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EXCEPT

Interdependencies between labour market insecurity and well-being - evidence from panel data

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Anna Baranowska-Rataj, Michael Gebel, Katerina Gousia, Małgorzata Klobuszewska, Olga Nikolaieva, Olena Nizalova, Edward Norton, Magda Rokicka, Jędrzej Stasiowski, Mattias Strandh and Jonas Voßemer

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i. to advance the knowledge base that underpins the formulation and implementation of relevant policies in Europe with the aim of enhancing the employment of young people and improving the social situation of young people who face labour market insecurities, and

ii. to engage with relevant communities, stakeholders and practitioners in the research with a view to supporting relevant policies in Europe. Contributions to a dialogue about these results can be made through the project website http://www.except-project.eu/, or by following us on twitter @except_eu.

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Responsibility for all conclusions drawn from the data lies entirely with the authors.

Introduction

Baranowska-Rataj Anna and Strandh Mattias

The aim of this report is to present the evidence on the causal effects of various forms of labour market insecurity on health and well-being based on longitudinal data. We draw on selected national panel survey and life history survey data (the Social Diagnosis data from Poland, the Ukrainian Longitudinal Monitoring Survey from Ukraine) as well as comparative harmonized longitudinal surveys (The Survey of Health, Ageing and Retirement in Europe (SHARE), the European Union Statistics on Income and Living Conditions (EU-SILC)) that provide detailed measures of health and well-being. Specifically, we examine self-rated health and life satisfaction in both short- and long-term perspective.

The studies included in this report inspired among others by the theories emphasizing the latent functions of employment, such as participation in collective purpose, regular activity, and maintaining social status (Jahoda 1981). These theories highlight the detrimental consequences of a lack of job for mental health. We also draw our hypotheses from theoretical models stressing the degree to which the unemployment situation limits the agency of the individual. This approach opened up the discussion on the variation in the relationship between a lack of job and health across different groups of the unemployed, as well as put the focus strongly on the role of economic losses and poverty for understanding the consequences of job loss (Fryer 1992).

Researchers usually have distinguished two concepts of the impact of labour market insecurity on health and well-being: temporary blemishes and persistent scars (Ruhm 1991). Although both have in common a negative effect of labour market insecurity, they predict different trajectories in the long run. In this report we disentangle the above mentioned theoretical mechanisms from an empirical point of view. In doing so, we adopt a life course perspective in order to differentiate between the short-term and long-term effects of labour market disadvantages on individual trajectories of well-being and health. This is an important contribution to the literature on this topic, because there have been relatively few studies about the long-term effects of unemployment (Clark et al. 2001, Lucas et al. 2004). At the same time, the question of whether the effects of labour market insecurity are only temporary or persistent should be of particular interest to policy-makers, who design the labour market policies as well as healthcare policies.

Our methodological approach gives us an important advantage when it comes to causal inference. Previous research has shown that labour market career is strongly associated with health and well-being, however, few studies disentangle social causation from social selection effects (Brand 2015). Whereas a large body of research suggests that unemployment causally impairs and reemployment improves health (Burgard et al. 2007, Huber et al. 2011) some recent research has found that the

association between labour market status and health is spurious (Browning et al. 2006). Our analyses of longitudinal data help us to address the important issue of causality by dealing with problems of health selection and other confounding factors (Burgard et al. 2007). Moreover, detailed longitudinal data on labour market trajectories used in this report allow not only making distinction between unemployment and employment, but also take into account the timing and duration of unemployment as well as alternative out-of-work states such as economic inactivity.

We do not only analyse the overall association between different forms of labour market insecurity and labour market exclusion on the one side and different measures of subjective well-being and health on the other side. We also investigate how the effects vary across subgroups of youths. Previous research emphasized the variation in the magnitude between labour market insecurity and health depending on social characteristics (see for instance Nordenmark and Strandh 1999, McKee-Ryan et al. 2005, Andersen 2009). Specifically, we examine the differences across gender into account and we pay special attention to the youth not in education and not in employment (the so-called NEET group). In this respect we will perform subgroup-specific analysis of most disadvantaged groups of youth to uncover potential cumulative risks and disadvantages. Moreover, we show how the effects of labour market insecurity extend beyond the young people directly affected by labour market insecurity. Our findings indicate that the assessment of the benefits of programmes targeting the unemployed should not be restricted to the participants of this programme, it needs to include their family members. Hence, the positive impact of programmes targeting the unemployed might be overall much larger than studies analysing individuals in isolation from their social environment would imply.

Key findings

- Exposure to unemployment while young shifts both health and well-being trajectories downwards, but it does not change their shape.
- Labor market shocks during a period of severe economic downturn result in significant negative effect on individuals' wellbeing.
- Losing employment increases the likelihood of health compromising behaviors, particularly among those who experienced the first labor market shock when young.
- There is a detrimental effect of job loss on life assessment and willingness to live, especially among those who had valued work highly.
- The effect of transition into unemployment is stronger among men than among women.

- The health consequences of job separations extend beyond the unemployed youth and affect also their partners. These spillover effects of job separations are stronger in case if it is a male partner who loses a job.

1. The effects of youth unemployment on late life well-being and health in Europe

Olena Nizalova, Jonas Voßemer, Olga Nikolaieva, Michael Gebel and Katerina Gousia

Numerous studies have documented a negative association of job loss and unemployment with well-being and health (see McKee-Ryan et al. 2005, Paul and Moser 2009, Wanberg 2012 for recent reviews and meta-analyses; see Voßemer and Eunicke 2015 for a review focusing on youth). However, most of these studies have examined the direct consequences of unemployment for well-being and health, leaving open the question whether or not the negative effects are transitory or persistent. In contrast, this chapter investigates the long-term consequences of youth unemployment for well-being and health in late life. This focus is not only indicated by youth' increasing exposure to unemployment over the last years, but also by concerns that young people are particularly affected by job loss and unemployment, because youth represents a critical or sensitive period in life and young people have less resources to cope with the consequences of unemployment (e.g., Brydsten et al. 2015, Strandh et al. 2014).

The few studies that have examined whether job loss or unemployment have sustained effects on well-being and health mostly concern the general population or investigate medium-term instead of long-term effects. For example, the seminal study by Clark et al. (2001), using the German Socio-Economic Panel (GSOEP, 1984-1994), shows that past unemployment is negatively associated with current life satisfaction, at least for men aged 25-55 years. However, their measure of past unemployment only concerns the last three years, meaning that they do not focus on the question whether or not unemployment really scars individuals' subjective well-being.[1] Similarly, using a sample of unemployed youth, aged 16-24 years, in the county of Stockholm, Sweden (1981-1985), Korpi (1997) finds mixed evidence for an effect of past unemployment on subjective well-being. In a cross-sectional analysis, he shows that the number of month in unemployment since the end of compulsory education is negatively associated with subjective well-being. However, in longitudinal analyses, controlling for baseline subjective well-being or individual fixed effects, the number of month unemployed between the two interviews in 1981 and 1982, has no effect on subjective well-being.[2]

Gallo et al. (2006) examine the effects of involuntary job loss (i.e., plant closure, lay-off) on depressive symptoms. Using the first four waves of the biennially administered

[1] Specifically, Clark et al. (2001) divide the number of month unemployed in the last three years by the number of month active in the labor force in the past three years. Using the GSOEP (1984- 2005), Knabe and Rätzel (2011) replicate the results of Clark et al. (2001) and show that the effect of past unemployment is mainly explained by expectations about future unemployment.

[2] The results of the longitudinal analyses may not only differ from those of the cross-sectional analysis, because they control for baseline subjective well-being or individual fixed effects, but also because the definition of past unemployment varies.

Health and Retirement Survey (HRS, 1992-1998), United States, they find that late-career involuntary job loss between wave 1 and 2 is positively associated with depressive symptoms at wave 3 (about 2-4 years after job loss) and wave 4 (about 4-6 years after job loss) after controlling for baseline depressive symptoms. However, this finding only pertains to workers with below-median baseline wealth.

Studies that really investigate the long-term consequences of unemployment mostly use one of two longitudinal cohort studies: The National Child Development Survey (NCDS), following a sample of persons born in 1958 in Great Britain or the Northern Swedish Cohort (NSC, 1981, age 16 to 2007, age 42), following all pupils in their last year of compulsory school in a medium-sized industrial town in Sweden in 1981. These data have the advantage that they cover a long period of time and also include measures of childhood socio-economic status and health.

Using the NCDS, Wadsworth et al. (1999) find that the cumulated month of unemployment between the ages 16 and 33 years are negatively associated with an index of health capital at age 33 years, after controlling for childhood socio-economic status, intelligence, and health.[3] Also using the NCDS, Daly and Delaney (2013) show that the cumulated years of unemployment between ages 16 and 50 years are positively associated with psychological distress at age 50 years controlling for childhood psychological factors at age 11 years (i.e., behavioural and emotional problems as well as intelligence) and psychological distress at age 23 years.[4]

Three studies used the NSC to examine whether youth unemployment leaves scars with respect to mid-career health (Brydsten et al. 2015, Hammarström and Janlert 2002, Strandh et al. 2014). Controlling for the respective baseline outcome at age 16 years as well as socio-economic status, Hammarström and Janlert (2002) find that cumulated unemployment of 6 months or longer between ages 16 and 21 years is positively associated with daily smoking and psychological symptoms (i.e., nervous and depressive symptoms, sleeping problems) at age 30 years, but not excess alcohol consumption. The positive association between early-career unemployment and later somatic symptoms is, however, only statistically significant for men.[5]

Strandh et al. (2014) use the same data to relate unemployment (i.e., 6 months or more) between the ages 18-21, 21-30, and 30-42 years with changes in mental health (i.e., nervous and depressive symptoms, sleeping problems) at ages 21, 30, and 42 years. Exposure to youth unemployment (ages 18-21 years) was positively associated

[3] The index of health capital index is based on measures of body-mass index, exercising, eating fresh fruit, and smoking.
[4] Similar to most of the other studies reviewed (see Schröder 2013 for an exception), Daly and Delaney control for variables that lie on the causal pathway from past unemployment to psychological distress at age 50 (e.g., psychological distress at age 23, employment status at age 50, income at age 50) meaning that they do not estimate the total effect of past unemployment and likely understate its long-term repercussions.
[5] The authors, however, do not test whether the effects for men and women are statistically significantly different.

with deteriorating mental health from ages 16 to 30 and 16 to 42 years. Brydsten et al. (2015) is the latest study using the NSC to examine the long-term effects of youth unemployment. They find that, controlling for baseline outcomes and other confounders, cumulated unemployment in month between the ages 16 to 21 years was positively associated with somatic symptoms at age 42 years, but only for men (see footnote 5).

Two further studies have examined the long-term effects of unemployment on health using other longitudinal data that cover a long period of time. Mossakowski (2009) uses the National Longitudinal Survey of Youth (NLSY, 1979-1994), United States, and shows that cumulative unemployment in years between 1979 (ages 14 to 22 years) and 1993 is positively associated with depressive symptoms in 1994 (ages 27 to 39 years). Besides a number of confounding variables, she also controls for "prior" depressive symptoms measured in 1992 (see footnote 4).

Schröder (2013) uses the Survey of Health, Ageing, and Retirement in Europe (SHARE, 11 countries) and combines information from a retrospective survey about respondents' work histories (SHARELIFE 2008) with prospectively collected panel data on their late life health (wave 1-2, 2004-2006). He compares persons who have experienced job loss due to plant closures and lay-off with persons who have never experienced involuntary job loss throughout their career. Using eleven different health measures and controlling for childhood socio-economic status and health, he finds that involuntary job loss negatively affects health even after 25 years and longer.

As highlighted in this short review, empirical evidence concerning the long-term effects of youth unemployment on well-being and health in late life is still scarce, in particular, because most studies are based on the same data. The aim of this chapter is, therefore, to complement the few available studies by examining the effects of cumulated unemployment in years between the ages 14-29 years and in the first ten years after leaving education on measures of well-being and health in late life.

Research Design

Data

We draw on data from the Survey of Health, Ageing, and Retirement in Europe (SHARE 2002-2013: Börsch-Supan (2016))[6]. SHARE is a multidisciplinary and cross-

[6] This paper uses data from SHARE Waves 1, 2, 3 (SHARELIFE), 4 and 5 (DOIs: 10.6103/SHARE.w1.500, 10.6103/SHARE.w2.500, 10.6103/SHARE.w3.500, 10.6103/SHARE.w4.500, 10.6103/SHARE.w5.500), see Börsch-Supan et al. (2013) for methodological details.
The SHARE data collection has been primarily funded by the European Commission through FP5 (QLK6-CT-2001-00360), FP6 (SHARE-I3: RII-CT-2006-062193, COMPARE: CIT5-CT-2005-028857, SHARELIFE: CIT4-CT-2006-028812) and FP7 (SHARE-PREP: N°211909, SHARE-LEAP: N°227822, SHARE M4: N°261982). Additional funding from the German Ministry of Education and Research, the U.S. National Institute on Aging (U01_AG09740-13S2, P01_AG005842, P01_AG08291, P30_AG12815, R21_AG025169, Y1-AG-4553-01,

national panel study that includes five waves of data and provides information about 157,000 individuals of age 50 years and over from 20 European countries (including Israel). SHARE offers a detailed picture of the socio-economic situation, well-being, and health of elderly Europeans (see Börsch-Supran et al. 2013 for a detailed overview).

In the third wave (2008-2009), the so-called SHARELIFE survey collected retrospective life histories of about 28,000 individuals from 14 European countries. Based on these, SHARE provides the so-called Job Episodes Panel (JEP) (see Brugiavini et al. 2013 and Antonova et al. 2014 for details on the JEP) that covers detailed information about individuals' work histories up to the year of the interview. Firstly, by combining the life history data (SHARELIFE, JEP) with those from wave 1 and 2 (SHARE), we are able to examine the long-term effects of youth and early-career unemployment on well-being and health in late life. Secondly, we incorporate all five waves of SHARE data to investigate age trajectories of health and well-being.

For the analyses, we restricted the sample to individuals aged 50 years and over. The average age is about 63 years. Instead of imposing any other sample restrictions, for example, by focusing only on individuals who entered the labour market after World War II, we define control variables to take account of these issues (see below). Focusing on complete cases only, we have a sample of about 19,000 to 26,000 individuals from 14 European countries depending on the well-being and health measure analysed.

Measures

The key independent variables youth unemployment and early-career unemployment are defined by using the JEP which is based on the retrospective life history data. Youth unemployment is measured as the cumulated years in unemployment between the ages 14 and 29 years. An alternative measure of early-career unemployment measures the cumulated years in unemployment within the first 10 years after leaving full-time education. In addition to these "total years of unemployment" measures, we also consider variables indicating whether or not one has been unemployed during the respective period. Unemployment is self-reported ("Which of these best describes your situation?") and irrespective of respondents being registered unemployed or in benefit receipt. It was only reported if the gap between two jobs was six months or longer meaning that we mostly exclude experiences of frictional unemployment.

The key dependent variables are well-being and health. Well-being is measured with the CASP-12 scale. It is based on the CASP-19 scale which was specifically designed to assess the quality of life (QoL) in early old age (Hyde et al. 2003). The CASP-19 scale adapts a need satisfaction approach that comprises four domains of need:

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control, autonomy, self-realization, and pleasure. These domains are also reflected in the short-form adopted by SHARE (see Borrat-Besson et al. 2015 for a critical psychometric assessment of the CASP-12 scale).[7]

Self-rated health is measured using the following question: "Would you say your health now is …". The answers range from 1 "Excellent" to 5 "Poor". For self-reported health, research has repeatedly shown that it is an independent predictor of mortality even after adjusting for a number of specific health measures and other covariates known to be relevant (e.g., Idler and Benyamini 1997, Jylhä 2009).

We estimate models for males and females separately, because health and well-being may have different determinants and dynamics depending on gender. In our models, we control for age, higher education, childhood health, whether or not an individual was a child or youth during the war times, and country of residence. Childhood health is measured by a binary variable indicating whether or not the individual stayed in a hospital for one month or longer during childhood. This variable has been considered to be an important control for early health problems which could have affected both individuals' labour market performance as well as their late life health.

Instead of restricting the sample to individuals who entered the job market after World War II, we use two control variables. The first indicates whether an individual was aged 13 years or younger during the World War I or World War II and the second indicates whether an individual was 14-29 years old during the same periods.

In contrast to some of the previous studies, we do not include controls that can be considered endogenous to youth unemployment. The only exception is education. On the one hand, education may be considered a cause of unemployment meaning that it should be controlled for. On the other hand, it may be regarded as a consequence of youth unemployment, meaning that it should not be taken into account, because it lies on the pathway from youth unemployment to late life health. We run all models with and without controlling for higher education in order to test for the sensitivity of our findings. Tables A1 and A2 in Appendix provide an overview of the sample and the variables used in the analyses.

Methods

Our estimations consist of two major parts. First, we use cross-sectional data from the first observation on an individual which occurred prior to the SHARELIFE interview to

[7] The items of the SHARE CASP-12 scale are: Control: "My age prevents me from doing the things I would like to do", "I feel that what happens to me is out of my control", "I feel left out of things"; Autonomy: "I can do the things I want to do", "Family responsibilities prevent me from doing the things I want to do", "Shortage of money stops me from doing things I want to do"; Pleasure: "I look forward to each day", "I feel that my life has meaning", "On balance, I look back on my life with a sense of happiness"; Self-realization: "I feel full of energy these days", "I feel that life is full of opportunities", "I feel that the future looks good for me". Answers range from 1 "Often" to 4 "Never" on a four-point scale.

estimate the effect of unemployment during youth years on self-perceived health and on the CASP scale (OLS models).

Second, following the findings about the importance of the dynamic nature of health in the epidemiological (Haas 2008, Kim and Durden 2007) and economics literature (Case et al. 2002), we investigate the effect of early life exposure to unemployment on health and well-being age trajectories, allowing for their individual heterogeneity. To do this, we take a growth curve model approach (random coefficients model) allowing for non-linearities via a quadratic function in age:

$$Y_{it} = \beta_0 + \beta_{i1} YouthUnemp_i + \beta_{i2} age_{it} + \beta_{i3} YouthUnemp_i age_{it} + \beta_{i4} age_{it}^2 + \\ + \beta_{i5} YouthUnemp_i age_{it}^2 + u_{i0} + u_{i1} age_{it} + \epsilon_{it} \quad (1)$$

In this equation, Y_{it} represents either health or well-being of an individual i at time t, u_{i0} and u_{i1} reflect individual heterogeneity in the intercept and slope coefficient on age respectively and ϵ_{it} is the idiosyncratic error. The use of the above model provides us with two valuable advantages. First, it allows us to measure not only the effect of youth unemployment on the levels of health and well-being but also on their dynamics. Second, it allows accounting for heterogeneity in individual health/wellbeing trajectories.

Results

We estimated two sets of models: one with and one without controls for education. The latter is due to the endogeneity problem that can arise since the level of education may depend on the employment prospects after leaving education and entering the labour market, or being affected by the past exposure to unemployment. The results are qualitatively similar. Therefore, we report only the results from the models controlling for education.

We started with an estimation of OLS models for self-rated health and the CASP-12 scale for well-being (Table 1 and Table 2 respectively). Regarding health, the results suggest that early career unemployment may have a negative influence on health in late life for men. Still, we observe no statistically significant effect for women. The results for the CASP-12 scale are very similar. Early career unemployment negatively affects the quality of life for men. The results for women are much more modest: the only negative statistically significant effect is documented for the total number of years unemployed in the 10 years after education.

Table 1. The effect of youth unemployment on self-perceived health at age 50 years and above, OLS regressions, scale points

	Male				Female			
	Total years unemployed	Ever been unemployed	Total years unemployed	Ever been unemployed	Total years unemployed	Ever been unemployed	Total years unemployed	Ever been unemployed
	in 10 years after education		at age 14-29		in 10 years after education		at age 14-29	
Youth unemployment measures	0.008	0.078+	0.008	0.089+	0.011	0.054	0.009	0.043
	(0.007)	(0.045)	(0.008)	(0.046)	(0.008)	(0.043)	(0.007)	(0.042)
(Age-50)/10	0.291**	0.291**	0.292**	0.291**	0.333**	0.335**	0.333**	0.334**
	(0.050)	(0.050)	(0.050)	(0.050)	(0.041)	(0.041)	(0.041)	(0.041)
((Age-50)/10) ^{2}	-0.010	-0.010	-0.010	-0.010	-0.016	-0.016	-0.016	-0.016
	(0.014)	(0.014)	(0.014)	(0.014)	(0.011)	(0.011)	(0.011)	(0.011)
Childhood: In hospital for 1 month or longer	0.115**	0.114**	0.115**	0.114**	0.204**	0.204**	0.203**	0.203**
	(0.039)	(0.039)	(0.039)	(0.039)	(0.035)	(0.035)	(0.035)	(0.035)
Constant	2.592**	2.591**	2.592**	2.591**	2.586**	2.585**	2.586**	2.585**
	(0.057)	(0.056)	(0.057)	(0.056)	(0.047)	(0.047)	(0.047)	(0.047)
Observations	11,515	11,515	11,515	11,515	14,034	14,034	14,034	14,034
R-squared	0.177	0.177	0.177	0.177	0.198	0.198	0.198	0.198

*Notes: Standard errors in parentheses, ** p<0.01, * p<0.05, + p<0.1; All models included a dummy for higher education, indicators for being a war child and war youth and country fixed effects.*

Source. Own calculations based on SHARE and SHARELIFE/JEP.

Table 2. The effect of youth unemployment on the CASP-12 scale at age 50 years and above, OLS regressions, scale points

	Male				Female			
	Total years unempl oyed	Ever been unempl oyed	Total years unempl oyed	Ever been unempl oyed	Total years unempl oyed	Ever been unempl oyed	Total years unempl oyed	Ever been unempl oyed
	in 10 years after education		at age 14-29		in 10 years after education		at age 14-29	
Youth unemployment measures	-0.064	-0.634*	-0.069	-0.630*	-0.088+	-0.396	-0.075	-0.175
	(0.045)	(0.282)	(0.050)	(0.287)	(0.053)	(0.289)	(0.046)	(0.278)
(Age-50)/10	0.863**	0.867**	0.860**	0.864**	-0.109	-0.114	-0.108	-0.105
	(0.311)	(0.311)	(0.311)	(0.311)	(0.282)	(0.282)	(0.282)	(0.282)
((Age-50)/10) ^{2}	-0.411**	-0.411**	-0.410**	-0.411**	-0.232**	-0.231**	-0.233**	-0.234**
	(0.089)	(0.089)	(0.089)	(0.089)	(0.080)	(0.080)	(0.080)	(0.080)
Childhood: In hospital for 1 month or longer	-0.567*	-0.566*	-0.566*	-0.566*	-0.977**	-0.977**	-0.974**	-0.976**
	(0.234)	(0.234)	(0.234)	(0.234)	(0.231)	(0.231)	(0.231)	(0.231)
Constant	38.590**	38.595**	38.588**	38.597**	39.022**	39.029**	39.023**	39.017**
	(0.334)	(0.334)	(0.334)	(0.334)	(0.302)	(0.302)	(0.302)	(0.302)
Observations	8,861	8,861	8,861	8,861	10,602	10,602	10,602	10,602
R-squared	0.163	0.163	0.163	0.163	0.221	0.221	0.221	0.221

*Notes: Standard errors in parentheses, ** p<0.01, * p<0.05, + p<0.1; All models included a dummy for higher education, indicators for being a war child and war youth and country fixed effects.*

Source. Own calculations based on SHARE and SHARELIFE/JEP.

Recognizing the dynamic nature of health, we estimated a series of growth curve models (random coefficients models), allowing for both random intercepts and random slopes which determine the shape of the health (well-being) age trajectory. The magnitude and significance levels of the estimated random part related to the age trajectory points towards the presence of heterogeneity in levels but not age trajectories.

Regarding health (Table 3), results suggest that unemployment early in life (either measured as unemployment during the first 10 years after finishing education or during the 14-29 age period) does have a negative effect on health in late life for both men and women. The estimated effects on well-being (CASP-12) (Table 4) are similar to those on health, albeit not statistically significant in one model. What is worth noting is that in almost all models the impact on men is higher than that on women, which is in line with the results of previous research (see for meta-analysis Norström et al. 2014). Finally, we investigated whether early-career unemployment changed the shape of the health (well-being) age trajectory by adding interaction terms of the unemployment

measures with age. We do not find much evidence to support this hypothesis (results not shown).

Table 3. The effect of youth unemployment on the self-perceived health at age 50 years and above, random intercept model, scale points

	Male				Female			
	Total years unemployed	Ever been unemployed	Total years unemployed	Ever been unemployed	Total years unemployed	Ever been unemployed	Total years unemployed	Ever been unemployed
	in 10 years after education		at age 14-29		in 10 years after education		at age 14-29	
Youth unemployment measure	0.009	0.087*	0.006	0.095*	0.012+	0.067+	0.012*	0.057+
	(0.006)	(0.038)	(0.007)	(0.039)	(0.006)	(0.036)	(0.006)	(0.034)
(Age-50)/10	0.251**	0.250**	0.251**	0.251**	0.191**	0.191**	0.191**	0.191**
	(0.025)	(0.025)	(0.025)	(0.025)	(0.020)	(0.020)	(0.020)	(0.020)
((Age-50)/10) ^{2}	0.029**	0.029**	0.029**	0.029**	0.034**	0.034**	0.034**	0.034**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)
Childhood: In hospital for 1 month or longer	0.151**	0.150**	0.150**	0.150**	0.191**	0.191**	0.190**	0.190**
	(0.032)	(0.032)	(0.032)	(0.032)	(0.029)	(0.029)	(0.029)	(0.029)
Constant	2.643**	2.642**	2.644**	2.642**	2.698**	2.697**	2.698**	2.697**
	(0.046)	(0.046)	(0.046)	(0.046)	(0.038)	(0.038)	(0.038)	(0.038)
SD(Constant)	0.694**	0.694**	0.694**	0.694**	0.692**	0.692**	0.692**	0.692**
	(0.007)	(0.007)	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)
Observations	31,908	31,908	31,908	31,908	40,415	40,415	40,415	40,415
Number of groups	11,643	11,643	11,643	11,643	14,653	14,653	14,653	14,653

*Notes: Standard errors in parentheses, ** p<0.01, * p<0.05, + p<0.1; All models included a dummy for higher education, indicators for being a war child and war youth and country fixed effects.*

Source. Own calculations based on SHARE and SHARELIFE/JEP.

Table 4. The effect of youth unemployment on the CASP-12 scale at age 50 years and above, random intercept model, scale points

	Male				Female			
	Total years unemployed	Ever been unemployed	Total years unemployed	Ever been unemployed	Total years unemployed	Ever been unemployed	Total years unemployed	Ever been unemployed
	in 10 years after education		at age 14-29		in 10 years after education		at age 14-29	
Youth unemployment measure	-0.111**	-0.787**	-0.118**	-0.827**	-0.075+	-0.403+	-0.092**	-0.329
	(0.035)	(0.217)	(0.040)	(0.221)	(0.039)	(0.217)	(0.034)	(0.207)
(Age-50)/10	1.856**	1.856**	1.853**	1.854**	1.246**	1.245**	1.244**	1.245**
	(0.148)	(0.148)	(0.148)	(0.148)	(0.128)	(0.128)	(0.128)	(0.128)
((Age-50)/10) ^{2}	-0.609**	-0.608**	-0.608**	-0.608**	-0.473**	-0.473**	-0.473**	-0.473**
	(0.039)	(0.039)	(0.039)	(0.039)	(0.033)	(0.033)	(0.033)	(0.033)
Childhood: In hospital for 1 month or longer	-0.592**	-0.587**	-0.592**	-0.589**	-0.786**	-0.785**	-0.782**	-0.784**
	(0.184)	(0.184)	(0.184)	(0.184)	(0.177)	(0.177)	(0.177)	(0.177)
Constant	38.470**	38.475**	38.467**	38.478**	38.493**	38.500**	38.501**	38.499**
	(0.262)	(0.262)	(0.262)	(0.262)	(0.229)	(0.229)	(0.229)	(0.229)
SD(Constant)	3.859**	3.858**	3.859**	3.858**	4.147**	4.147**	4.147**	4.148**
	(0.038)	(0.038)	(0.038)	(0.038)	(0.035)	(0.035)	(0.035)	(0.035)
Observations	28,280	28,280	28,280	28,280	35,507	35,507	35,507	35,507
Number of groups	11,376	11,376	11,376	11,376	14,271	14,271	14,271	14,271

*Notes: Standard errors in parentheses, ** p<0.01, * p<0.05, + p<0.1; All models included a dummy for higher education, indicators for being a war child and war youth and country fixed effects.*

Source. Own calculations based on SHARE and SHARELIFE/JEP.

Overall, our findings regarding the long-term effects of youth unemployment demonstrate that early-career unemployment shift age trajectories of health and well-being at an age of 50 years and older to more negative results. The effect is more robust for well-being but is still significant for health as well.

Conclusions

Employing unique retrospective data from the SHARELIFE survey, in this paper we investigate the total long-term effect of youth unemployment on health and well-being, controlling for individual's childhood health and potential war effects. Our methodological approach of estimating the effect separately by gender and a stepwise exploration of more sophisticated hypotheses allows us to uncover several regularities. First of all, when individual heterogeneity in health (well-being) age trajectories is ignored, the effects of youth unemployment on health in late life is only statistically significant for men but not for women. Similarly, for wellbeing, with the exception of one model where the effect for documented on women's health. Second, there is a significant heterogeneity in the levels of health and well-being, but not in the shape of

the age trajectories. Once the individual heterogeneity is accounted for, there is a significant negative effect of youth unemployment on health and well-being 35+ years later, and the effect is considerably larger in magnitude for males than for females. Finally, exposure to unemployment while young does shift both health and well-being age trajectories downwards, but it does not change the shape of these trajectories. In other words, unemployment experienced when young does reduce health and wellbeing through the life cycle. Yet, it does not change the nature of the life-cycle dynamics in these outcomes.

2. Heterogeneous effects of labour market shocks on adult health and well-being by age of exposure.

Olena Nizalova, Edward Norton

Background

The Great Recession which started in 2008 has been associated with more widespread job losses than in previous economic downturns, increase in the rates of long-term unemployment and a slow economic recovery (Danziger 2013). Moreover, there seem to be no clear sign of a return to the path of economic growth on the global scale: alongside with a documented reduction in unemployment rates in some countries, the number of unemployed in the world is expected to increase by 2.3 million in 2016 to reach 199.4 million in total (ILO, 2016).

What does economic recession mean to people in everyday life? Obviously, increasing job insecurity and flexibilization of labour markets which can result in a multitude of individual and household level effects from direct financial implications to more indirect impact on health and wellbeing via emotional, social, personal identity, and family effects. The health and wellbeing implication is of particular interest as it may undermine the quality of the workforce and lead to a vicious circle of low economic growth – higher job insecurity – worse health and wellbeing – lower workforce productivity.

Review of recent literature suggests that there is a growing interest in the subject – mostly in economics, psychology and sociology. A large body of research links job loss and unemployment to worse health at individual level (see McKee-Ryan et al. 2005, Wanberg 2012 for reviews). Yet, there is a strand in the literature which finds a positive effect of economic downturn on health. Started by Ruhm (2000) some studies document a decrease in mortality during economic recessions (Neumayer 2004, Gerdtham and Ruhm 2006). Yet, other authors, similarly using aggregated data fail to find a pro-cyclical relationship (Gerdtham and Johannesson 2005, Svensson 2007, Economou et al. 2008). More disaggregated measures of mortality sometimes even show counter-cyclicality. For example, Brenner (1997) analyzing time series data for West Germany, finds that increased unemployment and business failure rates are related to heart disease mortality rate increases, albeit after controlling for tobacco, animal fats and alcohol consumption, as well as income and welfare expenditures. More recent evidence from Iceland shows that the crisis led to significant reductions in health compromising behaviors and some of the health promoting behaviors (Ásgeirsdóttir et al. 2014). At the same time, they document an increase in such health promoting behaviors as consumption of fish oil and recommended sleep. In addition to the differences being related to the level of aggregation of data (Burgard and Kalousova 2015), there may be another explanation related to the difficulties of addressing issues of endogeneity in observational individual level studies, which may

not carry over into the aggregated ones. If an unobserved factor (life event, personality trait, past health) makes it more likely for the person to lose a job and also leads to worse health, then the negative effect of job loss on unemployment would be an overestimate.

Few papers, which focused entirely on job losses from business closings, have provided conclusive results on the health and wellbeing consequences of job loss for some outcomes. Deb et. al (2011) find that job loss results in higher BMI and alcohol consumption among elderly in the United States, albeit only among already "at risk" individuals. Marcus (2014) documents higher probability of smoking initiation and a slight but significant increase in body weight following an exogenous job loss due to business closings in Germany. Gallo et al. (2006) find that involuntary job loss at later life results in depressive symptoms, controlling for the baseline depression. Yet, these papers are based on a small share of affected workers and do not explore the importance of the timing of the exposure – if job loss is more detrimental at younger age compared to an exposure at mature age (see recent review in Voßemer J. & Eunicke N. 2015).

In this paper we estimate the long-run effects of labor market (LM) shocks on health and wellbeing in Ukraine in the period following massive economic downturn. To allow for the dynamic nature of health and wellbeing we use growth curve models to examine whether labor market shocks change the shape of the entire health (wellbeing) - age trajectory or only shift it. These models control for selection by allowing the initial BMI levels (intercept) and the slopes of the BMI-age trajectories to vary with past individual labor market participation. The Ukrainian setting allows us to address the endogeneity of initial conditions, which is inherent in growth curve modelling because we only focus on the exogenous disturbances unrelated to personal choice.

We formulate the following hypothesis:

Hypothesis 1: Past labor market shock have negative effects on health and well-being of individuals.

Hypothesis 2: The impact of labor market shocks differs between men and women both in terms of the outcomes but also in terms of the magnitude of the effect.

Hypothesis 3: The detrimental effect of past labor market shocks on health and wellbeing is stronger if an individual is exposed to it at a younger age.

The contribution of the paper to the existing literature is threefold. First, it relies only on exogenous job separations strengthening previous studies (Deb, Gallo et al. 2011, Marcus 2014, Gallo et al. 2006) with evidence based on a much higher proportion of affected individuals. Second, we use growth curve models because they are theoretically more appropriate than a static approach, especially in the case of BMI and health behaviour. Moreover, the growth curve model accounts for unobserved heterogeneity of the health (wellbeing) - age trajectory due to, for example, genetic

predisposition or other unobserved concurrent health and life conditions. Finally, we explore the heterogeneity in the effect of job loss by the time of exposure testing the hypothesis that this effect is more detrimental when experienced at young age.

Research Design

Data

Individual level data are taken from three waves of the Ukrainian Longitudinal Monitoring Survey (ULMS): 2003, 2004, and 2007. The ULMS provides a wide range of information on individuals and households, including detailed working history starting from 1986, the year of the Chornobyl catastrophe. A modest section on health still allows analysis of the individual health including self-rated health and diagnosed conditions, as well as health-related behaviors such as alcohol and cigarette consumption, and exercising (Lehman et al. 2012).

The contemporaneous data is combined with the retrospective section of the 2003 wave of the ULMS to build the individual labor market history variables to identify individual exposure to unemployment. The sample is restricted to those individuals who met the following criteria for the period from 1986 to 2003: (i) were 18 and older in 2003, (ii) started their first job no later than 2001, (iii) were working for pay during this period for at least two consecutive years, (iv) have non-missing records for the job history.

Measures

Labor Market Shock (LM Shock) is measured by means of self-reports from the working life history section. It is a binary variable that is equal to one if a person had at least one exogenous job separation either in the form of job loss or compulsory leave. Labor market shocks are identified for those individuals who over the period from 1986 to 2003 had any job separations or compulsory job leaves. A series of questions was asked about each job separation, including “Why did you leave this job?” Exogenous job separation was recorded if the person chose one of the following reasons as the only cause of separation: (1) closing down of enterprise/organization, (2) reorganization of enterprise/ organization, (3) bankruptcy of enterprise/organization, (4) privatization of enterprise/ organization, (5) dismissal initiated by employer, and (6) personnel reduction. Labor market shocks are relating to the past labor market experiences in the form of exogenous job loss or a compulsory job leave caused by a country-wide transformation from a system of central planning to towards the market-oriented one.

Good Health is an indicator variable equal to one if the person reported health being good or very good on a 4-point scale ranging from (1) = very good to (4) = bad.

Life Satisfaction is a dummy variable equal to one if respondent reported being satisfied or fully satisfied with life on a 5-point scale ranging from (1) = fully satisfied to (4) = not satisfied at all.

Control Variables. We include other covariates, such as cohort (categorical variable ranging from 1 to 6 and corresponding to the 10-year intervals starting from 1931 and ending in 1991), ethnicity (Ukrainians represent 77.5% of the population, with Russians being the second largest group at 17.2%), highest level of education ever observed, and whether the person has ever been married by age 30.

Additional outcome variable. For more in-depth exploration of the matter, we also studied several other health outcomes: BMI, alcohol, tobacco consumption, and physical activity.

Methods

Epidemiological literature emphasizes the importance of health dynamics compared to the static health states at any given point in time (Haas 2008) leading to the conclusion that life course events (both positive and negative) affect not only the levels of health but may also change the age trajectories of individual's health (Kim and Durden 2007). Some findings in the Economics literature are also supportive of this view pointing towards diverging socio-economic status based gaps in health as children grow (Case et al. 2002).

There are four main theoretical perspectives on the life course dynamics of health the critical period model, the critical period model with later effect modifiers, the accumulation of risk model and the chain of risk model (Kuhn et al. 2004). The first model links the early life events and environment to the later life health trajectories starting from the most well-known example of the fetal origins of diabetes and cardiovascular diseases proposed by (Barker 1994). The second is an extension of the first. It incorporates the exposures to various factors at a later life, which may either enhance the effects of early life events on health or diminish them. The first two models are contrasted by the third one, which stipulates that the risks to health gradually accumulate over time. The last model is a variation of the third model. It emphasizes not only the number of the adverse/positive events but also the sequence of those events and is sometimes also described as a pathway model (Kuhn et al. 2004). None of the models contradicts the others; they may operate simultaneously. It may not be feasible to distinguish between them in empirical work. However, these models have three implications that are directly useful for our current investigation of the effect of labor market shocks on health outcomes.

First, they suggest using a life course framework to model health because shocks to health may affect current health but also future trajectory of health in a dynamic way. Second, accounting for the fact that each individual comes to the working age with an individual health trajectory, which has been formed in early years of life, we should allow for heterogeneity in these trajectories independent of the effects we are studying. Third, it may be the case that the effect of the labor market shocks we are studying is not uniform across individuals. For example, there is some evidence for bidirectional

effects of job strain on body mass index – leanest individuals are losing weight in response to job stress while obese ones are gaining weight (Kivimaki et al. 2006a, 2006b). We should allow for these differences in our empirical model.

Given the above considerations, we adopt approach similar to Nizalova and Norton (2016) starting with a simple two-level random intercept and random slope model for an individual i at time t showing how health (H) changes over time as a quadratic function of age for the period from 2003 to 2007:

$$H_{it} = \beta_0 + \beta_1 age_{it} + \beta_2 age_{it}^2 + u_{i0} + u_{i1} age_{it} + \epsilon_{it} \qquad (1)$$

In this model u_{i0} represents individual random effects, ϵ_{it} is the random error, and the betas are coefficients to be estimated.

Given the potential presence of heterogeneity in both the trajectories and the effect of past exposure to unemployment when young, the basic model (1) is extended to allow for the initial conditions β_{i0} and the slope β_{i1} to change depending on the exposure to unemployment (UHist):

$$H_{it} = \beta_{i0} + \beta_{i1} age_{it} + \beta_{i2} age_{it}^2 + u_{i0} + u_{i1} age_{it} + \epsilon_{ijt} \quad (2)$$

$$\beta_{ik} = \alpha_{0k} + \alpha_{1k} UHist_i \quad \forall \quad k = \overline{0,1} \qquad (2a)$$

Estimating this model enables us testing for the following hypotheses:

Hypothesis 1: Exposure to LM shocks has a detrimental effect on the level of health and wellbeing irrespective of age ($\alpha_{10} < 0$).

Hypothesis 2: Exposure to LM shocks does not only change the level of health but also the health-age trajectory ($\alpha_{11} \neq 0, \alpha_{12} \neq 0$).

Decomposing the unemployment history into two components – exposure to unemployment when young (14-35 y.o.) and exposure to unemployment from middle age onwards (>35 y.o.) we modify the model in the following way:

$$H_{it} = \beta_{i0} + \beta_{i1} age_{it} + \beta_{i2} age_{it}^2 + u_{i0} + u_{i1} age_{it} + \epsilon_{ijt} \quad (3)$$

$$\beta_{ik} = \alpha_{0k} + \alpha_{1k} UHist14\_35_i + \alpha_{2k} UHist35plus_i \quad \forall \quad k = \overline{0,1} \quad (3a)$$

Hypothesis 3: Impact of LM shocks on health is more detrimental when an individual is exposed to it at young age than at older age ($abs(\alpha_{10}) > abs(\alpha_{20}), abs(\alpha_{11}) > abs(\alpha_{21})$).

Amending the model further to allow for $u_{i1} = \vartheta_{01} + \vartheta_{11} UHist_i$, we are also in a position to test an additional hypothesis.

In the analysis we study separately men and women, both to identify any differences in the effects and to avoid matters which may be arising from the differences in health production and preference between males and females. Moreover, we completely omit the analysis of the Body Mass Index for women as this outcome involves complicated mechanisms related to child bearing which may be interrelated with the labour market transition and are difficult to account for with our data.

Results

The sample contains panel data from three years – 2003, 2004 and 2007, matched to the individual labour market history from the retrospective survey administered in wave 1. The number of observations for the main analysis is 3179 person-year observations for men and 3553 person-year observations among women. The main analysis focuses on the indicator variables if a respondent reports his health good or better, if he is engaged in health compromising behaviours such as alcohol and tobacco consumption, in health promoting behaviour such as at least moderate physical activity, and if (s)he is satisfied with life. The latter has slightly worse response rate and therefore smaller number of observations. Additional outcome variables include BMI for men, categorical variable for health status, and continuous variable for the number of cigarettes smoked per day. Table 1 offers summary statistics for the year 2003 for the outcome and control variables by the exposure to past labor market shocks.

As can be seen from Table 1, the differences in most of the considered outcomes between people exposed to the exogenous labor market shock and those who had been continuously working points towards serious detrimental effect of the job loss on both health and wellbeing. For example, 8% fewer men and 7% fewer women who experienced exogenous labor market shock have good or better health when compared to those without a shock. They are also more likely to be smoking and are less satisfied with life, men also engage less in physical activity and smoke more cigarettes per day if exposed to at least one labor market shock. Surprisingly there is no difference in drinking for both genders, BMI (considered only for men), physical activity and daily cigarette consumption for women. However, these are simple comparisons at the start of the considered period. Further analysis allows for additional controls and unobserved heterogeneity and thus offers better ground for causal inference.

Table 1. Descriptive statistics by gender and LM shock at the start of the sample (2003).

	Males		Females	
	LM shock=0	LM shock=1	LM shock=0	LM shock=1
Good health	0.35**	0.27**	0.19**	0.12**
	(0.48)	(0.45)	(0.40)	(0.32)
If Drinking	0.79	0.80	0.55	0.57
	(0.41)	(0.40)	(0.50)	(0.50)
If Smoking	0.55**	0.65**	0.08+	0.10+
	(0.50)	(0.48)	(0.26)	(0.30)
If Exercise	0.28**	0.21**	0.26	0.23
	(0.45)	(0.41)	(0.44)	(0.42)
Satisfied with Life	0.23**	0.16**	0.26**	0.11**
	(0.42)	(0.37)	(0.44)	(0.31)
BMI	25.09	25.04		
	(3.44)	(3.37)		
Health Status	2.23**	2.12**	1.98*	1.90*
(0-poor, 4 - good)	(0.65)	(0.64)	(0.64)	(0.58)
Cigarettes per day	8.78**	11.31**	0.66	0.93
	(10.05)	(10.71)	(2.76)	(3.50)
If Ukrainian	0.82	0.78	0.80*	0.77*
	(0.39)	(0.41)	(0.40)	(0.42)
Higher education	0.21*	0.17*	0.33**	0.20**
	(0.41)	(0.37)	(0.47)	(0.40)
Married prior	0.62	0.64	0.74	0.74
to age 30	(0.49)	(0.48)	(0.44)	(0.44)
Age	39.87**	43.88**	42.68*	44.36*
	(14.90)	(12.38)	(13.71)	(10.94)
Observations	601	646	712	672

*Note: Signs refer to statistical significance of the differences in means within each gender by the exposure to the labor market shocks. Standard deviations in parentheses + significant at 10%; * significant at 5%; ** significant at 1%*

Results for men

Figures 1-8 offer predicted age trajectories for men (from xtmixed for continuous and roughly continuous outcome variables and xtmelogit from indicator outcome variables), with full estimation results presented in Appendix Tables A1-A2.

As can be seen from the graphs, men who have been exposed to labour market shocks are in general less satisfied with life and less healthy (albeit the difference is not only marginally significant in middle age when measured as a dummy for good or

better health). With regards to health-compromising and health-promoting behaviours, the only statistically significant effect is observed in whether a man smokes or not, although the difference in smoking intensity is not statistically significant. We should note, that only in the case of self-reported health and BMI we document a change in the shape of the age trajectory. Otherwise, there is more supportive evidence towards the shift in the entire trajectory, like in the case of life satisfaction and smoking behaviour.

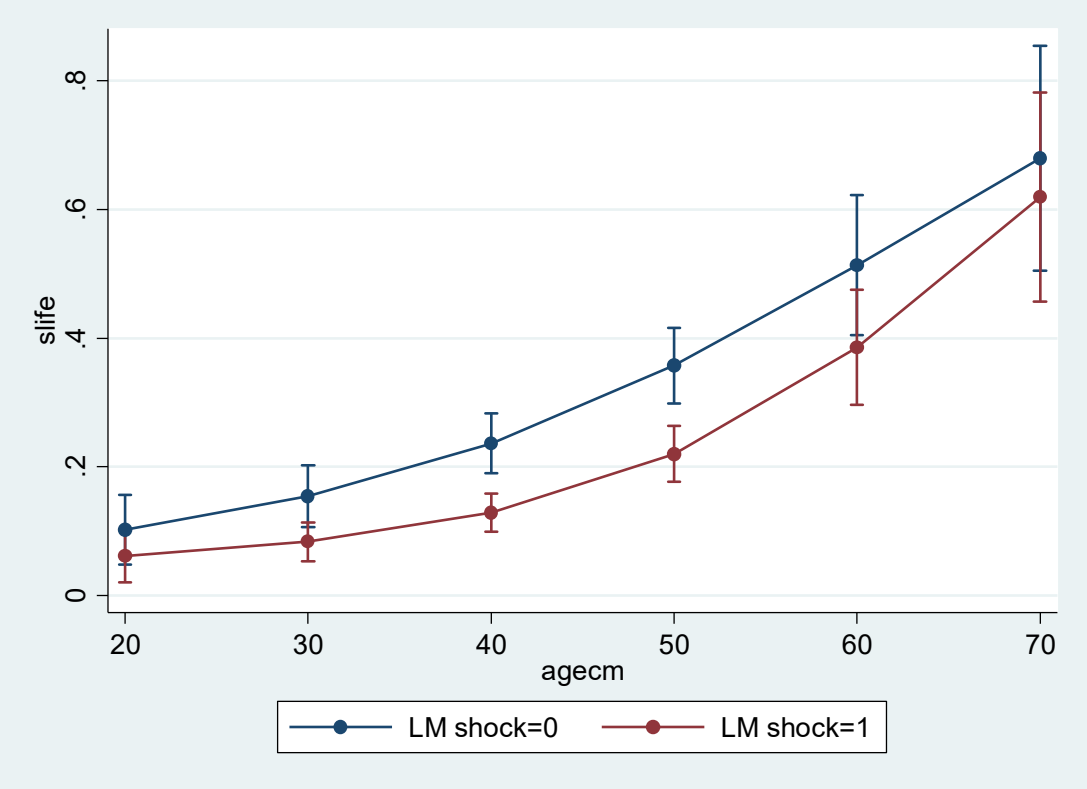

Figure 1. Life satisfaction – age trajectory, males.

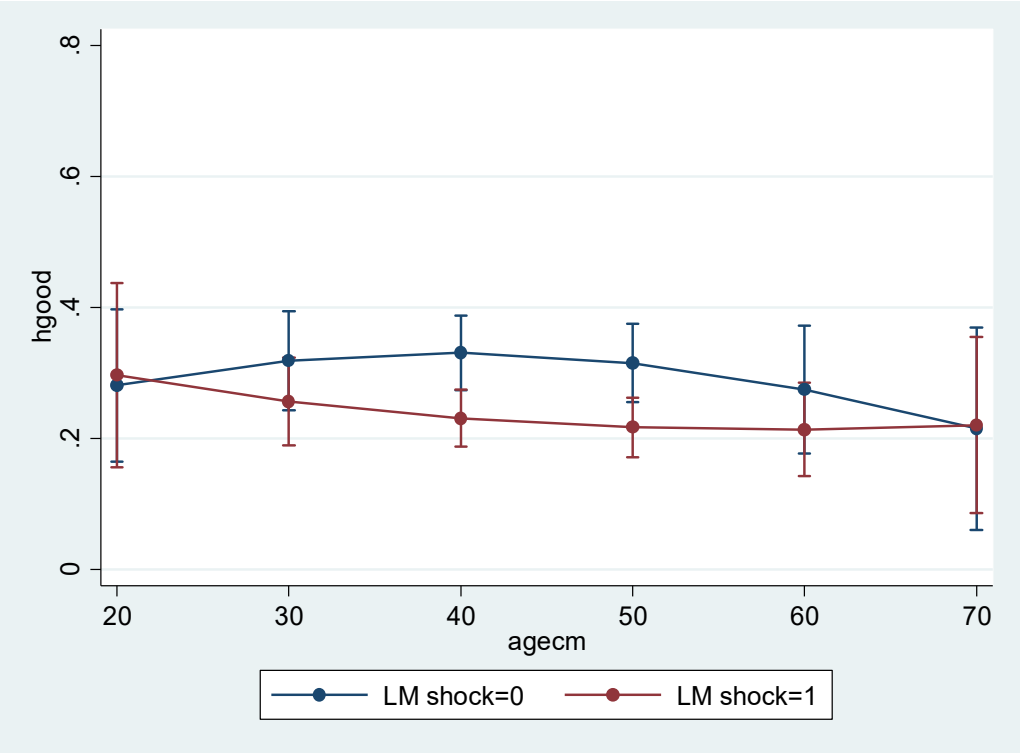

Figure 2. Good health – age trajectory, males.

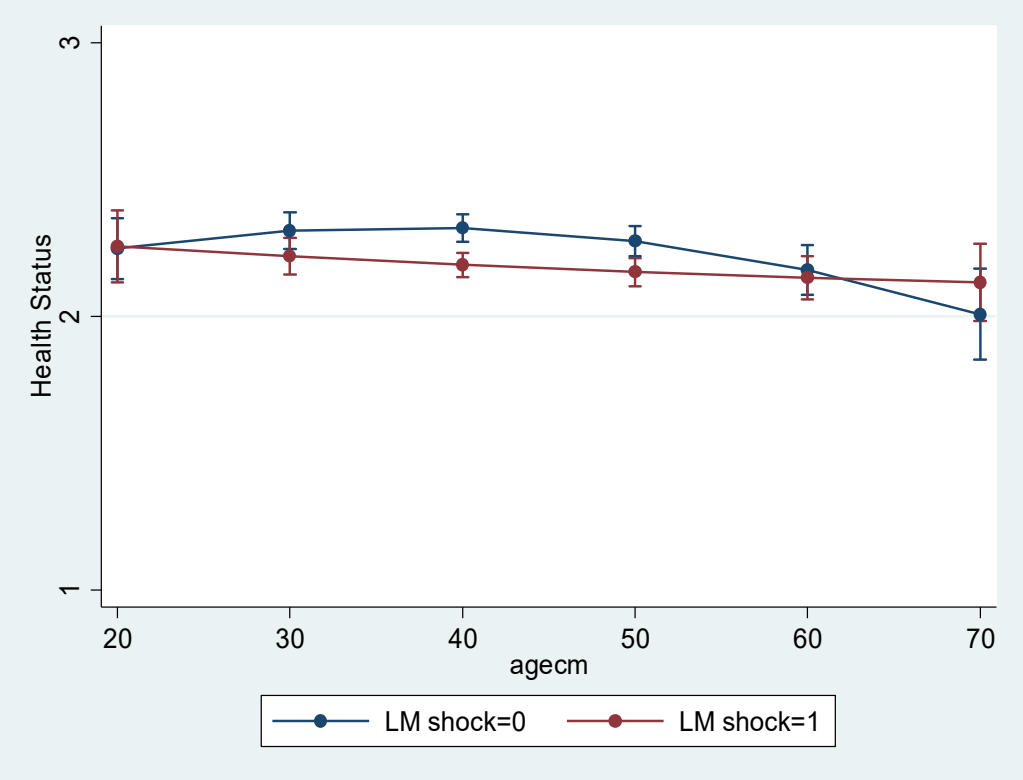

Figure 3. Health status – age trajectory, males.

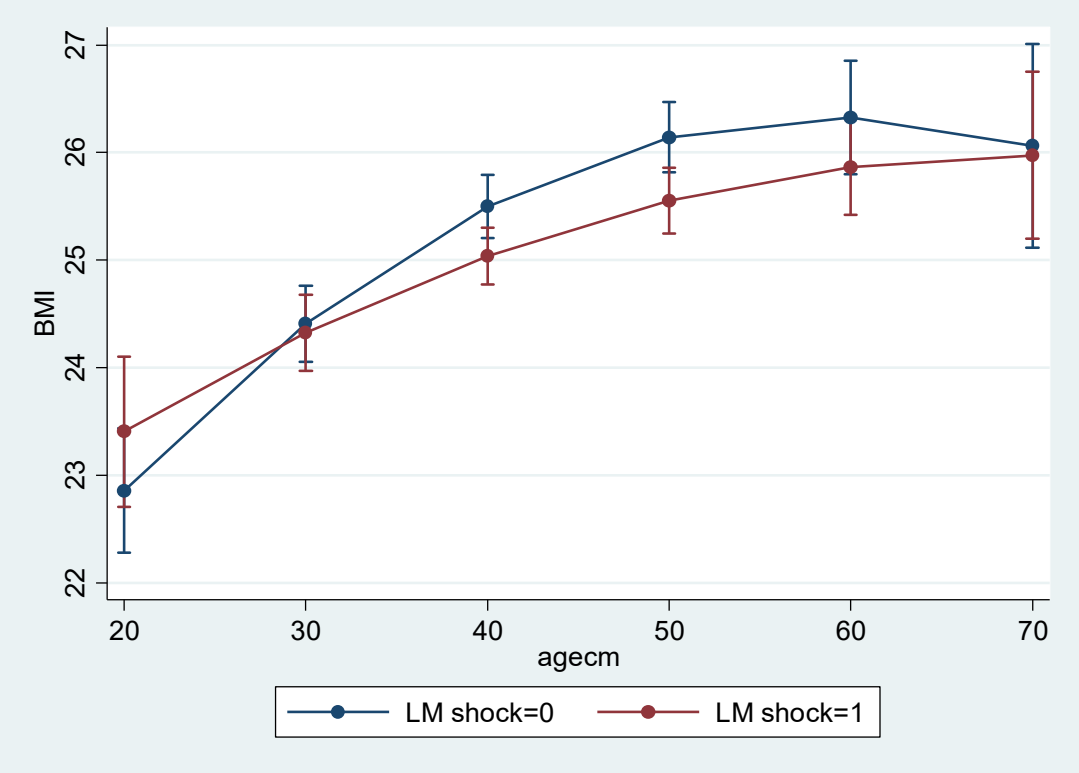

Figure 4. BMI – age trajectory, males.

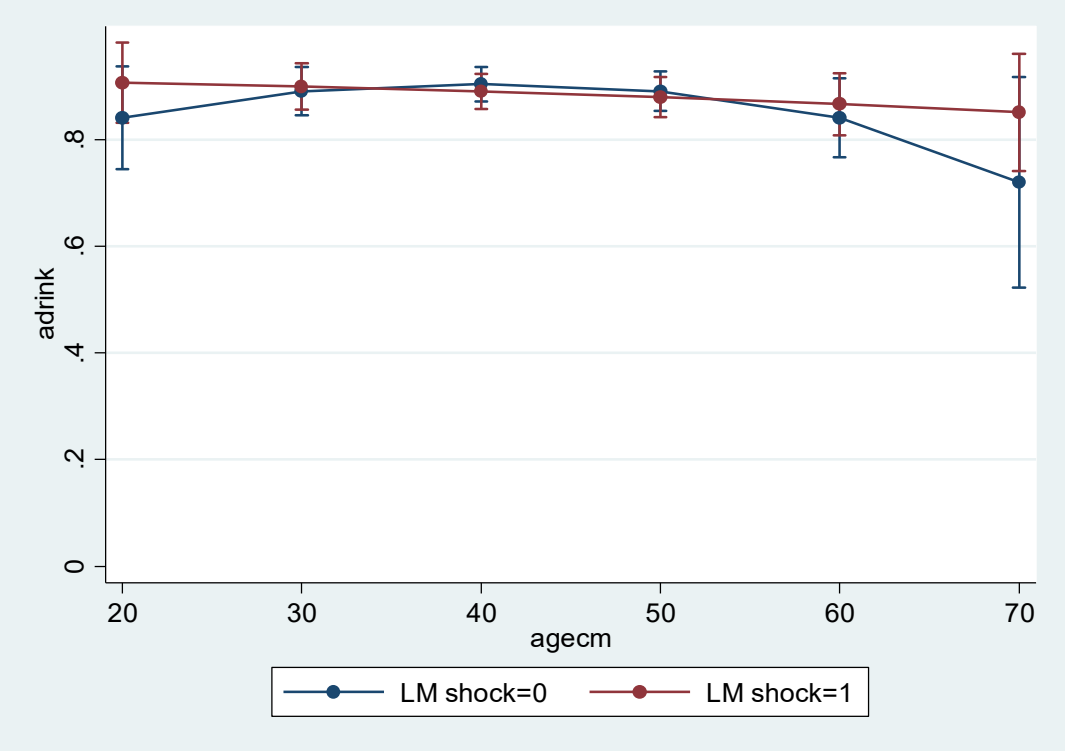

Figure 5. Alcohol drinking – age trajectory, males.

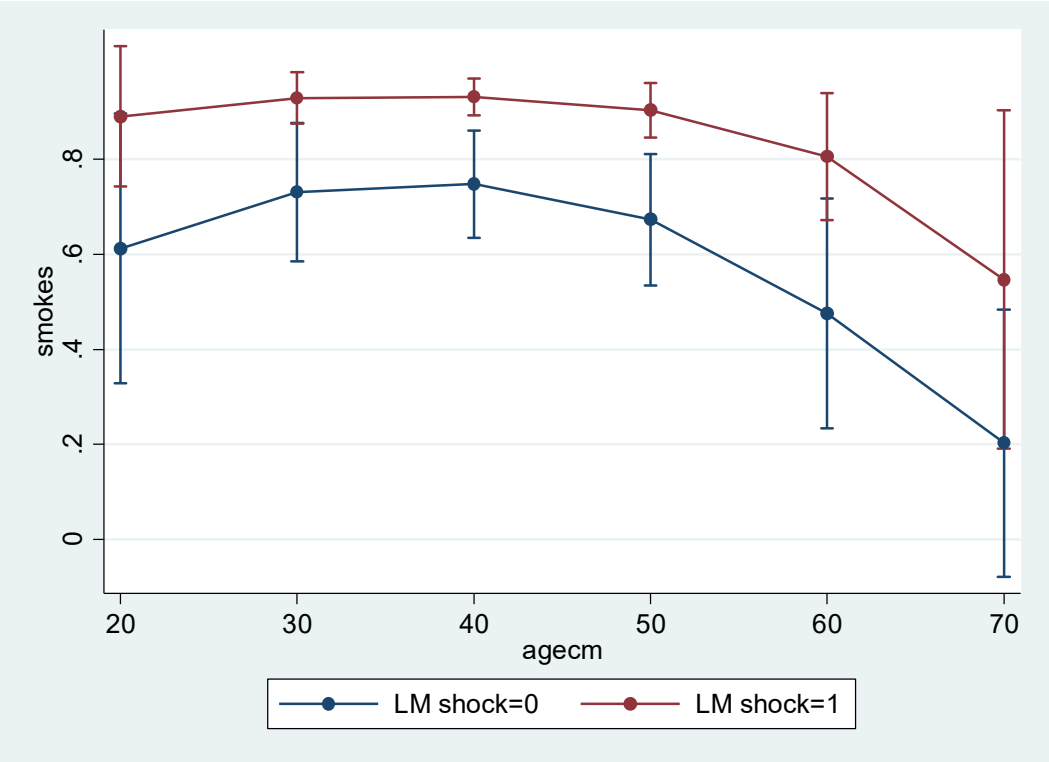

Figure 6. Smoking – age trajectory, males.

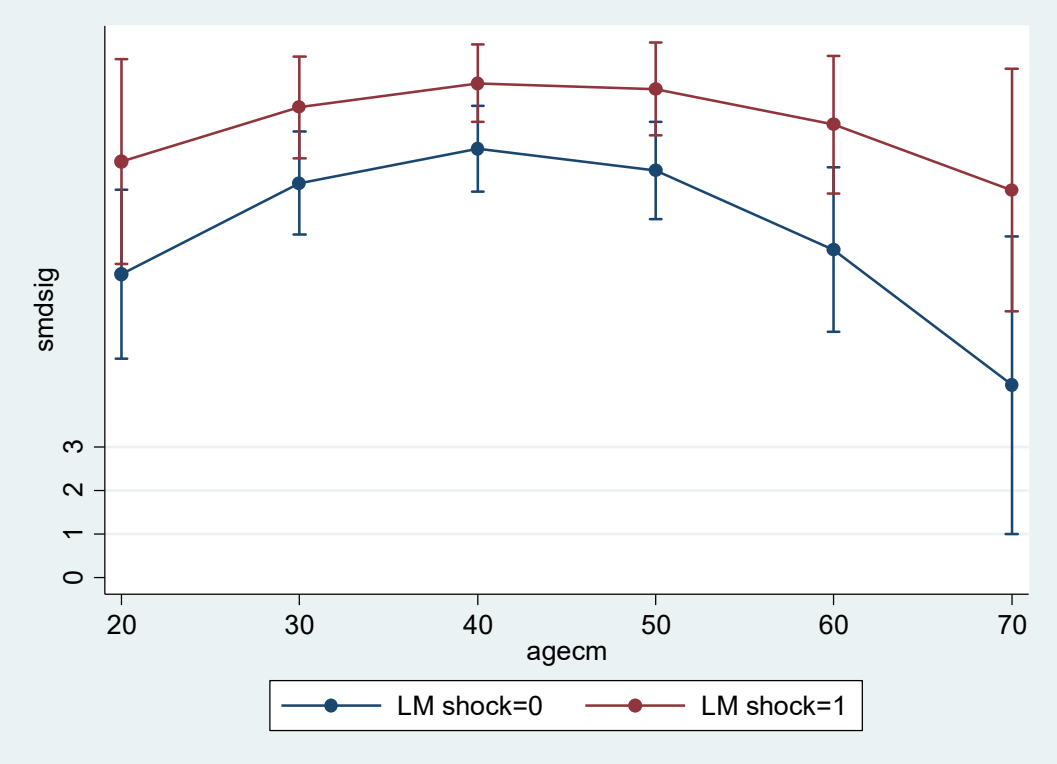

Figure 7. Daily cigarette consumption – age trajectory, males.

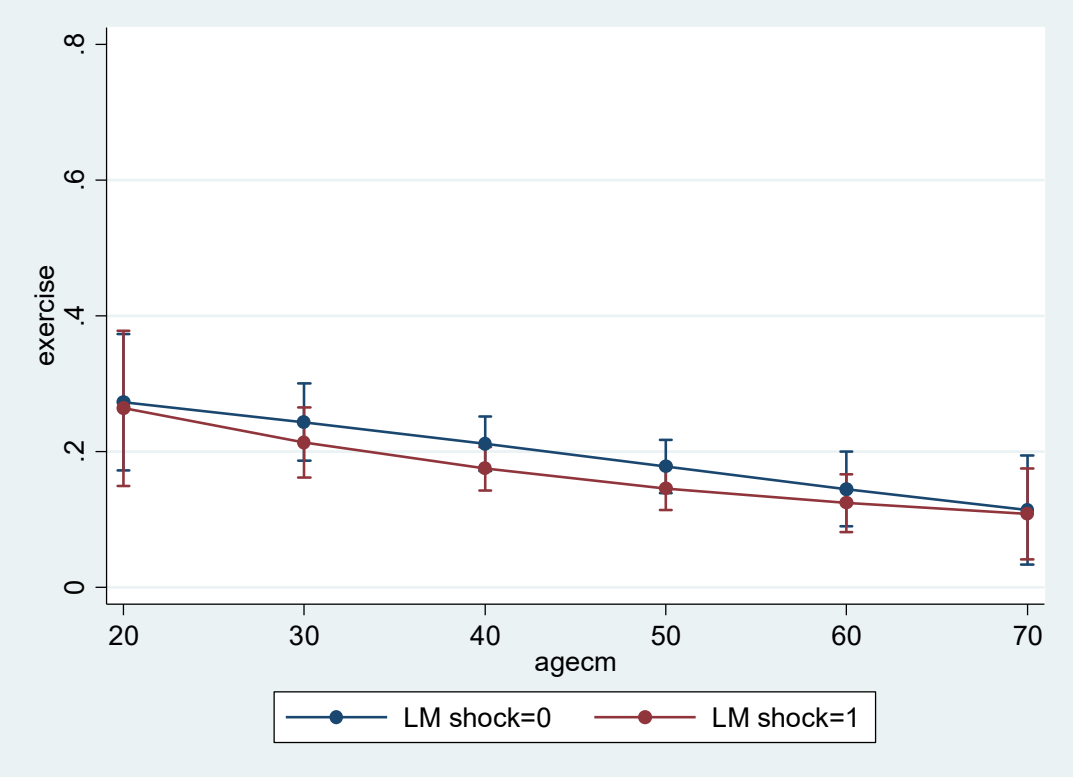

Figure 8. Physical activity – age trajectory, males.

Results for women

Figures 9-14are portraying the predicted age trajectories for women for various outcomes. As can be seen, for women those exposed to labor market shocks are less satisfied with life than those continuously working and the difference is statistically significant across a wide age range from 30 to almost 60. With regards to self-reported health, it is consistently worse for those exposed to labor market shock for both measures, but the difference is not statistically significant. Similar evidence is documented for alcohol and tobacco consumption and physical activity. We deliberately excluded BMI from the analysis due to the possible interrelationship between job loss, fertility choices and weight gain. What concerns smoking behaviour, the model on the probability of current smoking did not converge, so only the model on daily cigarette consumption is presented.

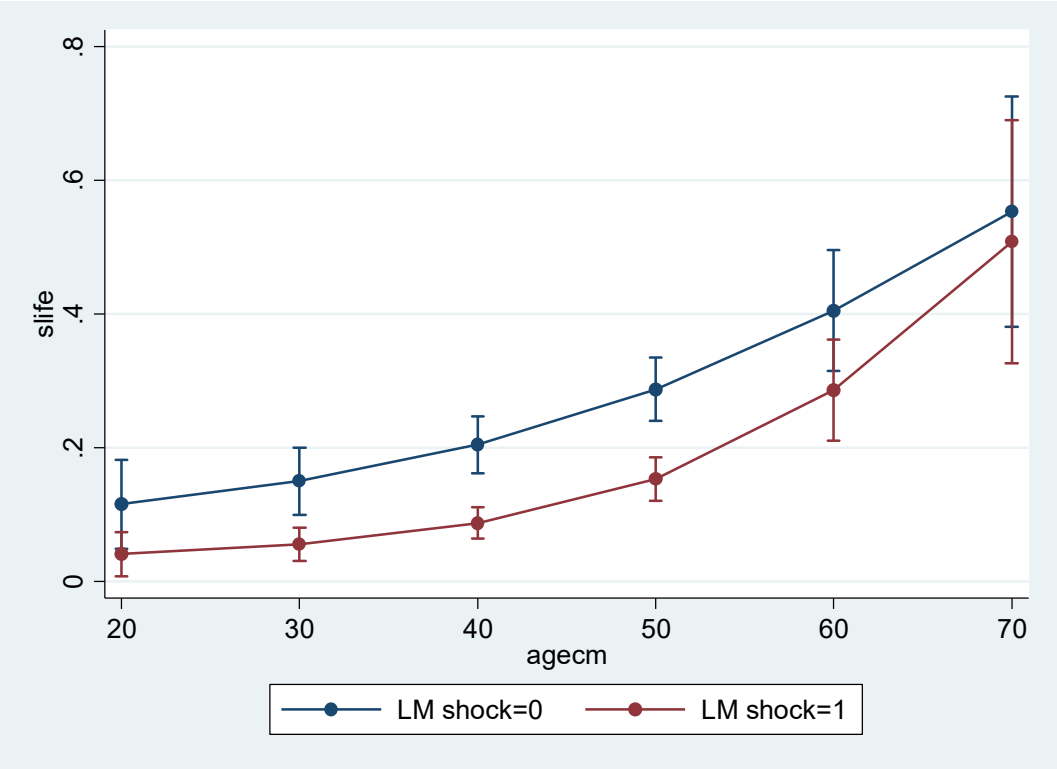

Figure 9. Life satisfaction – age trajectory, females.

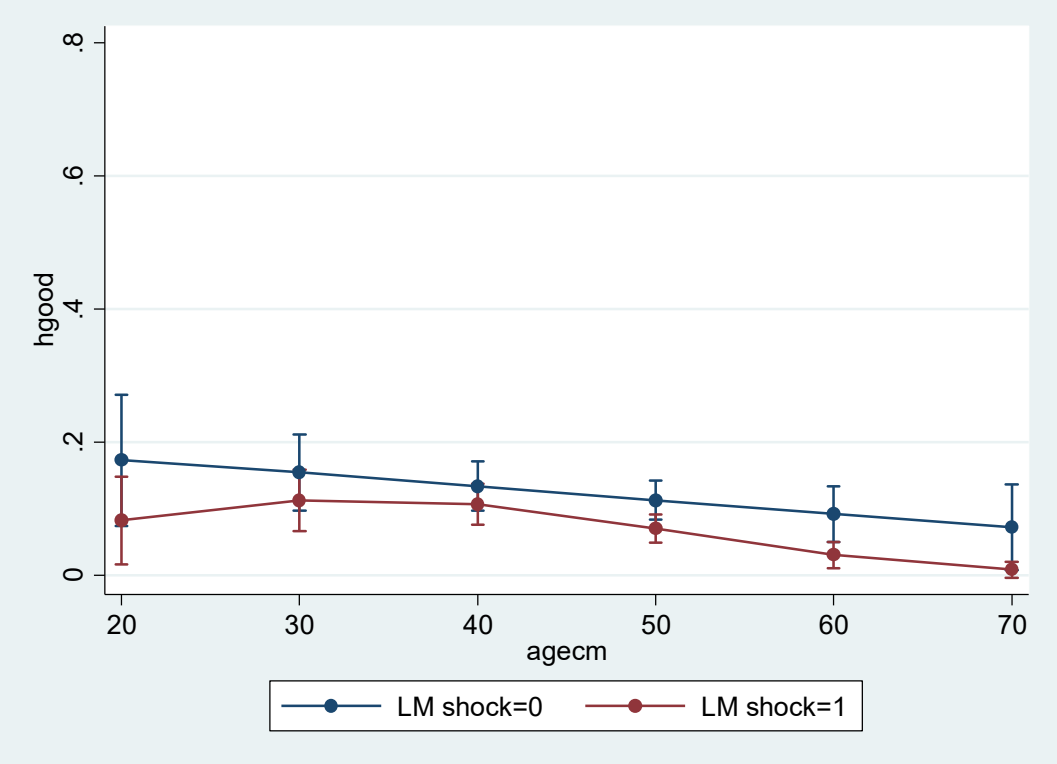

Figure 10. Good health – age trajectory, females.

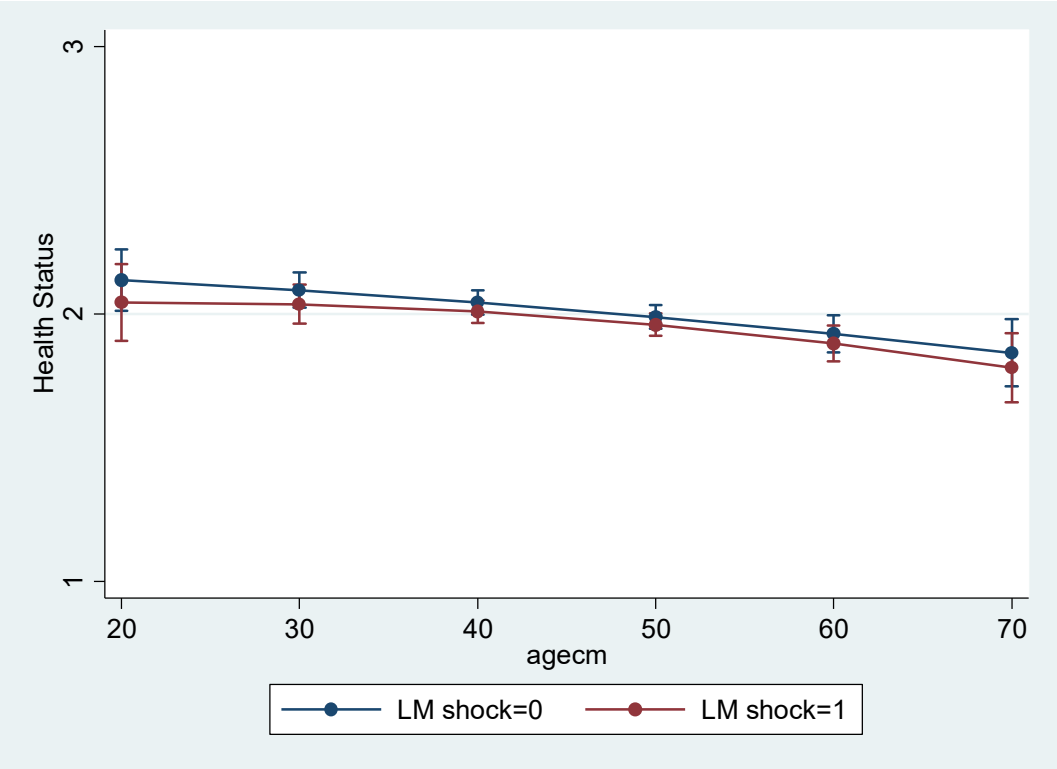

Figure 11. Health status– age trajectory, females.

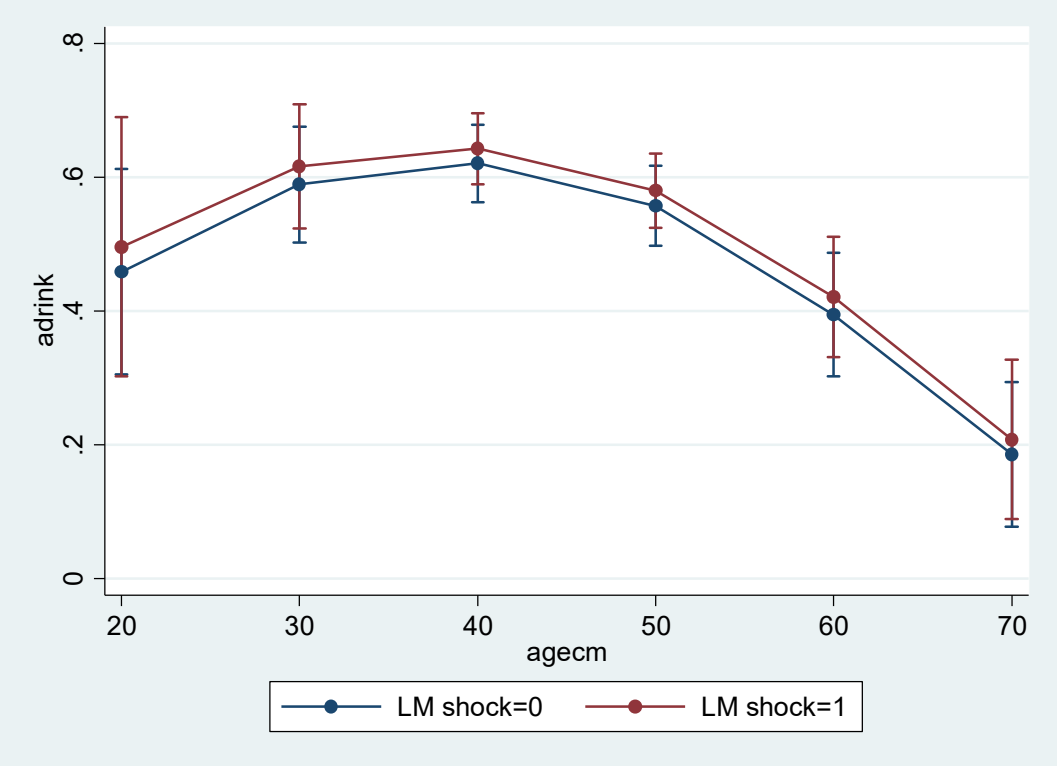

Figure 12. Alcohol drinking – age trajectory, females.

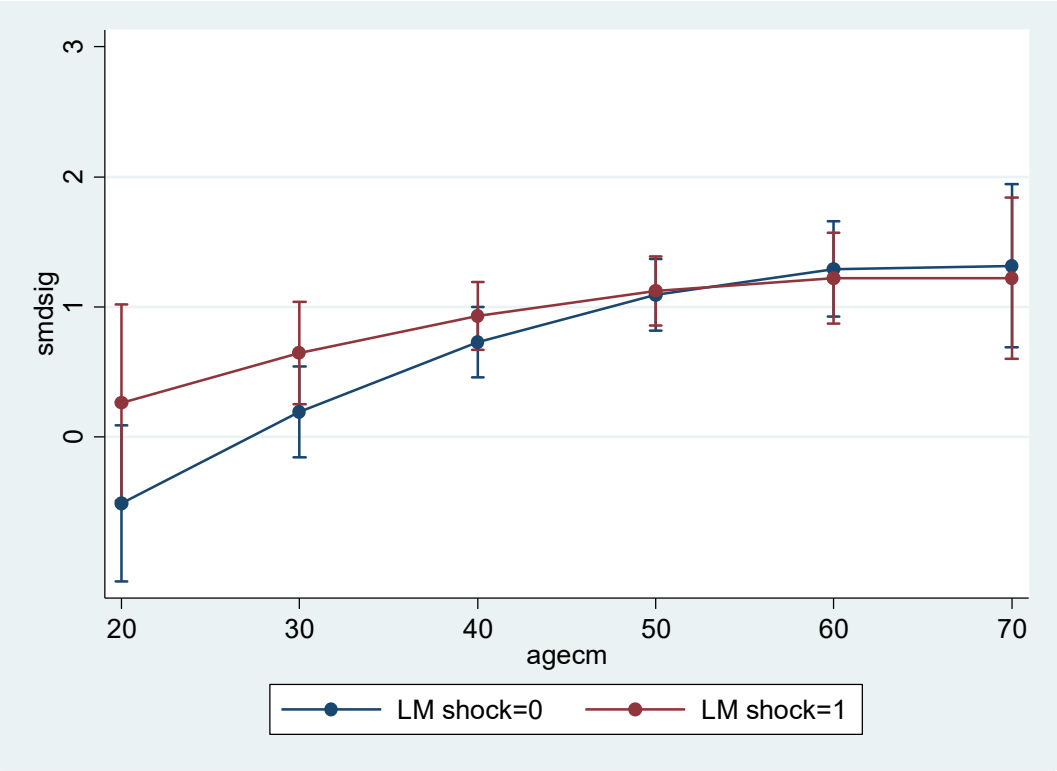

Figure 13. Health status– age trajectory, females.

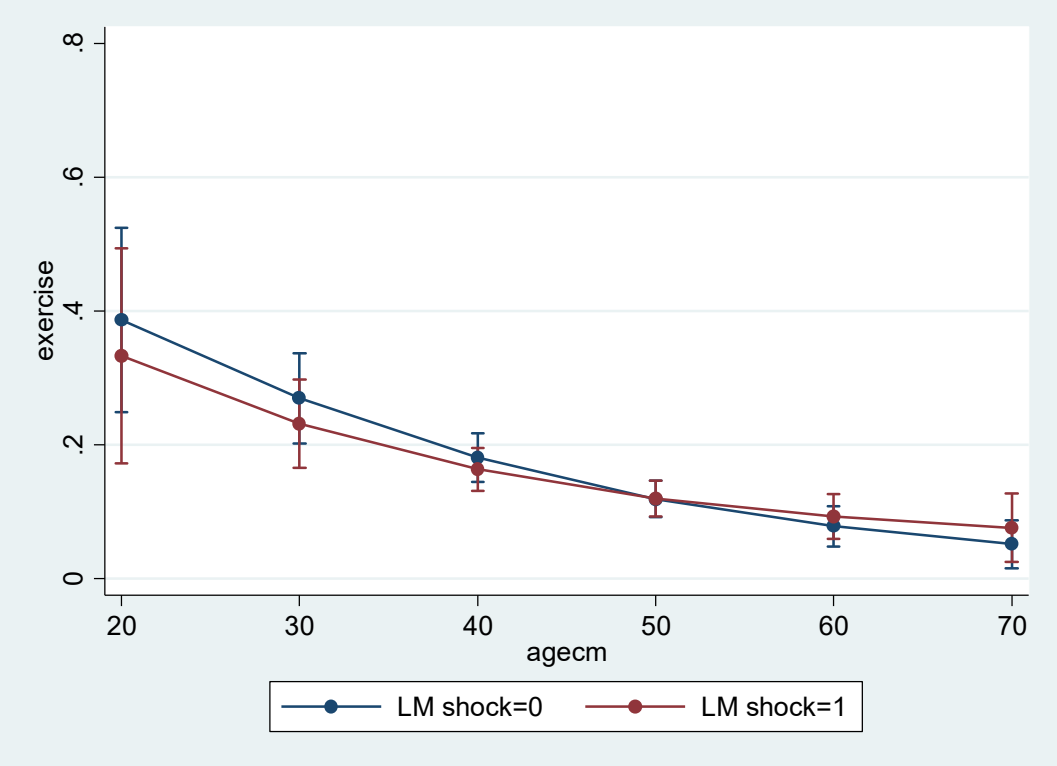

Figure 14. Physical activity – age trajectory, females.

Heterogeneity by Age of Exposure

Finally, we test Hypothesis 3 that those individuals who experience labor market shocks at young age (prior to age 35 in our models) have more detrimental health and wellbeing effects. Figures 15-19 show the results for men and Figures 20 -23 for women. As can be seen, the variation in outcomes among those with exposure to labor market shocks at young age is much larger, making it often impossible to precisely estimate the effect. Yet, there is a number of outcomes showing interesting findings. For example, the effects on life satisfaction among both males and females (see Figure 15 and Figure 20) are driven almost entirely by those who experiences labor market shock after age 35. Those exposed to it earlier in life tend to start recovering and with time approaching the same level of life satisfaction as continuously working individuals. For the case of women, after age 50, life satisfaction becomes even greater than that of continuously working. Although, this finding may appear strange, it can be explained by the base to which these people compare their life. Experiencing something bad early on in life may lead these people to value more whatever they have and, as a result, be more satisfied with life. Similarly, with the good health – age trajectory for men. The subjective component of the self-reported health may be what explains higher likelihood of good health among those who experienced labor market shock early in life. One, however, should be cautious with these findings as they are based on the model predictions, as we do not have people in the sample who experienced labor market shock early in life and were followed till 70 years old. There are two alarming findings though with respect to health compromising and health promoting behaviours. Men who experienced labor market shock early on in life are more likely to be drinking, and the difference becomes significant at about 40 years old. And women with labor market shock prior to age 35, are less likely to be engaged in moderate physical activity, and the difference sets in from about age 40 as well.

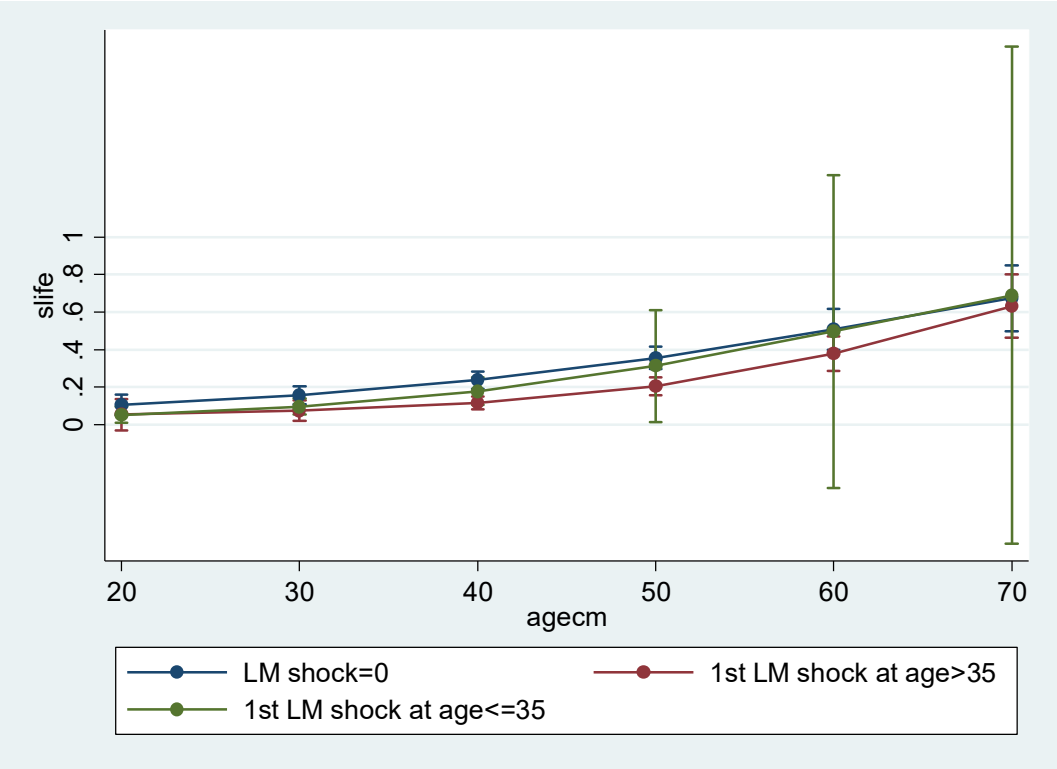

Figure 15. Life satisfaction – age trajectories by age of exposure, males.

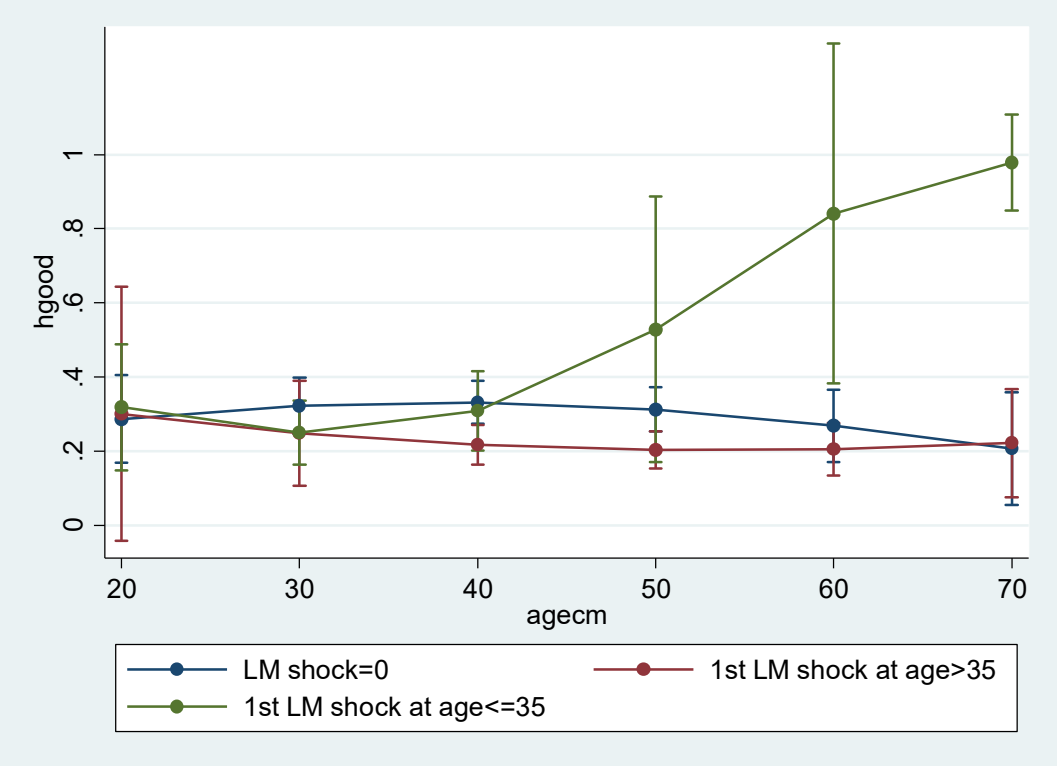

Figure 16. Good health – age trajectories by age of exposure, males.

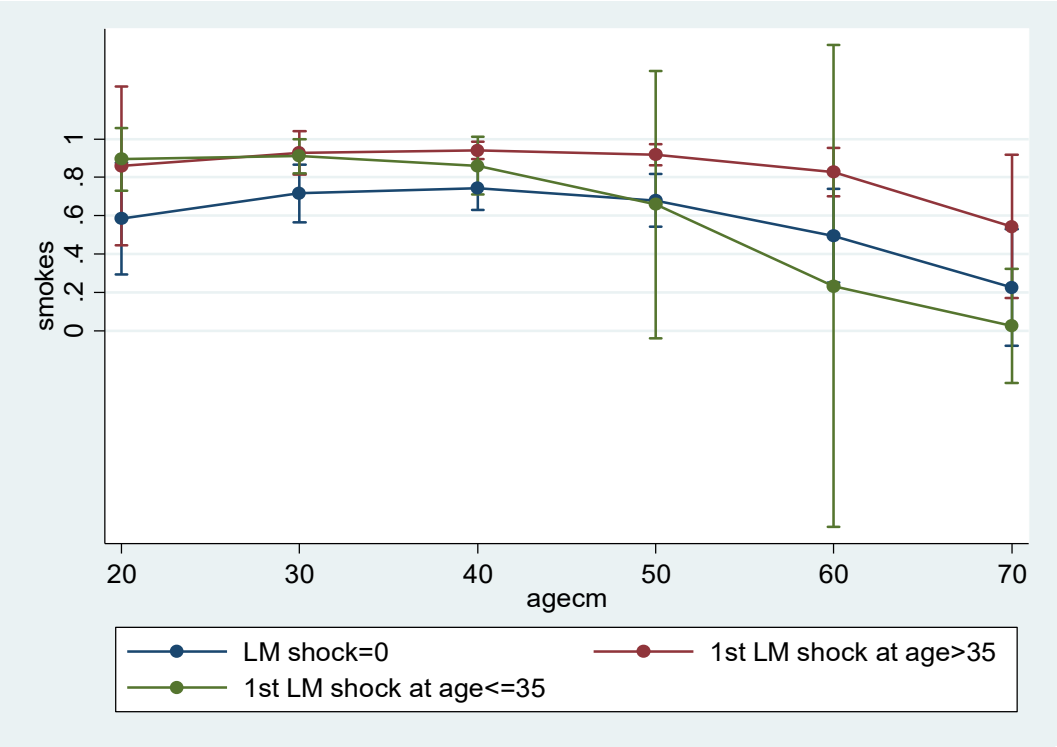

Figure 17. Smoking – age trajectories by age of exposure, males.

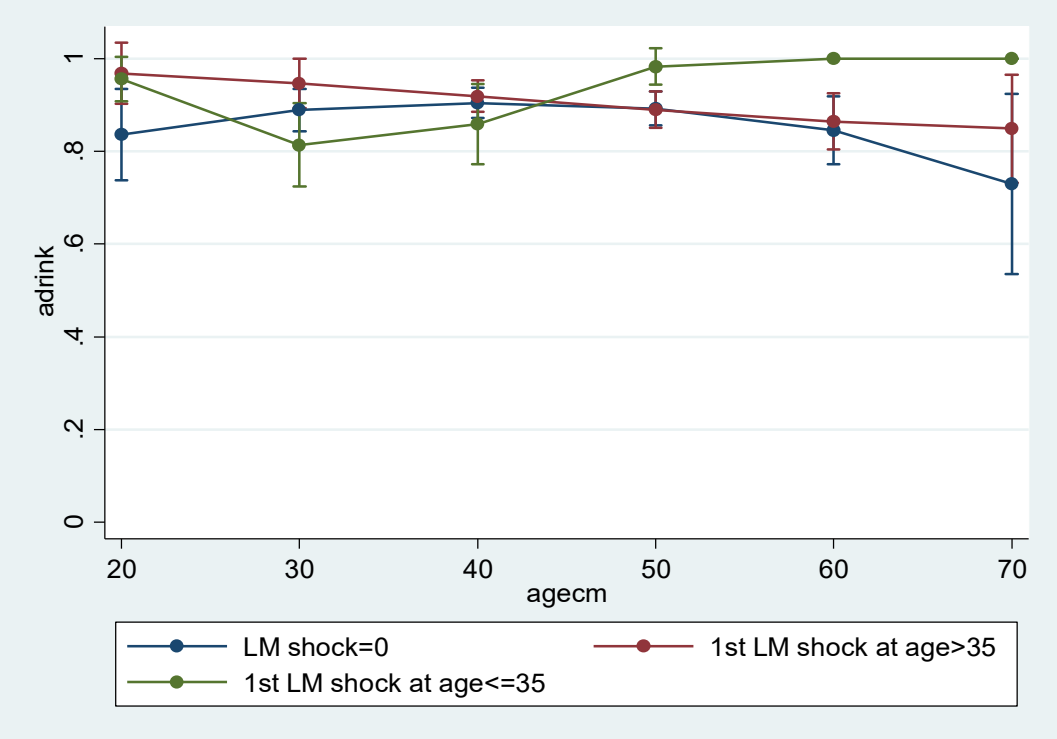

Figure 18. Alcohol drinking – age trajectories by age of exposure, males.

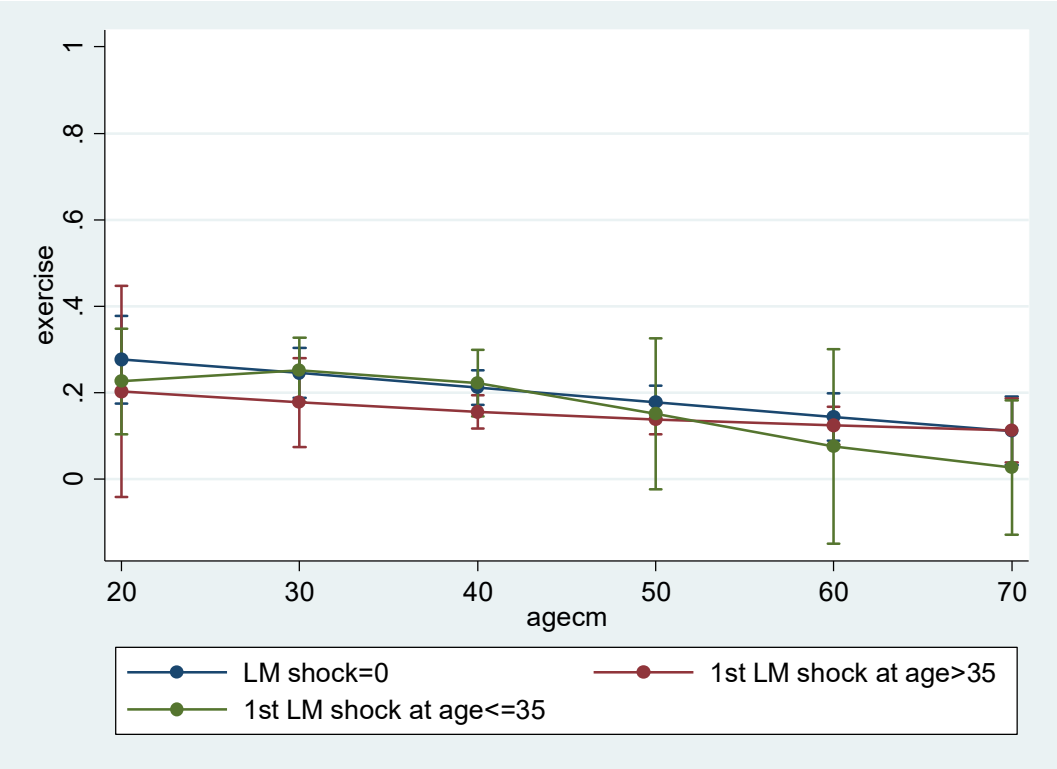

Figure 19. Physical activity – age trajectories by age of exposure, males.

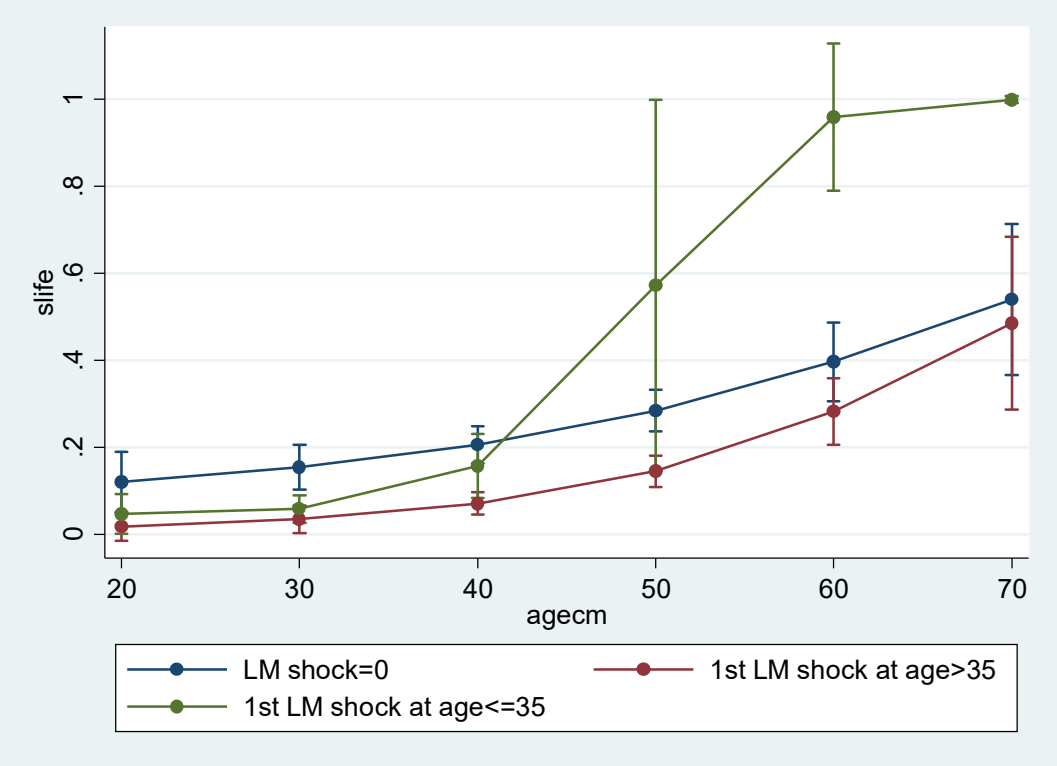

Figure 20. Life satisfaction – age trajectories by age of exposure, females.

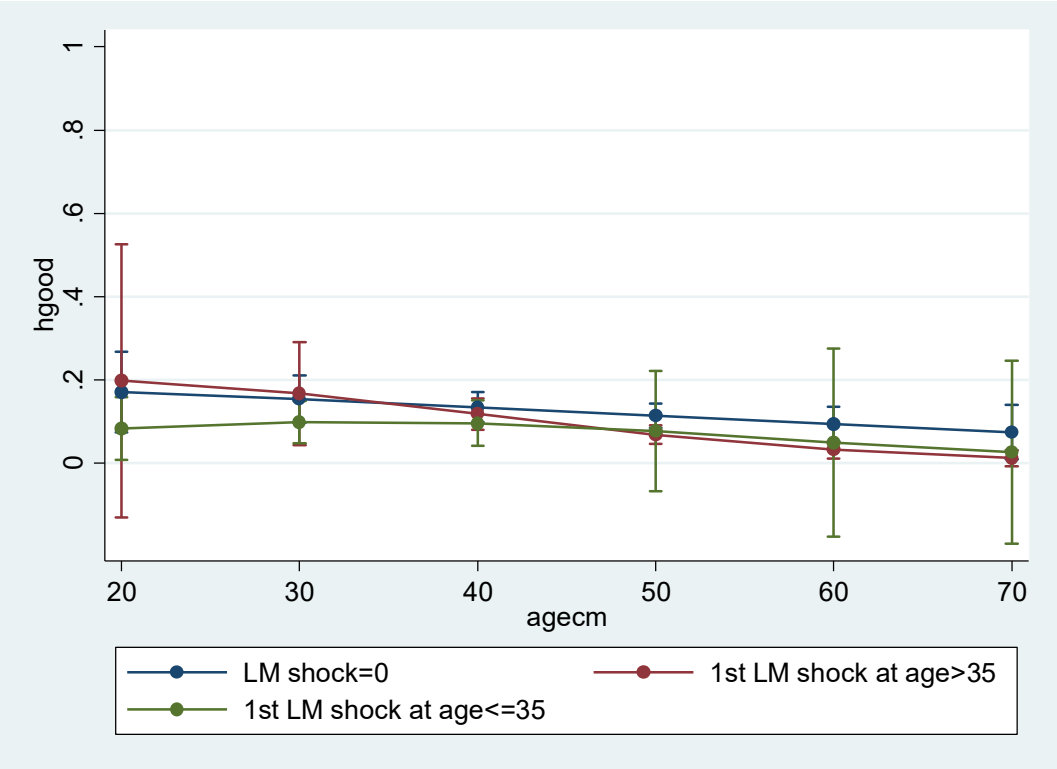

Figure 21. Good health – age trajectories by age of exposure, females.

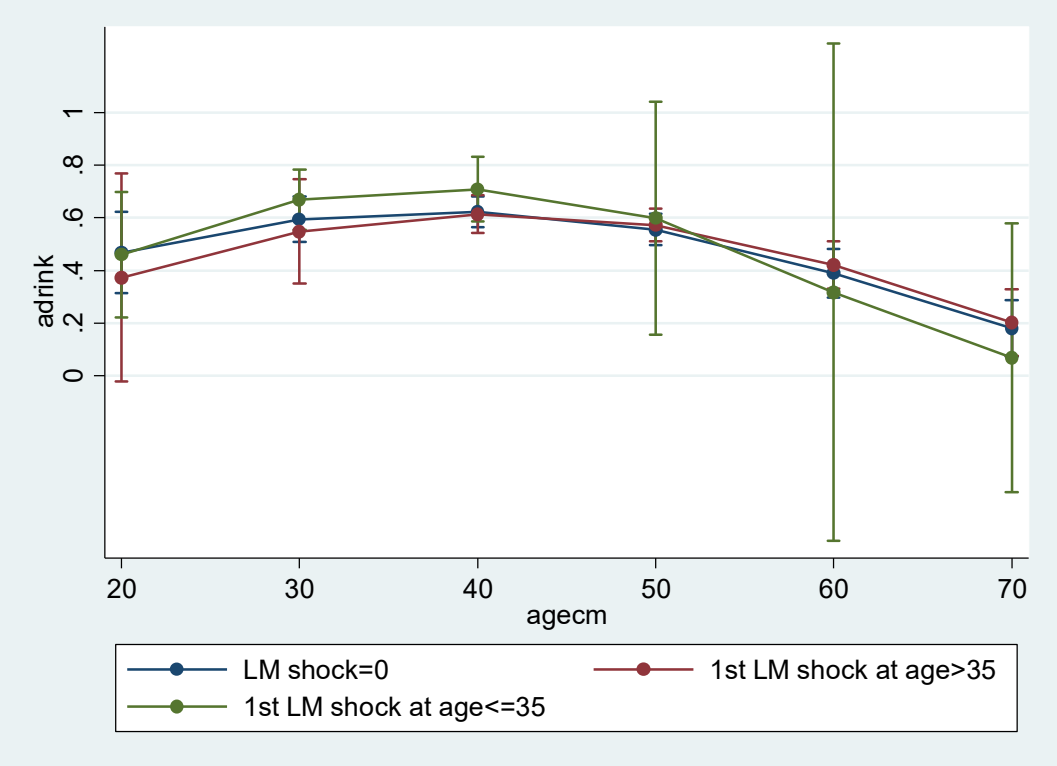

Figure 22. Alcohol drinking – age trajectories by age of exposure, females.

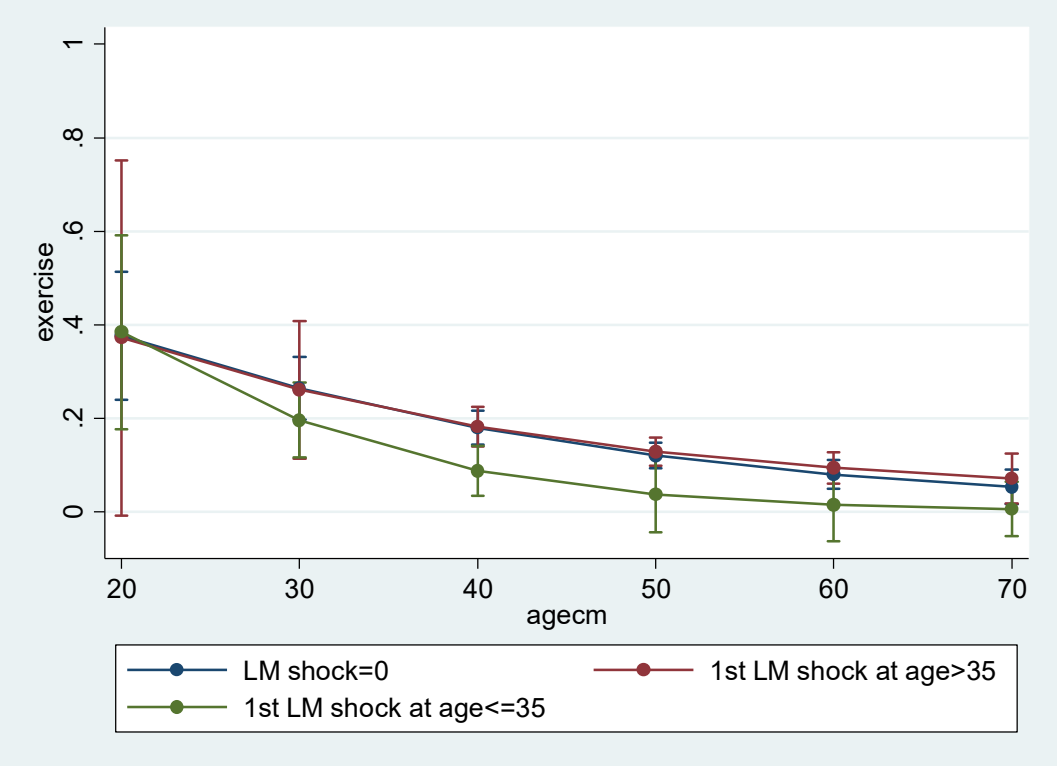

Figure 23. Physical activity – age trajectories by age of exposure, females.

Conclusions

In this paper we take advantage of a unique data set documenting individual work life histories in one of the countries of the Former Soviet Union over the period of significant economic turmoil. Ukrainian economy lost over 40% of it size of the 1990s, and this resulted in a significant share of workers losing jobs because of circumstances beyond their control. Overall, there are 25% individuals who had at least one exogenous labor market shock in the past among the respondents of the Ukrainian Longitudinal Monitoring Survey, which is nationally representative. We find that compared to individuals who have continuously been working, those, who had at least one exogenous job separation, are less likely to be satisfied or fully satisfied with life, among both men and women. With regards to health, we do not document statistically significant difference for women, but men do report worse health if exposed to past labor market shocks. Exploring the pathways for health effects, we find that men are more likely to engage in health compromising behaviors following the labor market shock – they are more likely to be smokers across the whole age spectrum.

We have also investigated the possibility that the impact of labor market shocks is heterogeneous by the age at first exposure. And it turned out that indeed, there are differences. In particular, the effect on life satisfaction of women seems to be driven mostly by the effect on women who first experienced a labor market shock after age 35. For men, there is no difference in the effect on life satisfaction by the age at first exposure. We do not find significant difference in the effects by the age at first exposure for the subjective measures of health, but there are two health related behaviours where there is a difference. First, women who experienced a first labor market shock prior to age 35, are less likely to be engaged in moderate or vigorous physical activity. Second, the effect of labor market shocks is particularly detrimental for men who experienced it first when young. This is particularly alarming finding, given that alcoholism is a huge public health problem in the region and that it had reached enormous levels among prime age men exactly over the period of 1990s. Moreover, what we are estimating here from the information on health and related behaviors for years 2003, 2004, and 2007 may very well be an underestimate due to differential mortality related to alcoholism in 1990s. Unfortunately, the data does not allow us to test this hypothesis. However, our study points to important directions requiring policy attention: increasing rates of smoking across affected individuals of all ages, alcohol drinking across affected young men (the effect among older age men may be the one related to mortality and requires further investigation), and physical activity among affected young women.

Appendix

Table A1. Impact of LM shock on health outcomes for males

	BMI[1]	Health Status[1]	Daily Cigarette Consump.[1]	If Drinking[2]	If Health Good[2]	If Exercise[2]	If satisfied with Life[2]	If Smoking[2]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LM shock	0.7028+	0.0363	2.8278*	2.1081	1.1910	0.9869	0.5914	5.2270+
	(0.4067)	(0.0751)	(1.3402)	(1.0174)	(0.4469)	(0.3184)	(0.2156)	(4.6689)
LM shock x (Age -18)	-0.0806*	-0.0146*	-0.1276	0.9312+	0.9502	0.9833	0.9797	0.9914
	(0.0348)	(0.0064)	(0.1196)	(0.0373)	(0.0315)	(0.0281)	(0.0302)	(0.0705)
LM shock x (Age-18)^2	0.0013+	0.0003*	0.0031	1.0014+	1.0009	1.0003	1.0005	1.0001
	(0.0007)	(0.0001)	(0.0024)	(0.0007)	(0.0007)	(0.0006)	(0.0006)	(0.0013)
Age-18	0.1866**	0.0106*	0.3003**	1.0656*	1.0272	0.9869	1.0443*	1.0897+
	(0.0244)	(0.0045)	(0.0829)	(0.0292)	(0.0238)	(0.0198)	(0.0224)	(0.0530)
(Age-18)^2	-0.0023**	-0.0003**	-0.0065**	0.9986**	0.9994	0.9998	1.0003	0.9977*
	(0.0005)	(0.0001)	(0.0016)	(0.0005)	(0.0004)	(0.0004)	(0.0004)	(0.0009)
If Ukrainian	0.2400	0.0423	-0.7976	1.6662**	1.2229	0.7194**	0.8104	0.7094
	(0.1889)	(0.0303)	(0.6231)	(0.3082)	(0.1887)	(0.0910)	(0.1148)	(0.2673)
Birth year cohort	0.0208	0.1418**	0.2165	0.9507	2.0046**	1.0768	2.3732**	1.6132*
	(0.1087)	(0.0208)	(0.3650)	(0.1238)	(0.2255)	(0.1030)	(0.2677)	(0.3575)
Higher education	0.7414**	0.1503**	-3.5899**	1.0061	2.1239**	2.2423**	2.5361**	0.1245**
	(0.1963)	(0.0317)	(0.6370)	(0.1987)	(0.3373)	(0.2862)	(0.3714)	(0.0503)
Married prior to the first LM shock	0.2840+	-0.0216	2.1776**	0.9082	0.8677	0.8877	1.3559*	2.2463*
	(0.1567)	(0.0254)	(0.5138)	(0.1449)	(0.1105)	(0.0970)	(0.1638)	(0.7103)
Constant	21.9235**	1.6674**	5.6625*	3.9613	0.0243**	0.3563+	0.0038**	0.2808
	(0.7014)	(0.1337)	(2.3547)	(3.3143)	(0.0173)	(0.2171)	(0.0028)	(0.3980)
SD(Age)	0.0549**	0.0051**	0.2412**					
	(0.0049)	(0.0012)	(0.0139)					
SD(Constant)	2.3500**	0.2999**	6.2670**	1.9361**	1.4233**	0.8677**	1.2331**	4.8009**
	(0.0932)	(0.0206)	(0.3626)	(0.1504)	(0.1227)	(0.1279)	(0.1213)	(0.3342)
Observations	3179	3179	2543	3179	3179	3179	3148	3179
chi2	239.3623	485.4454	100.0481	17.3756	236.6549	108.0573	148.4822	83.2310
p	0.0000	0.0000	0.0000	0.0431	0.0000	0.0000	0.0000	0.0000

[1] *Random intercept and random coefficient models.*

[2] *Random intercept models. Exponentiated coefficients.*

*Standard errors in parentheses + p<0.10, * p<0.05, ** p<0.01*

Table A2. Impact of LM shock on health outcomes for females

	Health Status[2]	Daily Cigarette Consump.[2]	If Drinking[3]	If Health Good[3]	If Exercise[3]	If satisfied with Life[3]
	(1)	(2)	(3)	(4)	(5)	(6)
LM shock	-0.0906	0.8465+	1.1728	0.3759*	0.7924	0.3246*
	(0.0828)	(0.4799)	(0.5231)	(0.1727)	(0.3196)	(0.1441)
LM shock x (Age -18)	0.0039	-0.0375	0.9951	1.0763+	0.9994	0.9972
	(0.0064)	(0.0347)	(0.0347)	(0.0454)	(0.0324)	(0.0344)
LM shock x (Age-18)^2	-0.0001	0.0004	1.0001	0.9981*	1.0003	1.0004
	(0.0001)	(0.0006)	(0.0006)	(0.0009)	(0.0006)	(0.0006)
Age-18	-0.0031	0.0823**	1.0837**	0.9889	0.9462*	1.0255
	(0.0042)	(0.0231)	(0.0252)	(0.0246)	(0.0205)	(0.0227)
(Age-18)^2	0.0000	-0.0008*	0.9980**	0.9998	1.0001	1.0004
	(0.0001)	(0.0004)	(0.0004)	(0.0005)	(0.0004)	(0.0004)
If Ukrainian	-0.0200	-1.1078**	0.6521**	0.9037	0.6806**	0.9692
	(0.0275)	(0.1926)	(0.0985)	(0.1523)	(0.0907)	(0.1434)
Birth year cohort	0.1531**	0.5966**	1.1952+	2.0277**	0.8284+	2.2275**
	(0.0185)	(0.0931)	(0.1197)	(0.2484)	(0.0811)	(0.2480)
Higher education	0.1811**	-0.2274	2.0868**	1.7561**	2.8191**	2.5872**
	(0.0257)	(0.1793)	(0.2965)	(0.2578)	(0.3493)	(0.3468)
Married prior to the first LM shock	0.0046	-0.1300	1.0110	0.9374	1.2008	1.2667+
	(0.0246)	(0.1685)	(0.1358)	(0.1369)	(0.1487)	(0.1671)
Constant	1.5758**	-1.6515**	0.4552	0.01888**	1.2141	0.0054**
	(0.1223)	(0.6230)	(0.3013)	(0.0148)	(0.7707)	(0.0040)
SD(Age)						
SD(Constant)	0.3095**	2.9908**	1.6517**	1.3647**	1.0638**	1.3668**
	(0.0128)	(0.0618)	(0.1094)	(0.1374)	(0.1200)	(0.1185)
Observations	3553	3443	3553	3553	3553	3526
chi2	735.3559	77.8722	130.6848	242.4738	118.7582	179.1734
p	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

[1] *Random intercept and random coefficient models.*

[2] *Random intercept models.*

[3] *Random intercept models. Exponentiated coefficients.*

*Standard errors in parentheses + p<0.10, * p<0.05, ** p<0.01*

3. Job loss and life assessment - evidence from longitudinal studies for Poland

Magdalena Rokicka, Małgorzata Kłobuszewska, Jędrzej Stasiowski

Unemployment not only deteriorates financial and economic situation of an individual but could also influences other aspects of life. Work gives an individual a sense of purpose and is a way to value itself. Therefore the job loss leads to deterioration of self-esteem, and well-being related to mental health (Fryer 1986; Fryer 1985). As summarized in the extensive meta-analysis by Voßemer and Eunicke (2015) the impact of job loss is heterogeneous and depends largely on some personal characteristics and attitudes. As suggested by Nordenmark and Strandh (1999) both differences in economic needs but also in attitude toward work and employment (psychosocial needs) translate into variation of the impact of job loss on individual well-being. Those who values work highly and assign central importance to employment could experience job loss differently than those who have more instrumental attitudes toward employment.

To our knowledge all available evidences on the association of unemployment with well-being and mental health in Poland are based on cross-sectional studies. Knopp (2013) using comparison of mean show that that unemployed women have higher level of mental disorders that those in employment. Kostrzewski and Worach-Karda (2013) found that the length of unemployment has negative consequences on mental health, while Czapiński (2014) using the Social Diagnosis data demonstrated that material exclusion indicator (consisting of unemployment and poverty measures) has significant negative impact on level of willingness to live and subjective well-being. However due to the fact that these results are based on the cross-sectional data, the effect of job loss on well-being can not be disentangle from the effect of selection. We can expect that this observed association is driven by selection into unemployment of those with lower well-being and worst mental health. While for proper identification of the effect of job loss different strategy, based on the longitudinal data, should be applied.

This paper addresses the issue of the impact of job loss on life assessment. Particularly it focuses on the mediating role of the individual meaning of work in the impact of job loss on well-being. It also builds on the cross-sectional evidences from Poland, using the longitudinal dataset, which allows for control of personal time constant unobservable characteristics.

Research design

The analysis is based on the Social Diagnosis (Diagnoza Społeczna), a biennial panel study conducted in Poland. This household panel collects information about household economic and financial situation as well as about its members. Individuals aged 16 and above are interviewed individually, providing information about their education, labour

market experiences, health, psychological well-being, lifestyle, engagement in the arts and cultural events. Each round of the study also consists of special thematic, ad hoc modules. Field work is conducted in spring to avoid seasonal effect. The panel is refreshed every year, and new household sampled. Our analysis is based on four waves from 2009-2015.

We use two independent variables, which can be used as the approximation of subjective well-being measures. First one is based on the question: *Considering all, how would you assess your life in the recent times – would you say you are? very happy/ rather happy/ rather unhappy/unhappy.* The second indicator is based on the question: *At present, how strong is your willingness to live? (scale from 1- I don't want to live at all, till 10 –I want to live very strong).*

As we are interested in the impact of the job loss on the well-being our main explanatory variable depicts if an individual is currently unemployed versus working (employed or self-employed). The mediating, independent variable, which describes the value assigned toward work is constructed on the basis of an answer to a question: *What in your opinion is the most important condition of a successful, happy life? Answer: work.* As individuals can modify their attitudes according to the current labour market situation, we used the answer provided in the first wave in which the individual was observed.

Due to our research question we applied a hybrid method, which allows us to estimate both: the individual fixed effects of changes of employment status on changes of well-being as well as the effect of time invariant coefficients. As argued by Allison (2009) the hybrid method offers considerable advantages over simple fixed effect estimator, allowing for estimation of both time variant and time – invariant covariates. This approach allows for decomposing the time varying predictors into two components: first one describing the fixed effects and the second one capturing the random effects (which are equal to random intercept model coefficients, based on the weighted average between and within estimates), both used as predictors in the model (Schunck and others 2013). The fixed effect estimator depicts the relationship between predictor and an outcome. It can be interpreted straightforward: if predictor varies across time the outcome decreases or increases by β unit (for continuous variable). In the logit fixed effects model, the β gives us the effect of across time changes in x on the log-odds ratio. Contrary, the random effects estimator is a weighted average of within and between estimators, so it represents the average effect of the variation of the predictor across time and across respondents on the outcome.

We control for several time varying, personal characteristics and events, which could influence well-being in the given year of the study such as: age, marital status, number of close friends, indicator of locus of control, serious illness in the current year, death of family member in the current year, household income per person, size of the household. Among time invariant covariates we included: work attitude at the initial wave, gender,

four indicators for educational attainment (secondary education is a reference category).

Results from longitudinal analysis

Results of our analysis are presented below (Table 1 and Table 2). The estimation is done on the whole sample of respondents in the age group 18-60 not in education. Table 1 presents results from the simple hybrid model and hybrid model with interaction on life assessment. Table 2 follow the same pattern but reports results for a second outcome: willingness to live.

Table 1: Current life assessment: results from hybrid estimations.

Life assessment				
Fixed effects	**Coefficients**	**Standard errors**	**Coefficients**	**Standard errors**
Job loss	-0.144***	(0.016)	-0.105***	(0.023)
Work important X job loss			-0.076*	(0.034)
Age	0.006***	(0.002)	0.007***	(0.002)
Income per person	0.000***	(0.000)	0.000***	(0.000)
HH size	0.005	(0.006)	0.007	(0.006)
Married	0.116***	(0.025)	0.113***	(0.027)
Number of friends	0.003***	(0.001)	0.003***	(0.001)
Death in the family	-0.009	(0.009)	-0.012	(0.010)
Serious illness	-0.079***	(0.015)	-0.066***	(0.016)
Locus of control	0.125***	(0.009)	0.126***	(0.009)
Random effects				
Job loss	-0.172***	(0.015)	-0.139***	(0.020)
Work: important			-0.004	(0.010)
Work important X job loss			-0.075**	(0.029)
Age	-0.009***	(0.000)	-0.009***	(0.000)
Income per person	0.000***	(0.000)	0.000***	(0.000)
HH size	0.013***	(0.003)	0.014***	(0.003)
Married	0.201***	(0.011)	0.198***	(0.011)
Number of friends	0.009***	(0.001)	0.009***	(0.001)
Death in the family	-0.081***	(0.016)	-0.082***	(0.017)
Serious illness	-0.240***	(0.022)	-0.244***	(0.024)
Locus of control	0.284***	(0.014)	0.278***	(0.015)
Men	-0.008	(0.009)	-0.008	(0.009)
Education: basic	-0.038*	(0.016)	-0.038*	(0.017)
Education: vocational	-0.014	(0.010)	-0.016	(0.011)
Education: tertiary	0.029*	(0.011)	0.033**	(0.012)

Standard errors in parentheses. Reference category: for unemployed - employed or self-employed, for married-single, or divorced, or widowed, for education: secondary education.

** p < 0.05, ** p < 0.01, *** p < 0.001.*

Table 2: Willingness to live: results from hybrid estimations

Willingness to live	Coefficient	Standard errors	Coefficient	Standard errors
Fixed effects				
Job loss	-0.138**	(0.051)	-0.082	(0.070)
Work important X job loss			-0.128	(0.107)
Age	0.017***	(0.005)	0.018***	(0.005)
Income per person	0.000**	(0.000)	0.000**	(0.000)
HH size	0.014	(0.017)	0.011	(0.018)
Married	0.178*	(0.079)	0.152	(0.083)
Number of friends	0.015***	(0.002)	0.015***	(0.002)
Death in the family	-0.002	(0.030)	0.006	(0.031)
Serious illness	-0.233***	(0.047)	-0.232***	(0.049)
Locus of control	0.319***	(0.028)	0.318***	(0.029)
Random effects				
Job loss	-0.308***	(0.051)	-0.284***	(0.069)
Work: important			-0.036	(0.035)
Work important X job loss			-0.078	(0.102)
Age	-0.007***	(0.002)	-0.007***	(0.002)
Income per person	0.000***	(0.000)	0.000***	(0.000)
HH size	0.011	(0.010)	0.012	(0.011)
Married	0.303***	(0.037)	0.282***	(0.040)
Number of friends	0.027***	(0.003)	0.027***	(0.003)
Death in the family	-0.251***	(0.057)	-0.261***	(0.061)
Serious illness	-0.703***	(0.078)	-0.693***	(0.083)
Locus of control	0.750***	(0.049)	0.780***	(0.052)
Men	-0.057	(0.030)	-0.056	(0.032)
Education: basic	-0.165**	(0.056)	-0.143*	(0.059)
Education: vocational	-0.121***	(0.035)	-0.143***	(0.037)
Education: tertiary	0.032	(0.039)	0.019	(0.041)

Standard errors in parentheses. Reference category: for unemployed - employed or self-employed, for married- single, divorced, widowed, for education: secondary education.

** p<0.05, ** p<0.01, *** p<0.001,**

Results from fixed effects estimator which is not taking into account the heterogeneity of unemployed created by the different attitudes toward work (Table 1: column 1 and Table 2: column 1) indicate that for a given individual losing a job decreases both personal life assessments as well as willingness to live. This finding is in line with previous empirical studies for other countries (McKee-Ryan et al. 2005). Moreover the between person estimator indicates, similarly to evidences previously found in cross-sectional studies for Poland (Czapiński 2014), that unemployed people have lower willingness to live and lower life assessment that their working counterparts. There is a difference between the size of the impact of the job loss in within and between estimators. Although a Haussmann test indicates that between estimator is biased (correlated with an individual error term) this difference can also indicate that there is

unobserved heterogeneity between unemployed and employed, which is not control in the model.

Interestingly the interaction between recognising work as a central life value and losing a job has a negative, statistically significant impact of life assessment, increasing the overall detrimental impact of job loss (see: Table 1, column 3). Also coefficients from between person estimations indicate that unemployed with higher appraisal of the role of employment in his/ her life has lower well-being in comparison to unemployed who do not share this attitude. However, while well-being is measured by willingness to life the association is not statistically significant (Table 2).

Other control variables for the personal well-being are in line with expectations and previous empirical evidences: getting older, getting married, increasing the household income, getting more friends, and believing that the life achievements depend on our own efforts increases both life assessment and willingness to live, while serious illness has a negative impact on them. The coefficients from between person's estimators additionally illustrate that the association of level of education and well-being is statistically significant: having just basic or vocational education deteriorates one's subjective well-being in comparison to having secondary education attainment.

Results presented above confirm hypothesis of the detrimental effect of job loss on life assessment and willingness to life, indicating also the heterogeneity of this association. For those individuals who had valued work highly losing a job has a more negative impact than for other unemployed. According to Jahoda's functional model (1981) becoming unemployed induces the changes in time structure, relations with others, personal identity and activity. Our empirical evidences are in line with this theoretical assumption, showing that the effect of unemployment is not universal across all individuals. Unemployment has profound economic and social consequences, as shown it deteriorates well-being and has an impact on mental health. Our descriptive statistics show that those who attach high value to work are more likely to be men, have basic or lower vocational education, and live in households with lower income. Not surprisingly, these characteristics overlap with characteristics of the people most in the risk of labour market exclusion in Poland, or trapped in long-term unemployment, reinforcing the detrimental effect of job loss.

Our results suggest that the distress caused by unemployment differs across individuals, indicating the need for better-tailored and more personalized approach in policy interventions for unemployed.

4. Spillover Effects of Job Separations: Does Becoming Unemployed Among Youth Affect Health of Their Family Members?

Anna Baranowska-Rataj, Mattias Strandh

Growing volatility of labour markets in Europe and United States has raised concerns about the consequences of unemployment for population health. A job separation carries social stigma, undermines personal status and identity, lowers self-esteem and brings stress and anxiety, which leads to poorer mental and physical health (Jahoda 1981; Pearlin et al. 1981). Young people are particularly vulnerable to the changes in labour market conditions (Bell and Blanchflower 2011; O'Higgins 2010), and the life course stage that they are in is associated with an elevated risk of unemployment (Müller and Gangl 2003). At the same time, as compared to people in prime age, youth have less financial and social resources that could be mobilised in order to deal with stress resulting from a job separation. Hence, the impact of unemployment on health in this group is of particular concern.

While a number of studies have examined the health consequences of job separations both in the general population (Burgard et al. 2007; McKee-Ryan et al. 2005; Roelfs et al. 2011; Strully 2009) and among youth (see Voßemer and Eunicke (2015) for review), the effects of unemployment has been so far investigated from individual perspective. However, job separations may affect not only those who become unemployed, but also their closest social environment (Brand 2015). The spillover effects of job separations may be profound especially among family members of young workers who lost their jobs. As resources tend to be shared within households, the financial consequences of unemployment may be harmful for all household members. Moreover, family members constitute a buffer that absorbs the emotions resulting from negative life course events. Through mechanisms of stress transmission, individual's psychological strain resulting from job separation may become a stressor for other family members, and this process affects their well-being (Charles and Stephens 2004; Eliason 2012; Howe et al. 2004; Westman et al. 2004). While the theoretical mechanism behind spillover effects of job separations have been recognized, empirical research on this topic has so far remained rather scarce (Brand 2015).

The aim of this paper is to examine the impact of job separations on self-rated health among young people as well as their family members. Specifically, we look at the impact of job separations on health of partners with whom young men and women share a household.

Research design

We employ panel data from the European Union Statistics on Income and Living Conditions Survey (EU-SILC), which cover 30 European countries over the period

2003-2013. EU-SILC is a household survey, it provides information on both labour market status and health of all adult family members that live under the same roof, which is crucial from the point of view of our research questions on spillover effects of job separations.

We use longitudinal methods that give the opportunity to disentangle the effects of job separations on health from the impact of pre-existing health conditions. Specifically, we use random effects models controlling for baseline health. In addition, we estimate correlated random effects models in order to reduce the possible bias resulting from the unobserved heterogeneity among workers. Correlated random effect models, also known as hybrid models, combine the high internal validity of fixed effects models and high efficiency of random effects models, leading to unbiased but still quite precise estimates of the effects of interest (Bell and Jones 2015).

Our key dependent variable is constructed based on respondents' self-assessment of overall health at the time of the survey. Respondents rated their health using a five-category scale with values ranging from very good (1) to very bad (5). Although self-assessed health may be subject to culture-related bias (Jürges 2007), this measure has been shown to be a reliable indicator of health, as it correlates with subsequent deterioration of functional capabilities and with mortality across different social categories and contexts (Burström and Fredlund 2001; Chandola and Jenkinson 2000; Jylhä 2009).

Our key explanatory variable is the labour market status at the time of the survey. The categories of this time-varying variable include: employment, unemployment and inactivity. The control variables include: age, education attainment, long-standing illness (lagged by one year), partnership status and country of residence.

Our sample includes people aged 18-30 and their partners. Since the impact of socioeconomic status on health has been shown in previous research to vary by gender (Strandh et al. 2013), we estimate separate models for men and women.

The descriptive statistics presented in Table 1 show that there is an association between individual labour market status and health. The unemployed have poorer self-rated health than the employed, and even though the association is not very strong, it is statistically significant, for both men and women. The impact of inactivity is weaker and not statistically significant. According to our results presented in Table 2 both men and women whose spouse is unemployed report poorer health. The negative effect of partner's unemployment is stronger for women. Again, spouse's inactivity does not have a statistically significant impact on health.

Table 1. Self-rated health among young men and women according to individual labour market status (ratings: 1=very good, 5= very bad).

	men		women	
	mean	ci	mean	ci
employed	1.65	[1.64;1.66]	1.72	[1.71;1.72]
unemployed	1.84	[1.80;1.87]	1.87	[1.85;1.90]
inactive	1.73	[1.68;1.77]	1.77	[1.75;1.78]
Total	1.67	[1.67;1.68]	1.75	[1.74;1.75]

Note: 95% Confidence intervals in brackets

Table 2. Self-rated health among young men and women according to individual labour market status of their spouse (ratings: 1=very good, 5= very bad).

	men		women	
	mean	ci	mean	ci
spouse employed	1.64	[1.63;1.66]	1.73	[1.72;1.74]
spouse unemployed	1.75	[1.72;1.79]	1.89	[1.86;1.92]
spouse inactive	1.71	[1.69;1.73]	1.75	[1.71;1.79]
no spouse	1.69	[1.66;1.72]	1.78	[1.76;1.81]
Total	1.67	[1.67;1.68]	1.75	[1.74;1.75]

Note: 95% Confidence intervals in brackets

Results from panel data models

According to the results from standard random effects models (Model 1 and 3 in Table 1), becoming unemployed is associated with statistically significantly poorer self-assessment of health among both men and women. Transition into inactivity is associated with a negative effect only among men, though. After controlling for unobserved heterogeneity among young people (Model 2 and 4 in Table 1), the impact of both unemployment and inactivity weaken but remain statistically significant among men and are revealed to play no major role among women.

The results from our analyses show as well what is the impact of partners' labour market status on self-rated health. Standard random effects models (Model 1 and 3 in Table 3) indicate that partner's unemployment is associated with statistically significantly poorer health among men and women, but the effect is stronger for the latter group. After controlling for unobserved heterogeneity (Model 2 and 4 in Table 1), the impact of partner's unemployment weakens but remains statistically significant among women and has no effect among men. Partner's inactivity affects self-rated health among neither among men nor among women.

Table 3. The impact of individual and partners' unemployment on self-rated health among young men and women – results from panel data models.

	Model 1 RE model, men		Model 2 Correlated RE model, men		Model 3 RE model, women		Model 4 Correlated RE model, women	
	coef	se	coef	se	coef	se	coef	se
Age	0,02***	(0,00)	0,02***	(0,00)	0,02***	(0,00)	0,02***	(0,00)
Education (ref. ISCED 2)								
ISCED0_1	0,00	(0,03)	-0,00	(0,03)	0,03	(0,02)	0,03	(0,02)
ISCED3	-0,10***	(0,02)	-0,10***	(0,02)	-0,10***	(0,01)	-0,09***	(0,01)
ISCED4	-0,13***	(0,03)	-0,13***	(0,03)	-0,17***	(0,02)	-0,16***	(0,02)
ISCED5	-0,21***	(0,02)	-0,20***	(0,02)	-0,20***	(0,01)	-0,20***	(0,01)
LSI (lagged)*	0,35***	(0,02)	0,35***	(0,02)	0,37***	(0,01)	0,37***	(0,01)
Partnership status (ref. Has a partner)								
No partner	0,04**	(0,02)	0,03*	(0,02)	0,02	(0,01)	0,01	(0,01)
Labour market status (ref. Employment)								
unemployment	0,10***	(0,02)	0,05**	(0,02)	0,07***	(0,01)	0,01	(0,02)
inactivity	0,10***	(0,02)	0,09***	(0,03)	-0,00	(0,01)	-0,02	(0,01)
Labour market status of the partner (ref. Employment)								
unemployment	0,04**	(0,02)	0,02	(0,02)	0,08***	(0,02)	0,05**	(0,02)
inactivity	0,01	(0,01)	-0,01	(0,02)	0,02	(0,02)	-0,02	(0,03)
Country group								
Nordic	-0,02	(0,02)	-0,02	(0,02)	-0,01	(0,02)	-0,01	(0,02)
Anglosaxon	-0,06**	(0,03)	-0,06**	(0,03)	-0,03	(0,02)	-0,03	(0,02)
Southern	0,09***	(0,02)	0,08***	(0,02)	0,06***	(0,01)	0,05***	(0,01)
CEE	0,14***	(0,02)	0,14***	(0,02)	0,14***	(0,01)	0,13***	(0,01)
Balkan**	-0,21***	(0,03)	-0,21***	(0,03)	-0,20***	(0,02)	-0,21***	(0,02)
Constant	1,06***	(0,06)	1,03***	(0,07)	1,33***	(0,05)	1,29***	(0,05)
N	17428		17428		28664		28664	

**Long-Standing Illness, lagged values. **Country group of 'Balkan' countries comprises of Cyprus, Malta and Croatia.*

Summing up, our results confirm the findings from earlier studies discussing the effect of job separations on health. We observe a negative influence of transition into unemployment on health even after controlling for baseline health problems and selectivity of workers losing jobs. The effect of transition into unemployment is stronger among men than among women. We also show that the health consequences of job separations extend beyond the unemployed youth and affect also their family members. The effects of partners' transitions into unemployment are stronger among women as compared to men, implying a gendered nature of spillover effects of job separations.

Our findings extend the literature on the effects of unemployment on health by showing that these effects can be contagious. Our results highlight the role of social interactions and income pooling for health outcomes of people who lose their jobs. The results from this study are also relevant for evaluations of the reforms which aim at reducing unemployment. Introducing new policies is always based on careful calculation of costs and benefits, but much of the evaluation literature makes a somewhat simplistic assumption that individuals eligible for the benefits of the policy are the only group that may potentially gain from it (Smith and Sweetman 2016). Our findings indicate that the

assessment of the benefits of a programme targeting the unemployed should not be restricted to the participants of this programme, it needs to include their family members. Hence, the positive impact of programmes targeting the unemployed might be overall much larger than studies analysing individuals in isolation from their social environment would imply.

Synthesis of findings

This report provides evidence on the impact of various forms of labour market insecurity on health and well-being based on longitudinal data from a whole range of European countries, including Ukraine. We hereby summarize the key findings from the chapters included in this report.

According to the results presented in our report, unemployment experienced in young age has a significant negative effect on health and wellbeing in the long term, even after a period as long as over 35 years. These long term effects are considerably larger in magnitude for males than for females. In spite of the fact that exposure to unemployment while young does shift both health and well-being age trajectories downwards, it does not change their shape.

The effects of unemployment on health and wellbeing depend on macroeconomic conditions. Losing a job during a period of severe economic downturn results in significant negative effect on individuals' wellbeing. However, this effect concerns mostly people who experience unemployment at older ages. Worse health is accompanied by an increase in the probability of health compromising behaviors, such as smoking or alcohol consumption. We also find a negative effect of early life labour market shocks on physical activity among women.

Our results also show that the health consequences of job separations extend beyond the unemployed youth and affect people in their closest social environment, namely their partners. The effects of partners' transitions into unemployment are stronger among women as compared to men, implying a gendered nature of spillover effects of job separations.

Our results indicate that labour market exclusion affects not only health status and health-related behaviors, but there is also a detrimental effect of job loss on life assessment and willingness to live. We find an interesting heterogeneity of this association across individuals. Specifically, losing a job has a more negative impact for those individuals, who valued work highly as compared to those for whom work does not play an important role.

To sum up, our results provide in-depth insights into the multifaceted consequences of labour market exclusion. Our findings have implications for public health and for understanding of the role of employment for the quality of life in Europe.

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