***	0.001930*	-0.01399***	-1.2679***	0.5216***
	(0.0480)	(0.0040)	(0.0011)	(0.0027)	(0.0758)	(0.0264)
N	39804	39804	39804	37756	38778	39498
Males only	0.08943	0.01435**	0.0009769	-0.008769**	-1.1314***	0.4330***
	(0.0607)	(0.0061)	(0.0012)	(0.0037)	(0.1026)	(0.0343)
N	16454	16454	16454	15662	15889	16146
Females only	0.1652**	0.01368**	0.001827	-0.01732***	-1.4830***	0.6193***
	(0.0663)	(0.0057)	(0.0018)	(0.0038)	(0.0969)	(0.0348)
N	20939	20939	20939	19868	20613	20983
Period of particular stress						
Total	0.01588	0.007640*	-0.00007945	-0.002081	-0.6977***	0.5666***
	(0.0468)	(0.0043)	(0.0011)	(0.0029)	(0.0689)	(0.0253)
N	39977	39977	39977	37916	38934	39664
Males only	0.03147	0.009433	-0.00008961	0.01004***	-0.6625***	0.4826***
	(0.0651)	(0.0066)	(0.0011)	(0.0039)	(0.0966)	(0.0325)
N	16520	16520	16520	15719	15941	16207
Females only	0.1044	0.01419**	-0.0007214	-0.01389***	-0.8954***	0.6899***
	(0.0660)	(0.0056)	(0.0019)	(0.0038)	(0.0949)	(0.0336)
N	21012	21012	21012	19932	20680	21051
Age (linear)	YES	YES	YES	YES	YES	YES
Gender	YES	YES	YES	YES	YES	YES
Childhood SES	NO	NO	NO	NO	NO	NO
Childhood health	NO	NO	NO	NO	NO	NO

Source: SHARE (waves 4, 5, 6) and SHARELIFE (waves 3, 7), release 7.0.0.

Notes: Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 3: Regime change effects adjusted for age

	Short-term health		Long-term health		Well-being	
	BMI	Obesity (1,0)	Underweight (1,0)	Max grip in logs	CASP index	Depression scale
Regime change						
Total	1.3956***	0.09820***	-0.006437***	0.03898***	-1.5650***	0.1983***
	(0.0725)	(0.0061)	(0.0012)	(0.0057)	(0.1805)	(0.0434)
N	41258	41258	41258	38682	39778	40547
Males only	0.9843***	0.08801***	0.0002244	0.03077***	-1.7216***	0.2417***
	(0.0818)	(0.0075)	(0.0012)	(0.0057)	(0.1882)	(0.0452)
N	18271	18271	18271	17124	17375	17700
Females only	1.6945***	0.1053***	-0.01154***	0.04483***	-1.4444***	0.1640***
	(0.0961)	(0.0078)	(0.0018)	(0.0067)	(0.1957)	(0.0520)
N	22987	22987	22987	21558	22403	22847
Age (linear)	YES	YES	YES	YES	YES	YES
Gender	YES	YES	YES	YES	YES	YES
Childhood SES	NO	NO	NO	NO	NO	NO
Childhood health	NO	NO	NO	NO	NO	NO

Source: SHARE (waves 4, 5, 6) and SHARELIFE (waves 3, 7), release 7.0.0.

Notes: Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

In the following section, we examine the interaction between the shocks and the experience of regime change, in particular of the shocks that occurred during the transition period.

4 Results

4.1 Differential shock effects

We document significant detrimental effects of shocks experienced in the post-communist countries on long-term health measures, mental health and well-being, independently adding up to the separate effect of sole shock and of sole regime transformation (cf. Table 4). The effects of shocks in other countries confirm detrimental effects of personal deprivation (particularly hunger, dispossession, persecution) on health and well-being measures. The effects of regime change, i.e. living under Soviet communism throughout some part of life, even mostly negative, can be positive with respect to measures of log-term health. We document reduced risk of underweight and higher score of grip strength measurement in post-communist countries, and the effect remains significant after controlling for all the personal deprivation shocks examined in our study. That might point to protective elements of the communist health care system, such as its universality and mass-vaccination.

Table 4: Shock effects and regime change

	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	1.5160***	0.1282***	-0.004219	0.002665	-3.9225***	0.7764**
	(0.1151)	(0.0023)	(0.0033)	(0.0220)	(0.2047)	(0.1159)
Regime change	1.3778***	0.1021***	-0.005289***	0.04023***	-2.2815***	0.06548
	(0.0337)	(0.0027)	(0.0008)	(0.0126)	(0.5586)	(0.1816)
Hunger	0.6626***	0.05841***	0.002066	-0.05859*	-2.6194**	0.8615**
	(0.0444)	(0.0057)	(0.0035)	(0.0171)	(0.3438)	(0.1090)
N	37783	37783	37783	35834	36818	37467
Dispossession × Regime change	1.4768***	0.09893***	-0.01023**	0.06552**	-2.2494**	0.1495
	(0.0682)	(0.0041)	(0.0020)	(0.0108)	(0.4004)	(0.1379)
Regime change	1.3402***	0.09891***	-0.005500**	0.03982*	-2.1106**	0.01575
	(0.0142)	(0.0025)	(0.0007)	(0.0107)	(0.4440)	(0.1420)
Dispossession	0.1469	0.003523	0.001578	-0.01402	-0.2365	0.2678**
	(0.0770)	(0.0050)	(0.0055)	(0.0093)	(0.4747)	(0.0591)
N	38081	38081	38081	35979	36987	37634
Persecution × Regime change	1.4551***	0.1127***	-0.007087**	0.03777*	-2.8171**	0.3170
	(0.0349)	(0.0029)	(0.0013)	(0.0116)	(0.3662)	(0.1670)
Regime change	1.3595***	0.09838***	-0.005686**	0.04349*	-2.0891**	0.01755
	(0.0158)	(0.0029)	(0.0009)	(0.0110)	(0.4383)	(0.1396)
Persecution	0.4569***	0.02471	0.007629**	-0.01598	-1.4380**	0.7625***
	(0.0365)	(0.0105)	(0.0014)	(0.0137)	(0.1680)	(0.0606)
N	38113	38113	38113	36006	37010	37663
Period of particular happiness × Regime change	1.4925***	0.1106***	-0.004897	0.03000	-3.2040**	0.4924*
	(0.0275)	(0.0035)	(0.0020)	(0.0130)	(0.4375)	(0.1326)
Regime change	1.1668***	0.08861***	-0.004105	0.04259*	-2.2706**	0.08606
	(0.0198)	(0.0016)	(0.0015)	(0.0102)	(0.5170)	(0.1835)
Period of particular happiness	-0.02392	0.004639	0.002526*	-0.01503**	-1.3797**	0.5904***
	(0.0321)	(0.0033)	(0.0006)	(0.0019)	(0.1400)	(0.0406)
N	37393	37393	37393	35530	36502	37129
Period of particular stress × Regime change	1.5293***	0.1185***	-0.006719**	0.03476	-3.1719**	0.6647**
	(0.0702)	(0.0065)	(0.0011)	(0.0128)	(0.4866)	(0.1474)
Regime change 0.04183	1.2265***	1.2278***	0.08953***	-0.005151**	0.05777**	-1.8200*
	(0.0258)	(0.0029)	(0.0011)	(0.0114)	(0.5130)	(0.1432)
Period of particular stress	0.02582	0.007852	-0.0004180	0.007975**	-0.5963**	0.5904***
	(0.0391)	(0.0036)	(0.0012)	(0.0015)	(0.1083)	(0.0221)
N	37532	37532	37532	35651	36621	37258
Age (linear)	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
Individual FE	YES	YES	YES	YES	YES	YES

Source: SHARE (waves 4, 5, 6) and SHARELIFE (waves 3, 7), release 7.0.0.

Notes: Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Interestingly, we document protective effects of having lived under communism for dispossession, persecution and exceptionally stressful or happy periods of life against the loss of log-term health. While the direct effect of regime transformation may be contributed to the effectiveness of some elements of Soviet health care system, the interaction of personal deprivation shock and regime change, might result from reverse causality. Because we are unable to fully control for the wealth and socio-economic status in previous generations, it

is likely that individuals with larger initial health endowments are more likely to experience these events during their lives.

Table 5: Shock effects during transition

	Short-term health		Long-term health		Well-being	
	BMI	Obesity (1,0)	Underweight (1,0)	Max grip in logs	CASP index	Depression scale
Hunger × Transition period × Regime change						
Total	-0.04774	0.04915	0.006211	-0.008088	-0.03018	-0.6749**
	(0.9581)	(0.1044)	(0.0024)	(0.0585)	(1.1077)	(0.1359)
N	37783	37783	37783	35834	36818	37467
Males only	-0.6639	-0.03487	-0.0009440	-0.0001088	-3.9766**	-0.4469
	(0.7829)	(0.0749)	(0.0081)	(0.0200)	(0.4178)	(0.2195)
N	16640	16640	16640	15807	16038	16310
Females only	0.3093	0.09705	0.01094	-0.01445	1.6504	-0.7291
	(0.8849)	(0.1079)	(0.0038)	(0.0815)	(1.4480)	(0.2737)
N	21143	21143	21143	20027	20780	21157
Dispossession × Transition period × Regime change						
Total	-0.5028	0.02983	0.0009273	0.02113	-6.2354	0.4196
	(1.5293)	(0.1375)	(0.0060)	(0.0383)	(2.5436)	(0.2208)
N	38081	38081	38081	35979	36987	37634
Males only	1.3901**	0.1385**	-0.01494	-0.01189	-5.1858**	0.07936
	(0.1725)	(0.0244)	(0.0103)	(0.0776)	(0.8954)	(0.0653)
N	16826	16826	16826	15897	16136	16411
Females only	-1.5453	-0.03575	0.007179	0.03115*	-7.1481	0.7154
	(1.9282)	(0.2004)	(0.0031)	(0.0100)	(3.4186)	(0.3735)
N	21255	21255	21255	20082	20851	21223
Period of particular happiness × Transition period × Regime change						
Total	0.005199	0.006804	-0.001705	-0.005537*	0.2836*	-0.09548
	(0.0053)	(0.0066)	(0.0025)	(0.0018)	(0.0806)	(0.0441)
N	37393	37393	37393	35530	36502	37129
Males only	-0.2844***	-0.01020	0.001282	0.007119	-0.07259	-0.02067
	(0.0928)	(0.0098)	(0.0018)	(0.0164)	(0.1021)	(0.0666)
N	16454	16454	16454	15662	15889	16146
Females only	0.1556*	0.01670	-0.003030	-0.01421	0.4670*	-0.1286*
	(0.0478)	(0.0067)	(0.0051)	(0.0076)	(0.1334)	(0.0300)
N	20939	20939	20939	19868	20613	20983
Period of particular stress × Transition period × Regime change						
Total	0.3421*	0.02049	-0.00008445	-0.03145**	-0.7414	0.03808
	(0.1067)	(0.0106)	(0.0017)	(0.0068)	(0.3078)	(0.0531)
N	37532	37532	37532	35651	36621	37258
Males only	0.2300	0.01902	0.002546	-0.01859**	-0.5418	0.02180
	(0.1338)	(0.0112)	(0.0033)	(0.0026)	(0.5022)	(0.0637)
N	16520	16520	16520	15719	15941	16207
Females only	0.3555	0.02278	-0.0001889	-0.03723*	-0.8555*	0.05514
	(0.1396)	(0.0162)	(0.0035)	(0.0105)	(0.2593)	(0.0304)
N	21012	21012	21012	19932	20680	21051
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
Individual FE	YES	YES	YES	YES	YES	YES

Source: SHARE (waves 4, 5, 6) and SHARELIFE (waves 3, 7), release 7.0.0.

Notes: Robust standard errors in parentheses. Transition denotes period between 1983 and 1995. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 5 presents the effects of the shocks experienced during the regime transformation (1983-1995) in the post-communist countries. We find little evidence that the shocks during the transformation pose significantly different impact from the shocks in post-communist counties before and after the transformation. However, we find that hunger in post-communist countries during transformation significantly increases the risk of underweight in later life, on top of the effects of sole regime change and the sole effect of the hunger before and after the transition. While this effect is found mainly for women, we document detrimental impact of hunger during the transformation on male quality of life in the future. Similarly, dispossession during the transformation from communism to capitalism has substantially more

10

pronounced effect on the reduction of well-being in later life than dispossession in other circumstances, regardless of gender. Furthermore, we confirm existing literature contributing health deterioration due to the experience of particular stress induced by the regime change with our findings on increased BMI and reduced grip strength and well-being. We find the detrimental effects of the particular stress to affect women not only to be more pronounced, but also to be relevant for more dimensions of health.

5 Robustness

Table 6: Robustness of shock effects and regime change

Table 7: Robustness of shock effects and regime change without infividual fixed effects

	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	1.5444***	0.1241***	-0.006334	-0.006086	-3.4663***	1.0707***
	(0.1828)	(0.0174)	(0.0042)	(0.0133)	(0.3159)	(0.1095)
Regime change	1.4313***	0.1005***	-0.006364***	0.03796***	-1.6134***	0.1924***
	(0.0757)	(0.0064)	(0.0012)	(0.0056)	(0.1799)	(0.0423)
Hunger	0.5929***	0.05746***	0.004148	-0.07648***	-3.2643***	1.0518***
	(0.1485)	(0.0124)	(0.0044)	(0.0107)	(0.2595)	(0.0902)
N	40387	40387	40387	38191	39236	39985
Dispossession × Regime change	1.5433***	0.09933***	-0.01073***	0.06745***	-1.5618***	0.2858***
	(0.1104)	(0.0110)	(0.0023)	(0.0082)	(0.2143)	(0.0642)
Regime change	1.3858***	0.09833***	-0.005929***	0.03455***	-1.5726***	0.1927***
	(0.0758)	(0.0063)	(0.0012)	(0.0057)	(0.1851)	(0.0451)
Dispossession	0.02165	-0.007516	0.001835	-0.01409	-0.2108	0.3055***
	(0.1837)	(0.0166)	(0.0059)	(0.0114)	(0.2834)	(0.0945)
N	40992	40992	40992	38509	39595	40345
Persecution × Regime change	1.4241***	0.1088***	-0.007060**	0.04125***	-2.2494***	0.4087***
	(0.1931)	(0.0169)	(0.0036)	(0.0095)	(0.2601)	(0.0950)
Regime change	1.4133***	0.09853***	-0.006195***	0.03805***	-1.5646***	0.2088***
	(0.0744)	(0.0063)	(0.0012)	(0.0058)	(0.1841)	(0.0435)
Persecution	0.3896**	0.02078	0.008003	-0.01678	-1.5439***	0.8132***
	(0.1832)	(0.0139)	(0.0052)	(0.0112)	(0.2544)	(0.0869)
N	41040	41040	41040	38549	39633	40390
Period of particular happiness × Regime change	1.5471***	0.1112***	-0.004776***	0.02523***	-2.7450***	0.6740***
	(0.0928)	(0.0076)	(0.0016)	(0.0065)	(0.1825)	(0.0535)
Regime change	1.2601***	0.09187***	-0.004933***	0.03530***	-1.7985***	0.2907***
	(0.0847)	(0.0076)	(0.0015)	(0.0063)	(0.2103)	(0.0459)
Period of particular happiness	-0.02276	0.004921	0.002922**	-0.01665***	-1.4212***	0.5913***
	(0.0545)	(0.0046)	(0.0015)	(0.0033)	(0.0946)	(0.0323)
N	39804	39804	39804	37756	38778	39498
Period of particular stress × Regime change	1.5825***	0.1178***	-0.006987***	0.03305***	-2.6045***	0.8313***
	(0.0901)	(0.0079)	(0.0017)	(0.0069)	(0.1956)	(0.0543)
Regime change	1.2971***	0.09158***	-0.005714***	0.05319***	-1.2804***	0.2094***
	(0.0901)	(0.0079)	(0.0017)	(0.0069)	(0.1956)	(0.0543)
Period of particular stress	0.02291	0.008318	-0.0001079	0.01121***	-0.5407***	0.5623***
	(0.0571)	(0.0051)	(0.0015)	(0.0035)	(0.0878)	(0.0318)
N	39977	39977	39977	37916	38934	39664
Age (linear)	YES	YES	YES	YES	YES	YES
Gender	YES	YES	YES	YES	YES	YES
Childhood SES	NO	NO	NO	NO	NO	NO
Childhood health	NO	NO	NO	NO	NO	NO
Individual FE	NO	NO	NO	NO	NO	NO

Source: SHARE (waves 4, 5, 6) and SHARELIFE (waves 3, 7), release 7.0.0.

Notes: Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

6 Mechanisms and heterogeneity

6.1 Mechanisms

Table 8: Shock effects by their time of occurrence controlling for age, gender, childhood SES and health on health-related factors

	Mobility limitations	GALI (1,0)	SPHUS scale	Diabetes	Heart attack
Hunger × Regime change	1.0582***	0.1958***	0.6291***	0.07507**	0.1067**
	(0.0280)	(0.0001)	(0.0126)	(0.0112)	(0.0169)
Regime change	0.3009*	0.09756***	0.4265***	0.04438***	0.03508**
	(0.0999)	(0.0090)	(0.0362)	(0.0012)	(0.0065)
Hunger	0.8747***	0.1250***	0.3667**	0.05060**	0.04305***
	(0.0303)	(0.0071)	(0.0429)	(0.0103)	(0.0014)
N	38676	38683	38682	38660	38660
Dispossession × Regime change	0.3018**	0.1061***	0.4579***	0.04809**	0.04270**
	(0.0608)	(0.0061)	(0.0204)	(0.0086)	(0.0079)
Regime change	0.2941*	0.09506**	0.4114***	0.04248***	0.03505*
	(0.0983)	(0.0099)	(0.0372)	(0.0020)	(0.0085)
Dispossession	0.09554	0.04887	0.0007707	0.009072	0.03739
	(0.0573)	(0.0168)	(0.0674)	(0.0120)	(0.0183)
N	38984	38991	38990	38969	38969
Period of particular happiness × Regime change	0.5109**	0.1380***	0.5408***	0.05219***	0.04503**
	(0.1015)	(0.0037)	(0.0305)	(0.0022)	(0.0065)
Regime change	0.3012	0.09825**	0.4496***	0.03581***	0.03498**
	(0.1233)	(0.0147)	(0.0423)	(0.0020)	(0.0058)
Period of particular happiness	0.2586**	0.05137***	0.1722***	0.001884	0.009432*
	(0.0416)	(0.0031)	(0.0100)	(0.0023)	(0.0024)
N	38250	38256	38257	38233	38233
Period of particular stress × Regime change	0.6896**	0.1761***	0.5511***	0.05131***	0.06835**
	(0.0872)	(0.0065)	(0.0397)	(0.0006)	(0.0080)
Regime change	0.2521*	0.1040***	0.4226***	0.03161***	0.02956**
	(0.0839)	(0.0089)	(0.0379)	(0.0020)	(0.0057)
Period of particular stress	0.3028**	0.07982***	0.1199***	-0.006442	0.02103**
	(0.0455)	(0.0063)	(0.0015)	(0.0030)	(0.0028)
N	38395	38401	38401	38378	38378

Source: SHARE (waves 4, 5, 6) and SHARELIFE (waves 3, 7), release 7.0.0.

Notes: Robust standard errors in parentheses. Transition denotes period between 1983 and 1995. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

The more pronounced effects of shocks experienced by individuals exposed to regime change are found also for mobility limitations and limitations in all daily living activities as well as the risk of diabetes and heart attack (c.f. Table 8, which can be the mechanism explaining the effects on health and well-being in later life, in line with the links between mental health and physical health documented in the literature (Ohrnberger et al., 2017). This mechanism seems to be particularly strong for the effects of hunger and to a smaller degree also for the periods of particular stress or happiness in one's life history.

Table 9: Shock effects by their time of occurrence controlling for age, gender, childhood SES and health on socio-economic factors

	Net wealth in logs	Retirement age	Education	Married
Hunger × Regime change	-1.7324***	-0.06036	-0.009623	-0.1236***
	(0.0454)	(0.1963)	(0.0492)	(0.0085)
Regime change	-1.4892***	0.007854	0.1903**	-0.06133***
	(0.0515)	(0.1521)	(0.0353)	(0.0051)
Hunger	-0.5162**	-0.6160**	-0.4171**	-0.06435**
	(0.0616)	(0.0802)	(0.0620)	(0.0075)
N	37369	38747	38184	38748
Dispossession × Regime change	-1.3890***	0.2492	0.4554**	-0.08171**
	(0.0535)	(0.1520)	(0.0832)	(0.0098)
Regime change	-1.4842***	0.01336	0.1785**	-0.06029***
	(0.0483)	(0.1594)	(0.0296)	(0.0057)
Dispossession	0.4011*	0.3871	0.4303***	-0.05898**
	(0.1136)	(0.2280)	(0.0075)	(0.0098)
N	37667	39057	38492	39058
Period of particular happiness × Regime change	-1.5640***	0.2676	0.2502**	-0.1060***
	(0.0622)	(0.3402)	(0.0334)	(0.0049)
Regime change	-1.4993***	-0.1083	0.1581**	-0.07579**
	(0.0678)	(0.1468)	(0.0319)	(0.0099)
Period of particular happiness	-0.1193*	0.1066	0.01623	-0.06525***
	(0.0350)	(0.0683)	(0.0101)	(0.0054)
-0.1193*	0.1066	0.01623	-0.06525***	
	(0.0350)	(0.0683)	(0.0101)	(0.0054)
Period of particular stress × Regime change	-1.4597***	-0.1133	0.4230**	-0.1364***
	(0.0397)	(0.0987)	(0.0628)	(0.0031)
Regime change	-1.4229***	-0.03276	0.3397***	-0.05977***
	(0.0501)	(0.0728)	(0.0301)	(0.0049)
Period of particular stress	0.07587**	-0.2009	0.3501***	-0.06508***
	(0.0123)	(0.1395)	(0.0161)	(0.0063)
N	37093	38460	37910	38461

Source: SHARE (waves 4, 5, 6) and SHARELIFE (waves 3, 7), release 7.0.0.

Notes: Robust standard errors in parentheses. Transition denotes period between 1983 and 1995. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Surprising results are found in Table 9 where education along with other measures of socio-economic status and being single are examined. We find consistently positive and substantial effects of regime change of educational attainment, accompanied with little evidence of negative effects of the shocks on completed education. On top of that, the interaction between the shock and regime change yields independent and mostly positive effects on education. Despite that, we find negative effects on health and well-being in later life documenting that communist education hardly protects from increased health deterioration as compared to Western European countries.

The above finding is consistent with centrally planned economies without labour markets properly rewarding human capital. Neither formal education nor work experience captured by the retirement age in our analysis results in the increase of health production among older individuals in post-communist counties. However, we document that wealth deprivation and being single can be attributed to the detrimental effects of the shocks in post-communist countries on well-being and health in later life. Once more we find that dispossession, hunger and imbalance between stress and happiness over life course are detrimental, especially if experienced by older individuals living in currently post-communist countries.

6.2 Heterogeneity

We examine heterogeneity of the effects with respect to their timing (either during or after and before transformation), gender, and area type.

We find little evidence of systematic differences between the effect sizes depending on the timing (before the transition, during, or after) of shock's occurrence in post-communist countries (c.f. Table 10) apart from transition being the period of particular stress, in line with existing literature.

Detrimental effects of shocks in post-communist countries on later life health and well-being are more pronounced for women than for men, as shown in Table 11. We document more pronounced effects for women, consistently across the sole effect of each shock, exposure to communist regime, as well as their interaction, in line with the notion of worse health on average among women than men in post-communist countries (despite greater longevity). Moreover, we document that positive effects of communist regime on grip-strength are driven mainly by male population. This result might reflect the industrial and agricultural structure of employment under communism, with typical for men jobs that involved tasks demanding physical strength and endurance.

Experience of all shocks in rural areas in countries experienced regime transition yields more pronounced effects on well-being and short-term health than same chocks in same countries but in urban areas, as shown in Table 12. As far as the grip strength is concerned, the said differences are mixed, but they document consistently stronger detrimental effects of instability in happiness and stress levels in rural that in urban areas of countries exposed to communism. However, we document that in case individuals currently living in rural areas (for whom we can reasonably assume they have lived in rural areas most of their lives), the long-term health direct effects of transformation are weaker than in urban areas. Nonetheless, a direct impact of shocks is on average more harmful in rural than in urban areas.

Table 10: Shock effects by their time of occurrence controlling for age, childhood SES and health

	Short-term health		Long-term health		Well-being	
	BMI	Obesity (1,0)	Underweight (1,0)	Max grip in logs	CASP index	Depression scale
Regime change	1.3601***	0.09979***	-0.005315***	0.04349*	-2.1312**	0.02689
	(0.0211)	(0.0025)	(0.0006)	(0.0107)	(0.4299)	(0.1420)
Hunger × Transition period	-0.2837	-0.02537	-0.01872***	0.02365*	-0.01337	0.3767
	(0.7424)	(0.0655)	(0.0036)	(0.0059)	(0.7898)	(0.2227)
Hunger × Pre-transition period	0.4725	-0.01843	-0.006034	0.01332	2.7181**	-0.8408**
	(0.5072)	(0.0745)	(0.0064)	(0.0049)	(0.4226)	(0.1226)
Hunger × Post-transition period	0.08761	0.06497	0.008903	-0.06526**	-4.6426**	1.5110***
	(0.5325)	(0.0727)	(0.0054)	(0.0082)	(0.6690)	(0.1359)
N	37783	37783	37783	35834	36818	37467
Regime change	1.3401***	0.09879***	-0.005815**	0.04152*	-2.1110**	0.009511
	(0.0137)	(0.0026)	(0.0009)	(0.0107)	(0.4218)	(0.1445)
Dispossession × Transition period	-0.01685	0.02242	-0.004329	-0.03784	-1.8136***	0.1536
	(0.1897)	(0.0112)	(0.0045)	(0.0316)	(0.0952)	(0.0771)
Dispossession × Pre-transition period	-0.1811	-0.001720	-0.001657	0.06139**	0.4306*	-0.01187
	(0.0982)	(0.0062)	(0.0017)	(0.0083)	(0.1471)	(0.1038)
Dispossession × Post-transition period	0.3032	0.001486	-0.001267	-0.03868*	-0.4629	0.1747
	(0.1297)	(0.0100)	(0.0035)	(0.0092)	(0.2453)	(0.1089)
N	38081	38081	38081	35979	36987	37634
Regime change	1.3332***	0.09700***	-0.005695**	0.04420*	-2.0381**	-0.006659
	(0.0147)	(0.0027)	(0.0008)	(0.0107)	(0.4307)	(0.1462)
Happiness × Transition period	0.1192	0.01137	-0.00003145	-0.003481	0.4355*	-0.1426*
	(0.0529)	(0.0066)	(0.0007)	(0.0037)	(0.1435)	(0.0420)
Happiness × Pre-transition period	0.1709	0.003016	-0.001726	-0.01005*	-0.4652**	0.08383
	(0.0865)	(0.0037)	(0.0020)	(0.0032)	(0.0950)	(0.0431)
Happiness × Post-transition period	-0.1111	0.0008078	0.002717	-0.004596	-1.1736***	0.5605***
	(0.1176)	(0.0092)	(0.0010)	(0.0030)	(0.1041)	(0.0257)
N	37393	37393	37393	35530	36502	37129
Regime change	1.3589***	0.09960***	-0.005743**	0.04321*	-2.1618**	0.05209
	(0.0243)	(0.0026)	(0.0009)	(0.0110)	(0.4502)	(0.1525)
Stress between × Transition period	0.007007	0.002744	-0.001302	0.004609	0.2118	-0.08870**
	(0.0197)	(0.0037)	(0.0011)	(0.0023)	(0.0882)	(0.0197)
Stress × Pre-transition period	-0.02522	-0.002362	-0.0009517	0.008917	0.5829**	-0.1505**
	(0.0639)	(0.0014)	(0.0014)	(0.0045)	(0.0969)	(0.0262)
Stress × Post-transition period	0.1220	0.01448	0.000001183	-0.006796	-1.1034***	0.6815***
	(0.0545)	(0.0051)	(0.0007)	(0.0038)	(0.0252)	(0.0336)
N	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
Individual FE	YES	YES	YES	YES	YES	YES

Source: SHARE (waves 4, 5, 6) and SHARELIFE (waves 3, 7), release 7.0.0.

Notes: Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 11: Shock and regime change effects controlling for age, childhood SES and health by gender

	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 × Female	1.3426***	0.1672***	0.006903	-0.5142***	-5.1863***	1.7973**
	(0.0634)	(0.0015)	(0.0066)	(0.0261)	(0.2925)	(0.3355)
Regime change × Female	0.8551***	0.1075***	0.005392**	-0.4534***	-2.7253**	0.7761**
	(0.0303)	(0.0019)	(0.0008)	(0.0101)	(0.3804)	(0.1474)
Hunger × Female	0.2059	0.08935**	0.01945	-0.5722***	-3.7868**	1.9349***
	(0.1519)	(0.0094)	(0.0072)	(0.0323)	(0.5462)	(0.1589)
N	37783	37783	37783	35834	36818	37467
Dispossession × Regime change × Female	1.1246**	0.1146***	0.0005208	-0.4272***	-2.8016**	0.8819**
	(0.1272)	(0.0097)	(0.0023)	(0.0102)	(0.3248)	(0.1139)
Regime change × Female	0.8313***	0.1081***	0.005649**	-0.4582***	-2.7452**	0.7904**
	(0.0267)	(0.0038)	(0.0006)	(0.0110)	(0.3959)	(0.1656)
Dispossession × Female	-0.7448**	-0.002137	0.02186	-0.5311***	-0.8958	1.0165**
	(0.1664)	(0.0086)	(0.0085)	(0.0193)	(0.4100)	(0.1119)
N	38081	38081	38081	35979	36987	37634
Persecution × Regime change × Female	1.0217***	0.1079***	-0.001540	-0.4649***	-3.4973***	1.1084***
	(0.0424)	(0.0012)	(0.0038)	(0.0064)	(0.1835)	(0.0955)
Regime change × Female	0.8431***	0.1081***	0.005768**	-0.4543***	-2.7137**	0.7853**
	(0.0206)	(0.0025)	(0.0007)	(0.0114)	(0.3872)	(0.1617)
Persecution × Female	0.09626	0.04345	0.02426***	-0.5115***	-2.2694**	1.6456***
	(0.0524)	(0.0176)	(0.0011)	(0.0054)	(0.3390)	(0.0714)
N	38113	38113	38113	36006	37010	37663
Period of particular happiness × Regime change × Female	1.0174***	0.1242***	0.005936	-0.4671***	-3.6708**	1.1916**
	(0.0364)	(0.0035)	(0.0029)	(0.0133)	(0.3931)	(0.1519)
Regime change × Female	0.6829***	0.09800***	0.005792**	-0.4492***	-2.6353**	0.7332*
	(0.0244)	(0.0070)	(0.0008)	(0.0115)	(0.4423)	(0.1861)
Period of particular happiness × Female	-0.7812***	0.008203	0.01804***	-0.5163***	-1.9750***	1.3454***
	(0.0176)	(0.0030)	(0.0010)	(0.0028)	(0.1210)	(0.0115)
N	37393	37393	37393	35530	36502	37129
Period of particular stress × Regime change × Female	1.0844***	0.1362***	0.004274	-0.4643***	-3.7578**	1.3571**
	(0.0584)	(0.0033)	(0.0016)	(0.0128)	(0.4709)	(0.1575)
Regime change × Female	0.7364***	0.09614***	0.006099*	-0.4280***	-2.2637**	0.6695**
	(0.0652)	(0.0095)	(0.0018)	(0.0106)	(0.4140)	(0.1530)
Period of particular stress × Female	-0.7338***	0.01211**	0.01544**	-0.4944***	-1.2716***	1.3396***
	(0.0033)	(0.0026)	(0.0020)	(0.0027)	(0.0931)	(0.0595)
N	37532	37532	37532	35651	36621	37258
Age (linear)	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
Individual FE	YES	YES	YES	YES	YES	YES

Source: SHARE (waves 4, 5, 6) and SHARELIFE (waves 3, 7), release 7.0.0.

Notes: Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 12: Shock and regime change effects controlling for age, childhood SES and health by area

	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 × Rural	1.7399***	0.1419***	-0.006157	-0.01335	-3.8007***	0.8975***
	(0.2535)	(0.0249)	(0.0058)	(0.0239)	(0.3914)	(0.1580)
Regime change × Rural	1.6466***	0.1241***	-0.004629**	0.03084***	-2.1702***	0.1710***
	(0.1198)	(0.0104)	(0.0019)	(0.0084)	(0.1820)	(0.0580)
Hunger × Rural	0.5728**	0.06314***	0.003097	-0.03023	-3.3890***	1.0442***
	(0.2458)	(0.0219)	(0.0076)	(0.0225)	(0.3695)	(0.1390)
N	37754	37754	37754	35806	36794	37438
Dispossession × Regime change × Rural	1.8291***	0.1245***	-0.009363***	0.05867***	-2.4681***	0.2218***
	(0.1750)	(0.0166)	(0.0035)	(0.0145)	(0.2532)	(0.0828)
Regime change × Rural	1.5891***	0.1210***	-0.004654**	0.02713***	-2.0912***	0.1610***
	(0.1220)	(0.0104)	(0.0020)	(0.0085)	(0.1892)	(0.0619)
Dispossession × Rural	1.2012***	0.09105***	-0.01056***	0.04624***	-1.7025***	0.1674
	(0.2009)	(0.0206)	(0.0032)	(0.0146)	(0.2687)	(0.1027)
N	38052	38052	38052	35951	36963	37606
Persecution × Regime change × Rural	1.7465***	0.1361***	-0.01061**	0.06503***	-2.5526***	0.2927**
	(0.2585)	(0.0251)	(0.0042)	(0.0231)	(0.3711)	(0.1301)
Regime change × Rural	1.6153***	0.1208***	-0.004341**	0.02577***	-2.1471***	0.1799***
	(0.1179)	(0.0102)	(0.0020)	(0.0082)	(0.1893)	(0.0608)
Persecution × Rural	0.3599	0.02544	0.001917	0.04967**	-0.2776	0.4747***
	(0.3078)	(0.0253)	(0.0080)	(0.0227)	(0.4054)	(0.1373)
N	38084	38084	38084	35978	36986	37634
Period of particular happiness × Regime change × Rural	1.7742***	0.1412***	-0.002725	-0.02572***	-3.3004***	0.7447***
	(0.1380)	(0.0122)	(0.0024)	(0.0099)	(0.2007)	(0.0686)
Regime change × Rural	1.4433***	0.1091***	-0.004754**	0.03191***	-2.2054***	0.1909***
	(0.1318)	(0.0119)	(0.0024)	(0.0099)	(0.2119)	(0.0667)
Period of particular happiness× Rural	1.2969***	0.1051***	-0.004904**	-0.02438**	-2.9967***	0.4708***
	(0.1347)	(0.0117)	(0.0023)	(0.0095)	(0.1980)	(0.0622)
N	37367	37367	37367	35504	36479	37104
Period of particular stress × Regime change × Rural	1.7366***	0.1454***	-0.004774*	-0.03827***	-3.1784***	0.8797***
	(0.1383)	(0.0120)	(0.0027)	(0.0105)	(0.2166)	(0.0736)
Regime change × Rural	1.5801***	0.1153***	-0.004376*	0.06252***	-1.7035***	0.1155*
	(0.1337)	(0.0118)	(0.0024)	(0.0100)	(0.2096)	(0.0651)
Period of particular stress × Rural	0.1641**	0.02729***	0.0003184	0.006901	-0.1374	0.6079***
	(0.0824)	(0.0073)	(0.0023)	(0.0074)	(0.1368)	(0.0442)
N	37504	37504	37504	35623	36598	37231
Age (linear)	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
Individual FE	YES	YES	YES	YES	YES	YES

Source: SHARE (waves 4, 5, 6) and SHARELIFE (waves 3, 7), release 7.0.0.

Notes: Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

7 Conclusion

The present study documents detrimental effects of shocks and regime change on health and well-being in later life based on longitudinal and retrospective data from SHARE survey. We find that the effects of shocks are more pronounced in countries that underwent regime transformation. The effects of transition from Soviet communism to capitalism in Europe add up to the negative effects of health shocks, especially on physical health and well-being if exceptional stress, hunger, and dispossession occurred during the transition. Macroeconomic volatility, major changes in individual live histories, and the instability of health care systems in post-communist countries following the demise of Soviet Union, seem to be origin of the more pronounced shock effects during the transformation years.

All effects documented for post-communist countries are more pronounced for women than men. The fact that the shocks resulted in increased BMI and greater risk of obesity especially for women, along with the traditional age difference in marriages making widowhood more likely to occur among older women, in addition to the substantial role of wealth accumulation for health and well-being in later life, contribute to our understanding not only of the ways in which shocks and Soviet regime affected health, but also why the impact varied between genders substantially.

Interestingly, increased educational attainment in post-communist countries did not protect from increased health deterioration due to shocks as compared to Western European counties. This finding is not surprising, taking into account the deep differences between free, public and accessible Soviet education system and the Western ones. Furthermore, shocks experienced before, during and after the transformation posed similar impact on later-life and health. The period of Soviet communism was far from being stable and the occurrence of the periods of particular happiness or stress resulting in destabilizing shocks, are not limited only to the transition period.

8 Acknowledgements

References

Adam, J. (1991). *Economic reforms and welfare systems in the USSR, Poland and Hungary: social contract in transformation*. Springer.

Balcerowicz, L. (1994). Understanding postcommunist transitions. *Journal of Democracy*, 5(4):75–89.

Bhattacharya, J., Gathmann, C., and Miller, G. (2013). The gorbachev anti-alcohol campaign and Russia's mortality crisis. *American Economic Journal: Applied Economics*, 5(2):232–60.

Bobak, M., Pikhart, H., Rose, R., Hertzman, C., and Marmot, M. (2000). Socioeconomic factors, material inequalities, and perceived control in self-rated health: cross-sectional data from seven post-communist countries. *Social science & medicine*, 51(9):1343–1350.

Börsch-Supan, A., Brandt, M., Hunkler, C., Kneip, T., Korbmacher, J., Malter, F., Schaan, B., Stuck, S., and Zuber, S. (2013). Data resource profile: the survey of health, ageing and retirement in europe (share). *International journal of epidemiology*, 42(4):992–1001.

Connor, S. L., Ojeda, L. S., Sexton, G., Weidner, G., and Connor, W. E. (2004). Diets lower in folic acid and carotenoids are associated with the coronary disease epidemic in Central and Eastern Europe. *Journal of the American Dietetic Association*, 104(12):1793–1799.

Conti, G., Heckman, J., and Urzua, S. (2010). The education-health gradient. *American Economic Review*, 100(2):234–38.

Cutler, D. M. and Lleras-Muney, A. (2006). Education and health: evaluating theories and evidence. Technical report, National Bureau of Economic Research.

Ensor, T. (2004). Informal payments for health care in transition economies. *Social Sscience & Medicine*, 58(2):237–246.

Grossman, M. (1972). On the concept of health capital and the demand for health. *Journal of Political economy*, 80(2):223–255.

Grossman, M. (2005). Education and non-market outcomes. NBER working paper 11582. Cambridge, MA: NBER.

Guriev, S. and Zhuravskaya, E. (2009). (Un) happiness in transition. *Journal of economic perspectives*, 23(2):143–68.

Hyde, M., Wiggins, R. D., Higgs, P., and Blane, D. B. (2003). A measure of quality of life in early old age: the theory, development and properties of a needs satisfaction model (casp-19). *Aging & mental health*, 7(3):186–194.

Jamner, L. D., Whalen, C. K., Loughlin, S. E., Mermelstein, R., Audrain-McGovern, J., Krishnan-Sarin, S., Worden, J. K., and Leslie, F. M. (2003). Tobacco use across the formative years: A road map to developmental vulnerabilities. *Nicotine & Tobacco Research*, 5(Suppl_1):S71–S87.

Jenkins, R., Klein, J., and Parker, C. (2005). Mental health in post-communist countries.

Leopold, L. (2018). Education and physical health trajectories in later life: A comparative study. *Demography*, 55(3):901–927.

Lewis, M. (2007). Informal payments and the financing of health care in developing and transition countries. *Health Affairs*, 26(4):984–997.

Lipowicz, A., Szklarska, A., and Mitas, A. W. (2016). Biological costs of economic transition: Stress levels during the transition from communism to capitalism in poland. *Economics & Human Biology*, 21:90–99.

Matthews, M. (2011). *Education in the Soviet Union: policies and institutions since Stalin*, volume 9. Routledge.

McKee, M. and Fister, K. (2004). Post-communist transition and health in Europe.

Neundorf, A., Smets, K., and García-Albacete, G. M. (2013). Homemade citizens: The development of political interest during adolescence and young adulthood. *Acta Politica*, 48(1):92–116.

Nolte, E., Shkolnikov, V., and McKee, M. (2000). Changing mortality patterns in East and West Germany and Poland. ii: Short-term trends during transition and in the 1990s. *Journal of Epidemiology & Community Health*, 54(12):899–906.

Ohrnberger, J., Fichera, E., and Sutton, M. (2017). The relationship between physical and mental health: A mediation analysis. *Social Science & Medicine*, 195:42–49.

Prince, M. J., Reischies, F., Beekman, A. T., Fuhrer, R., Jonker, C., Kivela, S.-L., Lawlor, B. A., Lobo, A., Magnusson, H., Fichter, M., et al. (1999). Development of the EURO–D scale–a European Union initiative to compare symptoms of depression in 14 european centres. *The British Journal of Psychiatry*, 174(4):330–338.

Rechel, B., Richardson, E., and McKee, M. (2014). Trends in health systems in the former Soviet countries. *European Journal of Public Health*, 24(suppl_2).

Sachs, J. and Woo, W. T. (1994). Structural factors in the economic reforms of China, Eastern Europe, and the former Soviet Union. *Economic Policy*, 9(18):101–145.

Salavecz, G., Chandola, T., Pikhart, H., Dragano, N., Siegrist, J., Jöckel, K.-H., Erbel, R., Pajak, A., Malyutina, S., Kubinova, R., et al. (2010). Work stress and health in Western European and post-communist countries: an East–West comparison study. *Journal of Epidemiology & Community Health*, 64(01):57–62.

Zatonski, W. A., McMichael, A. J., and Powles, J. W. (1998). Ecological study of reasons for sharp decline in mortality from ischaemic heart disease in Poland since 1991. *British Medical Journal*, 316(7137):1047.