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Keywords: economic transition, unemployment, life histories, long-term effects
JEL codes: J21, J63, P30

Introduction

Almost thirty years after the political breakthrough of 1989 and a major socio-economic transformation which took place in Poland in the early 1990s little is known about the long-term consequences of individual experiences at the time of the transition on different aspects of people's lives. Overall, and in particular relative to many neighbouring countries, the Polish transition with its "shock therapy" approach to economic policy has been seen as a clear success story. In 2015 Poland's real GDP per capita was more than double compared to the level in the late 1980s and unemployment in recent years has been measured in single digits. However, while the majority of the population have managed to avoid significant economic difficulties, many families experienced the painful hardship of the transition period expressed in particular in job losses, poverty and exclusion. Discussions concerning the costs and benefits of the shock therapy policies constitute an important recurring theme of Polish politics and are likely to continue to divide the public opinion for the years to come. For example the critical approach to the transition path taken after the fall of the old regime was one of the key elements of the electoral campaign of the Law and Justice party (Prawo i Sprawiedliwość) which brought it to power in the parliamentary elections of 2015.

The process of moving from a socialist, centrally planned system to a market economy cannot be lived through again under a different set of policy decisions. However, it seems that there is much to learn from the individual experiences of the shock therapy with the policies used as a form of a natural experiment. We know little about the consequences of individual experiences of the transition which certainly deserve to be documented. Moreover important lessons could be drawn from such a unique, large scale socio-economic change which can support policies in countries still undergoing major transitions as well as in those which currently experience significant economic downturns.

In this paper we use individual level data from the Polish part of the Survey of Health, Ageing and Retirement in Europe (SHARE, see, e.g.: Börsch-Supan and Jürges, 2005; Börsch-Supan et al., 2008; Börsch-Supan et al., 2013; Börsch-Supan, 2017a; Börsch-Supan, 2017c) to examine the relationship between labour market experiences at the time of the transition and a set of measures of quality of life about two decades later. SHARE is a multidisciplinary panel survey focusing on individuals aged 50 years and over and covering such aspects as health, economic conditions, labour market activity and social networks. We use retrospective data of the Polish SHARE respondents collected in the SHARELIFE survey in 2008/09 (see Börsch-Supan et al., 2013, Börsch-Supan, 2017b) and match

detailed labour market histories to identify transition related job losses with current information on several measures of material conditions and wellbeing.

There exist a lot of studies in the literature on the developments on the Polish labour market in the early 1990s (e.g. Boeri and Keese, 1992; Góra, 1995; Góra, 1996; Svejnar, 1999; Hagemejer, 1996). However, to our knowledge there are no quantitative studies at the individual level which analyse labour dynamics in Poland across the transition threshold, and no studies which would link these experiences with later outcomes. By taking advantage of a unique data source we thus shed new light on the nature of the Polish transition and provide first evidence on its long-term implications at the individual level. We find that the experience of unemployment in the early years of the transition significantly correlates with material conditions and wellbeing about two decades later. Since in our view there is good reasons to justify the assumption of exogeneity of unemployment at the time of the transition and especially in the early 1990s, we argue that the results can be given causal interpretation. The estimates suggest that losing a job between 1989 and 1991 leads to a 30% long-term reduction of total household income, and to an increase of the probability of poor material conditions by about 14%. It also has significant negative effects on overall life satisfaction and on other measures of wellbeing.

We begin the paper with a brief outline of the Polish economic transition with a particular focus on the early years of the economic recession and restructuring (Section 1). In Section 2 we examine individual experiences during the transition and labour market shocks that we can observe when analysing the retrospective data collected in the third wave of the SHARE survey - SHARELIFE. In Section 3 we propose a model to analyse the relationship between job losses at the time of the economic transformation and later life outcomes of the respondents in terms of their material conditions and wellbeing. Results of the estimations are presented in Section 4, which is followed by Conclusions.

1. The Polish economic transition and labour market dynamics

The policies of the "shock therapy" implemented by Leszek Balcerowicz, the Finance Minister of the Mazowiecki government, were introduced with the primary objective to address the massive macroeconomic disequilibrium with currency inconvertibility, an anti-service sector bias and extensive price controls combined with highly expansionary macroeconomic policies (Berg and Sachs, 1992; Balcerowicz, 1992; Berg and Blanchard, 1994; Gotz-Kozierkiewicz and Kołodko, 1992;

Kołodko, 1993; Rosati, 1994). As in other countries of the region the macroeconomic policy package had to go in parallel with substantial changes on the labour market. As argued in Góra (1996) the conditions on the labour market before and after 1990 are essentially incomparable. Unemployment became part of the official reality, and the structure of the economy had to be adjusted in the new environment with major implications for employment in a number of sectors of the economy (Jackman and Rutkowski, 1994; Boeri and Keese 1992; Svejnar, 1999). Excess demand for labour and overemployment was replaced by excess supply.

The Polish economy suffered a significant output reduction in the initial years of the transition and registered unemployment grew rapidly from the official 0% under the planned economy to over 16% in 1993 (see Figure 1). The rise in unemployment figures reflected a wave of job losses in response to falling demand and adjustments of labour hoarding under planned economy (Góra, 1995, 1996). At the same time there were also substantial inflows into the labour force of the formerly inactive population who registered to claim the new unemployment benefits (such inflows can also be observed in the SHARELIFE data).[2] While the economy recovered relatively quickly – the GDP was back at the pre-transition level already in 1995 – high unemployment became a long-term feature of the Polish economy, and only in 2008 fell below the level of 10% (Figure 1).

Figure 1. GDP and registered unemployment in Poland between 1988 – 2013

---- GDP (1988=100): left axis ⸺ unemployment rate (%): right axis
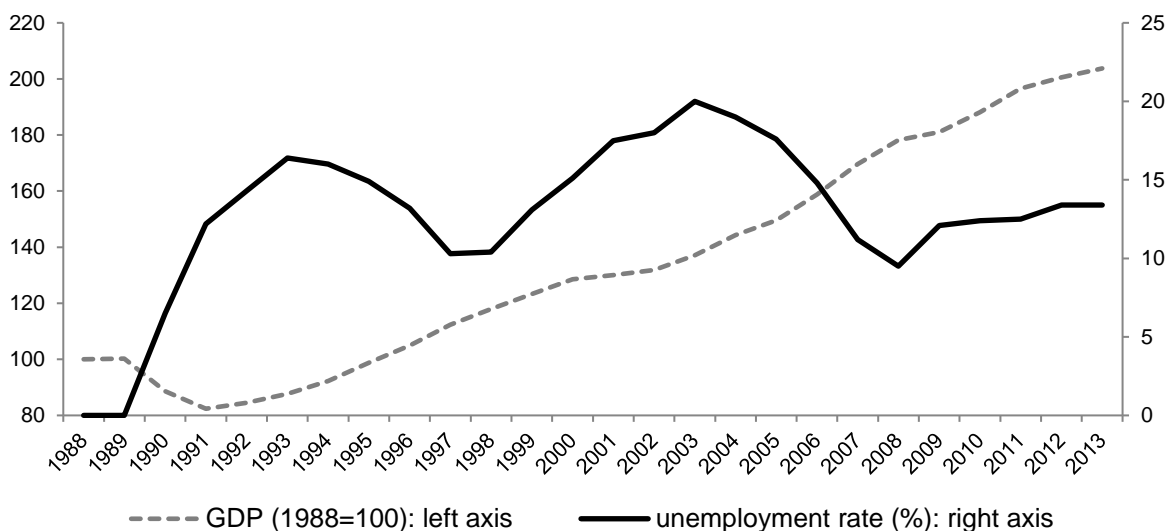
Source: GUS (Central Statistical Office), 2014.

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[2] Some estimates put the extent of the inflow into the labour force to over 60% of the overall number of the new unemployed between 1989 and 1991 (Góra, 1996).

Job losses in Poland in the 1990s have been primarily linked to the economic inefficiency of the old regime, with high proportion of the labour force employed in agriculture and heavy industry, generally low levels of productivity, and the policy of "full employment" which resulted in labour hoarding. Changes in the structure of the economy, re-orientation of trade away from the Soviet block countries, and rapid privatisation have all contributed to the growing numbers of lay-offs, although not all job separations resulted in unemployment. For example many older individuals took advantage of newly introduced liberal regulations on accessibility to disability and early-retirement pensions which provided a long-term financial shelter for those individuals.[3] Inability to take advantage of these paths out of the labour market, in combination with increasingly strict rules on eligibility for unemployment benefits and very limited safety net outside of the social insurance system, have put those who lost jobs and became unemployed in a very disadvantaged position.

In our analysis below we document the relationship between the experience of unemployment and later life outcomes and argue that, due to the nature of the labour market changes in the early 1990s and the extensive set of individual characteristic we control for, the estimated parameters can be given a causal interpretation. This is supported both by the rapid drop in demand reflected in increases in unemployment – in particular if we consider the initial years of the transition between 1989 and 1991 – and the exogenous nature of labour market shocks from the point of view of the firms and individuals.

2. The economic transition through the lens of retrospective data

2.1 Life histories in the SHARELIFE data

Our analysis is based on individual level data from the Survey of Health, Ageing and Retirement in Europe (SHARE). SHARE is an international multidisciplinary panel survey of individuals aged 50+ combining information on the socio-economic situation with details on health and social relations (see, e.g.: Börsch-Supan et al., 2013; Börsch-Supan and Jürges, 2005; Malter and Börsch-Supan, 2013; Malter and Börsch-Supan, 2015; Börsch-Supan et al., 2015; Chłoń-Domińczak, 2014). The interviews are conducted with the same respondents in biannual intervals and the survey is currently in the field with its seventh wave in 26 European countries and Israel. Poland joined SHARE in its second wave in 2006/07 and participates in the current data collection in wave 7. Apart from these

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[3] In the first two years of 1990s three times more disability and early-retirement pensions were granted than in the whole decade of 1980s (Hagemejer, 1996).
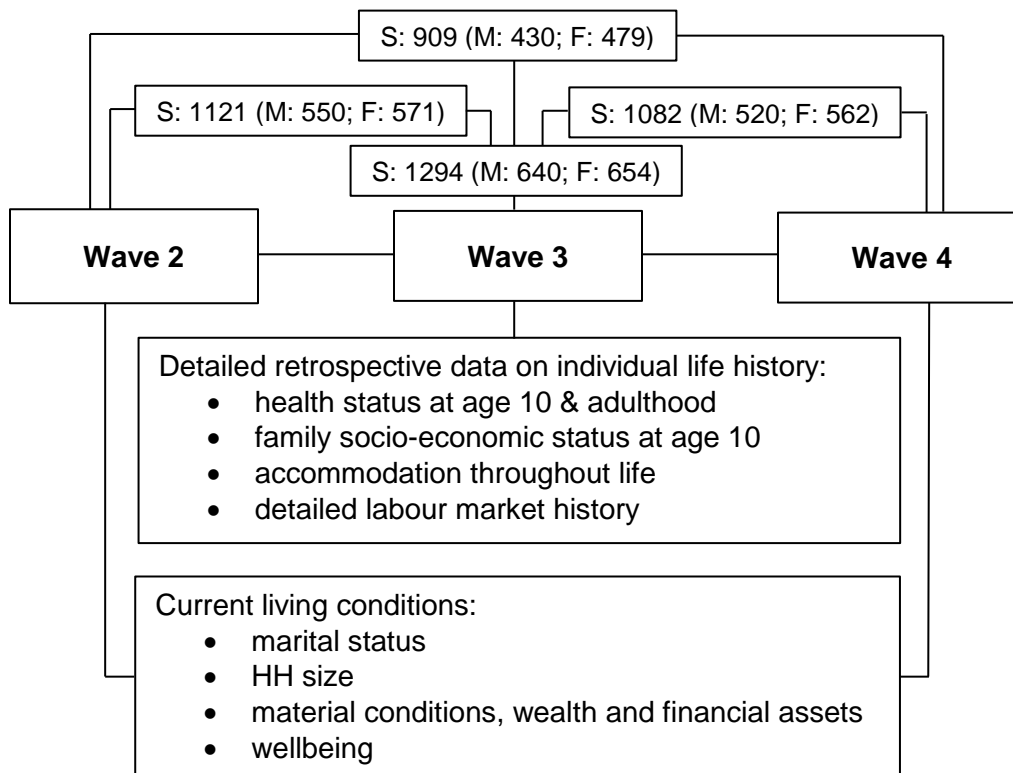
two waves, data on Polish respondents is available also for waves 3, 4 and 6. Crucially from the point of view of this paper wave 3 of the survey, which was conducted in 2008/2009, collected retrospective information in the so-called SHARELIFE interview (Schröder, 2011; Börsch-Supan et al., 2013). This life-history survey covered such areas as family and marital history, residential mobility over the lifetime and health history. It also recorded very detailed labour market history including individual job spells and changes in labour market status as well as several main characteristics of all declared jobs and gaps between them. Although retrospective information is an imperfect substitute for contemporaneous data collected over the lifetime, the quality and usefulness of SHARELIFE data has been reflected in a number of publications (e.g. Börsch-Supan et al., 2011; Attanasio et al., 2014; Kesternich et al., 2014) and there is evidence from this and other surveys on reliability of retrospective data in particular with respect to important major life events (e.g. Havari and Mazzonna, 2011; Beckett et al., 2001; Smith and Thomas, 2003). Moreover, while the degree of detail collected in a retrospective survey on each particular period is relatively low, an important advantage of this type of information is that life-histories generated on the basis of it do not suffer from panel attrition and can be matched with contemporary information on respondents.

In this paper we combine the SHARELIFE data with information collected in two regular waves of the survey on the same respondents to link individual experiences from the time of the "shock therapy" with outcomes observed in 2006/07 (wave 2) and 2012 (wave 4). In particular we examine the relationship between labour market experiences at the time of the transition with current material circumstances and several measures of wellbeing. By using the SHARELIFE data we can delineate specific individual labour market histories, and use it to build annual retrospective panel datasets on employment patterns. Brugiavini et al. (2013) use this data to construct the SHARE Job Episodes Panel (see also Antonova et al., 2014a; Antonova et al., 2014b) and we use the basic structure of this dataset in our analysis, although we work from raw data in order to capture more detailed histories of each respondent in a given year of his or her life to ensure smoother continuity of working life histories.[4]

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[4] Given the focus on unemployment in our analysis, compared to the Job Episodes Panel we adopt a different approach to unemployment spells in order to recover information on long- and short-term unemployment interruptions between jobs in two consecutive years. In addition, while the Job Episodes Panel supplements information available in SHARELIFE with information collected in regular waves on events such as timing of retirement, we build the entire labour market histories on the basis of SHARELIFE data to ensure consistency and year-to-year continuity.

Figure 2. Panel sample structure: analysis dataset

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                    ┌──────────────────────────────┐
                    │    S: 909 (M: 430; F: 479)    │
                    └──────────────────────────────┘
          ┌─────────────────────────┐  ┌─────────────────────────┐
          │ S: 1121 (M: 550; F: 571)│  │ S: 1082 (M: 520; F: 562)│
          └─────────────────────────┘  └─────────────────────────┘
                    ┌──────────────────────────────┐
                    │   S: 1294 (M: 640; F: 654)    │
                    └──────────────────────────────┘
   ┌─────────────┐      ┌─────────────┐      ┌─────────────┐
   │   Wave 2    │──────│   Wave 3    │──────│   Wave 4    │
   └─────────────┘      └─────────────┘      └─────────────┘
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Detailed retrospective data on individual life history:
- health status at age 10 & adulthood
- family socio-economic status at age 10
- accommodation throughout life
- detailed labour market history

Current living conditions:
- marital status
- HH size
- material conditions, wealth and financial assets
- wellbeing

Source: authors' compilation using SHARE data Waves 2-4.

Notes: Although the Wave 3 SHARELIFE interview was conducted only in households which had earlier participated in Wave 2 (the first round of interviews in Poland), there are people who participated in Wave 3 and not in Wave 2. This is a result of the fact that as partners of main respondents in the household they refused to participate in Wave 2 but were still eligible for interview in Wave 3. It is possible therefore for someone to be in the sample in Waves 3 and 4 but not in Wave 2. Naturally – due to panel attrition – it is also the case that individuals who participated in Waves 2 and 3 did not take part in Wave 4.

2.2 The Polish SHARELIFE sample

The Polish SHARE sample from Wave 3 consists of 1,815 observations (794 men and 1,021 women) and we use it below to illustrate employment life histories from SHARELIFE data.[5] We limit the analysis to individuals born after 1928 and very few are born after 1956 since to qualify for the SHARE sample in Wave 2 respondents had to be at least 50 years old on the first of January 2006.[6] We narrow down the sample for our analysis to individuals who were employed in 1988 and use only the observations for whom the full set of variables used in the estimations is available. This gives us 1,294 observations in Wave 3, which defines our analysis sample since for all individuals we need

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[5] In this study we build labour market histories for about 94% of the initial Polish sample collected in wave 3 due to some missing information in employment situation across the lifetime and cases of data inconsistencies for some respondents.

[6] The 46 exceptions are partners of respondents aged 50+ who can be younger than 50 at the time of the survey.

information on their life histories. This sample can be linked to 1,121 observations in Wave 2 and 1,082 observations in Wave 4. The panel dataset constructed in this fashion is summarised schematically in Figure 2. The common set of individuals observed in all three waves is 909 (430 men and 479 women) and for these individuals two points of observation for the dependent variables are available for our analysis. The basic sample statistics for the analysis sample are given in Table 1. The analysis sample, which constitutes about 71% of the initial sample size from Wave 3, has been divided into three birth cohorts born respectively between 1928-37, 1938-47 and after 1947. The sample is split almost equally between men and women. As the inclusion into the sample is conditional on working in year 1988, the average age is only 60 years old and about 52% of the respondents in the sample were born after 1947. Respondents have on average about 13 years of education which correspondents to secondary school graduation.

Table 1 provides also descriptive statistics on life events that we control for in our analysis. These include for example health and living conditions in childhood. 2,4% of the respondents declared having poor health as children, while 8% declared recurrently staying in the hospital. It has been documented in the literature that the number of books at home in childhood can serve as a good proxy for socio-economic background (e.g. Brunello et al., 2016) and in our sample as many as 80% of the respondents had only one shelf or less of books at home when they were 10 years old. Almost 70% declared that their parents or guardians owned their place of living at age 10, but as few as 4% declared having at least one room per household member at the time. On the verge of the transition – in 1988 – more than a half of the sample lived in rural areas and almost one third was employed in agriculture. Until 1988 they gained on average just over 21 years of labour market experience and 9% declared suffering from serious disability or illness throughout life. In terms of labour market events crucial from the point of view of our analysis, 2,9% of those working in 1988 became unemployed between 1989 and 1991, while 3,4% experienced unemployment during transition for the first time between 1992 and 1995. Overall the respondents spent on average 4,6% of the time between 1988 and 2008 (or up to the year of retirement if earlier) in unemployment.

Table 1. Sample statistics: the SHARELIFE sample in Poland

|	Mean	sd.
Female	0.505	(0.500)
Age	60.20	(7.579)
Cohort 1: born 1928-1937	0.144	(0.351)
Cohort 2: born 1938-1947	0.335	(0.472)
Cohort 3: born after 1947	0.521	(0.500)
Years of education	12.92	(3.424)
Childhood circumstances at age 10		
- poor self-reported health	0.024	(0.153)
- recurrent hospital stays	0.084	(0.278)
- few books at home	0.784	(0.412)
- <1 room per person in the household	0.958	(0.200)
- parents owned the dwelling	0.688	(0.464)
Information collected for 1988		
Lived in rural area	0.445	(0.497)
Employment sector: agriculture	0.281	(0.449)
Employment sector: industry	0.357	(0.479)
Employment sector: services	0.362	(0.481)
Self-employed	0.213	(0.409)
Labour market experience up to 1988 (years)	21.29	(8.517)
Serious disabilities or illnesses up to 1988	0.090	(0.286)
Transition period		
Unemployed in 1989-1991	0.029	(0.169)
Unemployed 1st time in 1992-1995	0.034	(0.181)
Unemployment ratio 1988-2008/retirement	0.046	(0.153)
Number of observations	1294	

Source: SHARELIFE Wave 3 data, release 6.0.0.
Notes: sample restricted to respondents who declared working in 1988 in Wave 3 with valid information in Wave2 and/or Wave 4.

Below the SHARELIFE sample is first used to demonstrate the nature of labour market histories on the basis of the retrospective interview. In Figure 3 as an illustration of how the data can be used we show an overall summary of the relationship between age and labour market status for Polish men and women in the full SHARELIFE sample. We can see that for men the employment ratio in the sample grows up to about the age of 35 (Figure 3a), following which there is an increasing proportion of respondents who become disabled and unemployed with some moving to retirement as early as at the age of 40. The proportion of male retirees begins to grow rapidly beyond the age of about 55 confirming the take-up of popular options of early retirement. Among men the highest proportion of those experiencing unemployment falls at the age bracket of about 45-55. For women (Figure 3b) we

find a significant proportion of homemakers, in particular in the age group up to 35 years old. As in the case of men we also find a rapid increase of the proportion of retired women as early as at the age of about 50. The proportion of declared unemployment is highest for women in their late 40s, but we find women who declared unemployment also at earlier ages. At the age of 70 years old 82% of men and 64% of women declare that they are retired.

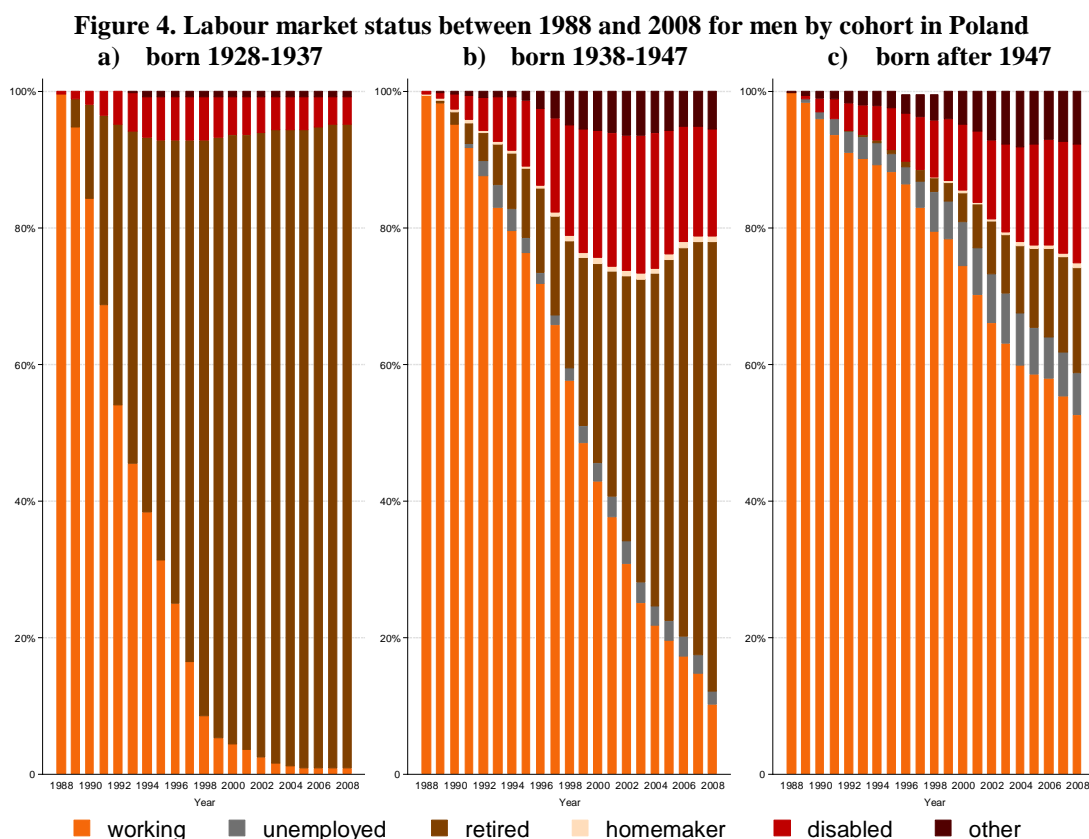**Figure 3. Labour market status and age for men and women**

a) men   b) women

Legend: education, working, unemployed, retired, homemaker, disabled, other
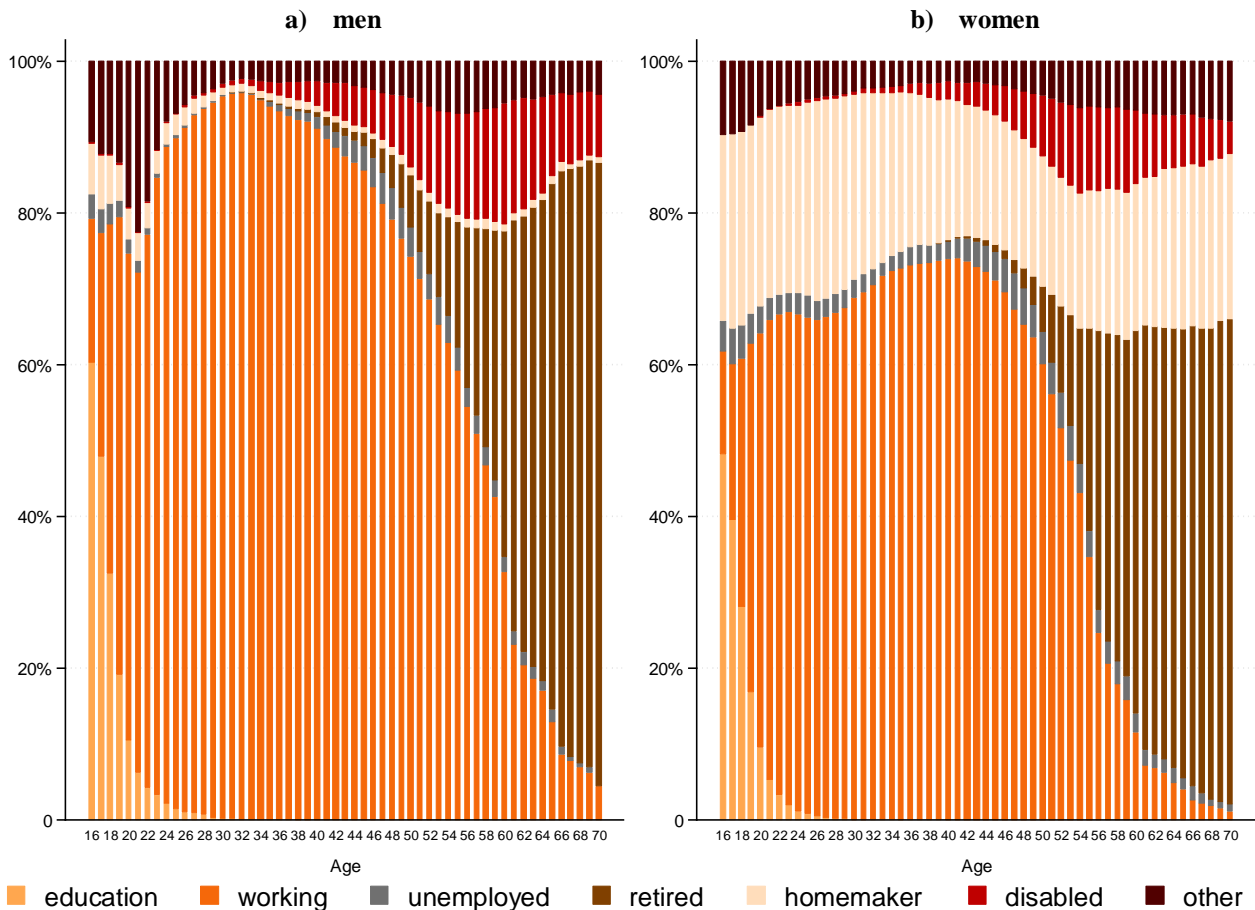
Source: own calculation based on SHARELIFE Wave 3 data, release 6.0.0.
Notes: weighted with SHARE Wave 3 individual weights. "Other" includes the following categories: short-term jobs (less than 6 months), leisure, travelling or doing nothing, training, military services (excluding professional army employment), war prisoner or equivalent, managing owns assets, voluntary or community work, forced labour or in jail, exiled or banished, labour camp, concentration camp, other. Sample sizes: men: 794; women: 1021.

Figures 4 and 5 focus on the analysis sample and so use only those respondents who declared being employed at some point in 1988. In these figures we draft the relationship between labour market status and time all the way up to 2008 and separate the graphs by gender and cohort. For men and women in the oldest cohort – those born between 1928 and 1937, we find a very rapid growth of the proportion of retired respondents after 1988. For men and women respectively, by 1992 only 54% and 40% are still employed from among those employed in 1988. The disability option is most often

declared among those from the middle cohort and this is especially common among men in the early 2000s. On the other hand unemployment seems to have affected the youngest cohort most frequently, and the proportion of unemployed among those born after 1947 grows rapidly in the early 1990s and then stabilises at about 6-7% for men and 7-9% for women all the way up to 2008. The Figures thus suggest that it is those who in 1989 were at most 42 years old, who were hit most strongly by the experience of unemployment during the transition. Older respondents could fall back on other labour market exit options – either to retire, as the oldest cohort, or to qualify as disabled, as seems to have been common for the middle cohort. By the end of the period the employment ratios for the youngest cohort look very much like those for the oldest cohort in 1992 – with about 56% of men and 43% of women still in employment. This is rather striking given that the oldest people in this cohort were aged 60 in 2008 and reflects the well-known fact of a very high degree of inactivity among the older groups of the population in Poland in the first two decades following the transition.

Figure 4. Labour market status between 1988 and 2008 for men by cohort in Poland
a) born 1928-1937   b) born 1938-1947   c) born after 1947

Source and notes: see Figure 3. Apart from categories mentioned in notes to Figure 3, here category "other" includes also further full-time education. Sample sizes: born 1928-1937: 110; born 1938-1947: 226; born after 1947: 304.

Figure 5. Labour market status between 1988 and 2008 for women by cohort in Poland
a) born 1928-1937   b) born 1938-1947   c) born after 1947

working   unemployed   retired   homemaker   disabled   other
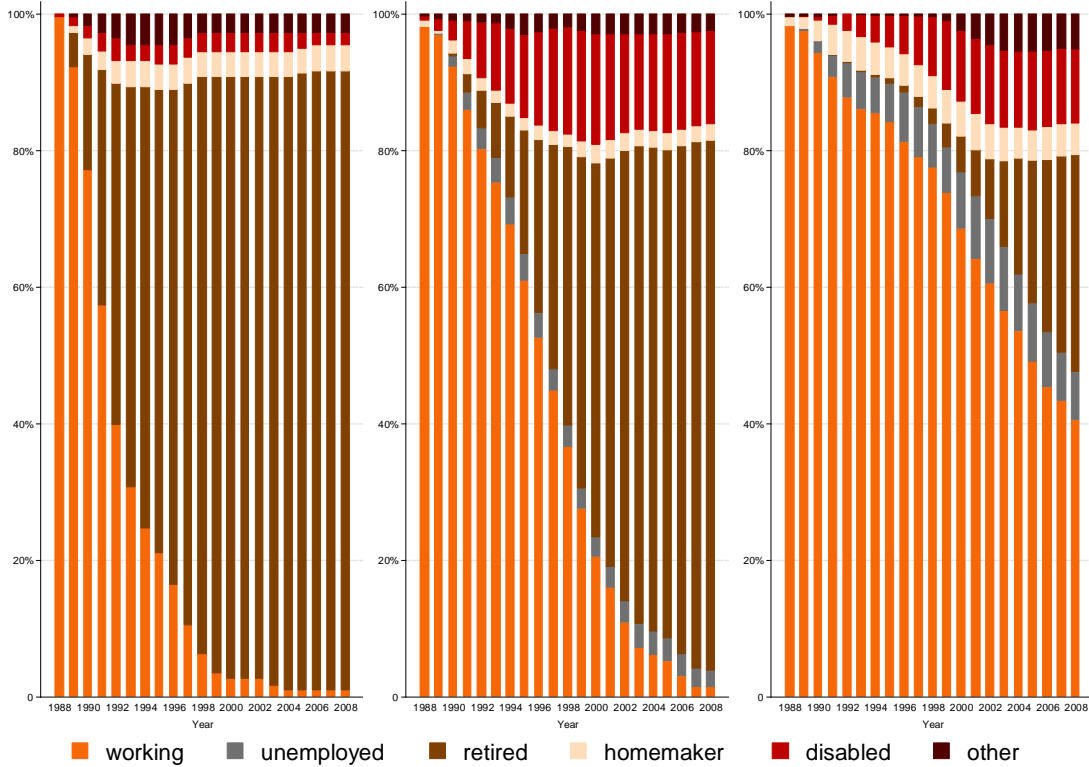
Source and notes: see Figure 4. Only respondents who declared working in 1988 (including those who worked only part of 1988). Sample sizes: born 1928-1937: 76; born 1938-1947: 208; born after 1947: 370.

3. Analysing long-term consequences of economic shocks

There is a growing body of literature showing the significance of major events experienced by individuals in the past for their current socio-economic outcomes in different historical contexts (e.g. Attanasio et al., 2014; Kesternich et al., 2014; Cavapozzi et al., 2011; Deindl, 2012). In Section 2 we showed how SHARELIFE data can be used to examine the dynamics of the labour market in Poland at the time of the economic transition, and below we use this information to examine the relationship between the experience of unemployment in the early 1990s and several outcomes observed about two decades later. As we argued earlier, because job losses in the early years of the transition were largely a result of the economic transformation, we can treat them as exogenous shocks and thus give the analysed relationship a causal interpretation.

Our analysis builds on a linear model in which a measure of wellbeing of individual *i* at the time of wave *w*, as expressed in $y_{i,w}$, is the following function of current and past characteristics:

$$y_{i,w} = \beta_1' X_{i,w} + \beta_2' Z_i + \gamma' u_i + \varepsilon_{i,w} + \mu_i \,. \tag{1}$$

In Equation 1 $X_{i,w}$ are characteristics of individual i at the time of wave w (such as age or marital status), Z_i are individual characteristics which are time invariant from the point of view of wave w, such as education, childhood conditions, parental background, etc., and u_i is the individual level indicator (or a vector of indicators) of the experience of unemployment at the time of the transition. $\varepsilon_{i,w}$ is an individual, wave specific random term, while μ_i is the individual unobserved fixed effect. As we noted earlier the analysis is conducted on a sample of individuals who were employed in 1988, i.e. at the time before the transition started. Depending on the specification, our vector of unemployment indicators, u_i, includes either a single indicator for the experience of unemployment between 1989-91, or two indicators for 1989-91 and 1992-95. Under the assumptions that $\varepsilon_{i,w}$ is a random iid term and μ_i is uncorrelated with unemployment at the time of transition u_i (conditional on $X_{i,w}$ and $Z_{i,}$), our key coefficients of interest, γ', should reflect the causal effect of the employment shock – a job loss – on the analysed outcome $y_{i,w}$.

The interpretation of these coefficients will crucially depend on the degree of (conditional) exogeneity of our unemployment measures. This means that, on the one hand, it will depend on how independent the job separations were of unobservable characteristics, and on the other on how much of the overall individual fixed effect we can control for through $Z_{i,}$, i.e. how many observed characteristics we can include to ensure at least conditional exogeneity. Given the nature of the Polish transition in the early 1990s, we argue that in the case of exits from employment in the first years of the transition we can assume the exogenous nature of u_i. Demand shocks driven initially primarily by changes in monetary policy and trade reorientation affected entire enterprises and sectors and mass layoffs were common. On top of that our regressions include a complex set of background variables from SHARELIFE data which are related to individual life histories, respondents' childhood conditions, parental background as well as health and labour market experience prior to 1988. By the standards of common labour market analysis this is a very extensive set of characteristics, normally unobservable to the researcher, which allows us to control for a lot of individual level information and thus to ensure that the unemployment variables are at least conditionally exogenous.[7] As labour market dynamics were to a lesser extent determined by sudden exogenous shocks in the later years of the transition, the (conditional) exogeneity assumption is perhaps less strong for the experience of unemployment between 1992-1995. Yet throughout the discussion of the results we assume it holds for the years 1989-1991.

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[7] The full list of control variables for the outcome regressions is given in Appendix C.

4. Results

4.1 Analysed outcomes

Our analysis focuses on two types of outcomes measured at the time of Waves 2 and 4 of SHARE. On the one hand we examine several dimensions of material conditions, and on the other we look at a number of indicators of overall wellbeing. The first group of variables includes:

- an indicator of house ownership ("House ownership");
- total value of household real assets ("Household real assets");
- total current household income ("Household income");
- self-assessment of material conditions measured through a binary indicator ("Great difficulties in MEM").

In each of the two Waves of SHARE (2 and 4) the respondents were asked if they owned the place of their residence and additionally a series of questions with regard to the value of their real assets. The interview also covered questions on household incomes including a question on the total overall income of the household.[8] These objective measures are complemented with a subjective measure of overall material wellbeing in the response to the question on the ability for the household "to make ends meet" (easily, fairly easily, with some difficulty, or with great difficulty). From these we construct a binary indicator which is coded as 1 if people make ends meet (MEM) with great difficulty and 0 otherwise.

For wellbeing measures we take into account the following information available in SHARE and analysed through three binary indicators:

- quality of life as measured by the CASP-12 scale ("Quality of life");
- overall life satisfaction ("Life satisfaction");
- symptoms of depression measured using EURO-D scale ("Depression").

The CASP scale used in SHARE is composed of 12 questions focusing on four areas of wellbeing of people waged 50+ (Control, Autonomy, Self-realisation and Pleasure) with answers coded from 1 to 4 (see Appendix A for details). The scale thus spans between 12 and 48 points, and we choose a cut-

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[8] In the case of the two monetary variables (household real assets and income) item non-response has been addressed through variable imputations which are provided in the SHARE data (De Luca, 2017). Estimates for these two outcome variables use multiple imputations and take advantage of multiple imputations routines for STATA (StataCorp, 2013).

off point for our binary variable at 40, which roughly divides the sample into the 70/30 proportion. Overall life satisfaction is measured on a 0-10 scale and our generated binary indicator takes value 1 if people report a value higher than 8 and 0 otherwise. Our last indicator of wellbeing is a measure reflecting symptoms of depression, as measured on the EURO-D scale. The scale records answers to 12 questions on symptoms of depression such as "Have you had trouble sleeping recently?" or "In the last month, have you cried at all?" (see Appendix B for details) with the usual cut-off for identification of depression at 4 out of the 12 items. Using this cut off we generate a binary variable to indicate those suffering from depressive symptoms.

Table 2. Sample statistics: material conditions and wellbeing outcomes in Waves 2 and 4 in Poland

	Wave 2 (2007)		Wave 4 (2012)	
	Mean	sd.	Mean	sd.
Material conditions:				
House ownership	0.785	(0.411)	0.899	(0.301)
Household real assets (PLN)	34917	(49508)	42942	(49876)
Household income (annual, PLN)	9558	(13178)	15462	(22116)
Great difficulties with MEM	0.270	(0.444)	0.188	(0.391)
Wellbeing				
Quality of life (40+ CASP)	0.301	(0.459)	0.321	(0.467)
Life satisfaction (9+)	0.193	(0.395)	0.292	(0.455)
Depression (4+ on EURO-D)	0.440	(0.497)	0.377	(0.485)
Number of observations	1121		1082	

Source: SHARE Wave 2 and Wave 4 data, release 6.0.0.
Notes: sample restricted to respondents who declared working in 1988 in Wave 3 with valid information in Waves 2 and 4.

Summary statistics for all the outcome variables for Waves 2 and 4 are provided in Table 2. Nearly 80% and 90% of the respondents respectively in Waves 2 and 4 own their dwelling, and we see significant improvements in their material situation between the two waves. Nominal average incomes grew by about 62% and the proportion of households reporting great difficulties with making ends meet fell from 27% to 19%. There is also a positive pattern as regards our wellbeing measures. The overall satisfaction with life increased most. Almost 30% of respondents in 2012 rate their life satisfaction as 9 or 10 on the 0-10 scale compared to only 19% five years earlier. On the other hand, quality of life as measured by CASP grows only slightly (32% have been qualified as having high quality of life in 2012 compared to 30% in 2007). There is also a small, but noticeable drop in the

level of depression as measured by the EURO-D scale with the proportion of respondents with four or more symptoms of depression falling from 44% to 38%. The overall picture in terms of the changes between the waves is thus rather positive both with regard to material conditions and as concerns wellbeing with the latter to some extent probably driven by the first.

4.2 Unemployment experience in 1990s and current material conditions

In Table 3 we present results of regressions of the four measures of material conditions. In each case we show two specifications, with the first controlling only for the experience of unemployment in the first three years of the transition (1989-1991) and the second including also controls for unemployment in the latter four years (1992-1995). In both cases the unemployment dummies take value 1 only in the case when the unemployment experience in the given period was the first unemployment experience since 1988, i.e. the starting year for which all individuals in the sample are employed. Thus for example those who lost their jobs in 1990 and were continuously unemployed throughout till 1995 will have the dummy variable for 1992-95 coded as 0. The unemployment dummies therefore reflect the first time when respondents experienced unemployment after the start of the transition. All other forms of non-employment have been classified in a single category (*"Other non-employed"*) and are defined in a similar fashion. This means that the reference category for our coefficients of interest is the group of individuals continuously employed since 1988.

In Table 3 apart from the labour market status variables we present also a selected number of other controls. In particular the estimates show – as we would expect – that the number of years of education has a positive effect on all four measures of material conditions and that there is a noticeable improvement in material wellbeing between 2007 and 2012 as reflected by the Wave 4 dummy. The estimates for the effect of education suggest that an extra year of schooling increases household income and reduces the probability of declaring great difficulties in making ends meet both by about 2 percentage points (pp). Respondents with more education are also a little more likely (about 1 pp) to own their dwelling with the rather small effect reflecting the fact that home ownership is widespread among the analysed cohorts (see Table 2). What is somewhat surprising is that neither of the measures is correlated with the number of years of labour market experience prior to 1988. This may be because there is little variation in labour market experience between individuals after we control for time and education and given the centrally planned system determining employment until 1988.

Table 3. Unemployment and material situation in later life (marginal effects)

Dependent variable:	House ownership		HH real assets (PLN)		Log HH income (PLN)		Great difficulties with MEM	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Unemployed in 1989-1991	-0.095**	-0.100***	-14389.8**	-15671.4**	-0.312***	-0.318***	0.142***	0.154***
	(0.039)	(0.038)	(7197.8)	(7212.6)	(0.107)	(0.107)	(0.051)	(0.051)
Unemployed in 1992-1995		-0.103***		-12403.4*		0.038		0.127***
		(0.037)		(6441.8)		(0.098)		(0.048)
Other non-employed in 1989-1991	0.014	0.012	857.1	-2370.9	0.006	-0.033	0.015	0.049
	(0.031)	(0.032)	(4643.9)	(4973.7)	(0.065)	(0.069)	(0.033)	(0.035)
Other non-employed in 1992-1995		0.005		-7452.1*		-0.103*		0.076***
		(0.025)		(3868.9)		(0.055)		(0.028)
Cohort 2: born 1938-1947[1]	-0.081**	-0.079**	-3912.0	-4860.5	-0.097	-0.110	-0.090	-0.076
	(0.032)	(0.033)	(6457.4)	(6434.1)	(0.098)	(0.099)	(0.059)	(0.058)
Cohort 3: born after 1947[1]	-0.092*	-0.086*	35.1	-835.2	-0.012	-0.026	-0.158**	-0.147*
	(0.048)	(0.049)	(9147.5)	(9104.4)	(0.141)	(0.141)	(0.079)	(0.078)
Years of education	0.009***	0.009***	1047.6**	971.9**	0.018***	0.017***	-0.019***	-0.019***
	(0.003)	(0.003)	(420.7)	(423.7)	(0.006)	(0.006)	(0.004)	(0.004)
Wave 4	0.110***	0.110***	7882.4**	7640.1**	0.379***	0.374***	-0.048**	-0.046*
	(0.020)	(0.020)	(3206.3)	(3222.1)	(0.054)	(0.054)	(0.024)	(0.024)
Labour market experience up to 1988 (years)	0.000	-0.000	14.0	36.1	0.002	0.003	-0.001	-0.001
	(0.002)	(0.002)	(261.6)	(260.9)	(0.004)	(0.004)	(0.002)	(0.002)
Estimation method	RE-logit	RE-logit	MI RE	MI RE	MI RE	MI RE	RE-logit	RE-logit

Source: own calculations based on Wave 3 SHARELIFE, Wave 2 and Wave 4 data, release 6.0.0.
Notes: Results presented as marginal effects. Age controlled through a polynomial of power 3. Sample size: 2203 observations, 1294 individuals. Additional controls: regional dummies, industry in 1988, severe injuries until 1988, living in rural area in 1988, childhood health and family socio-economic situation at age10 (see Appendix C for details), HH size, partner in HH, household respondent, month of interview.
Estimation methods: RE-logit – random effects logit estimation; MI RE – multiple imputations random effects estimation.
[1] Reference cohort: born between 1928-1937.
*Category "Other non-employed" captures all states of inactivity on the labour market such as retirement, disability, homemaking, etc. Information on material situation was collected on household level from the household respondent and used for his/her partner in the case of couples. * p < 0.10 ** p < 0.05 *** p < 0.01.*

Compared to the relationship to education, the effect of the experience of unemployment in the initial years of the transition is very substantial. Experiencing unemployment between 1989 and 1991 reduces the probability of house ownership by 9.5 pp (Table 3, column 1), has a substantial effect on the value of real assets (column 3), reduces current household income by 31.2% (column 5) and increases the likelihood of declaring great difficulties in making ends meet by over 14 pp (column 7). Similar effects, with the exception of implications for current income are observed for the experience of unemployment between 1992-95 (columns 2, 4, 6 and 8). Including this additional unemployment control hardly affects the estimates for the 1989-91. A natural question that arises concerns the mechanism which could have translated the experience of unemployment in the early 1990s into the currently observed worse material conditions and we return to this issue in Section 4.4.

4.3 Unemployment experience in 1990s and measures of wellbeing

The estimates of the effects of experiencing unemployment in the early years of the socio-economic transition on wellbeing about two decades later are shown in Table 4. We use the same conditioning variables as in the case of the estimates for material conditions and again present estimates only for a selected few in the Table. Once more we show results for two specifications in the case of each outcome – one controlling only for unemployment in 1989-91 and the second where we additionally control for labour market status in the later four years.

The pattern of results for all three measures of wellbeing very loosely reflects that for material conditions. We find the positive effect of education, which increases life satisfaction and quality of life and reduces the probability of declaring four or more symptoms of depression by about 1 pp. Life satisfaction is higher for younger cohorts and we find that wellbeing for all three measures is higher in Wave 4 compared to Wave 2 (although the effects are not statistically significant for CASP-12).

Interestingly the experience of unemployment in the early years of the transition has a substantial and statistically significant effect on all three measures of wellbeing. It reduces the probability of a high score for life satisfaction (by about 14 pp) and a high measure of CASP-12 (by 16 pp). Additionally, those who experienced unemployment between 1989-1991 are more likely to suffer from four or more symptoms of depression (by about 11 pp). In the case of all our measures of wellbeing we find no statistically significant effects of experiencing unemployment in the later period of transition. It is therefore the initial shock which seems to carry much more of an effect with regard to the broad measures of wellbeing despite the fact that, as we saw above, both indicators of unemployment are correlated to a similar extent with measures of material conditions.

Table 4. Unemployment and wellbeing in later life (marginal effects)

	Life satisfaction (9+)		Quality of life (40+ CASP)		Depression (4+ on EURO-D)	
Unemployed in 1989-1991	-0.135*	-0.137*	-0.163**	-0.164**	0.113*	0.124*
	(0.070)	(0.070)	(0.069)	(0.069)	(0.064)	(0.063)
Unemployed in 1992-1995		0.037		0.005		0.081
		(0.049)		(0.054)		(0.058)
Other non-employed in 1989-1991	0.043	0.017	-0.002	-0.016	0.040	0.076*
	(0.034)	(0.036)	(0.039)	(0.041)	(0.039)	(0.041)
Other non-employed in 1992-1995		-0.071**		-0.038		0.088***
		(0.030)		(0.033)		(0.033)
Cohort 2: born 1938-1947[1]	0.125***	0.119***	0.058	0.054	-0.089	-0.080
	(0.027)	(0.028)	(0.047)	(0.048)	(0.059)	(0.059)
Cohort 3: born after 1947[1]	0.220***	0.213***	0.161**	0.156**	-0.129	-0.119
	(0.046)	(0.048)	(0.071)	(0.072)	(0.083)	(0.083)
Years of education	0.008***	0.007**	0.014***	0.013***	-0.010***	-0.009**
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)
Wave 4	0.064**	0.060**	0.025	0.023	-0.052*	-0.048*
	(0.026)	(0.026)	(0.027)	(0.027)	(0.028)	(0.028)
Labour market experience up to 1988 (years)	-0.001	-0.001	-0.002	-0.001	0.000	-0.000
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Estimation method	RE-logit	RE-logit	RE-logit	RE-logit	RE-logit	RE-logit

Source and notes: see Table 3.

4.4 Driving forces behind the results

To understand the possible reasons behind the estimated relationship between the experience of unemployment and the analysed outcomes we conducted estimations in which we additionally controlled for the total time spent in unemployment. This is measured as a ratio of years spent in unemployment to the number of years between 1988 and 2008 for those who were still not retired by then, and between 1988 and the time of retirement for the retirees. The additional estimates are presented in Table 5 in which we only show the marginal effects for the labour market status variables. The experience of unemployment in either of the two periods – 1989-91 or 1992-95 – is by definition correlated with the measure of how long individuals were unemployed in the analysed years. It is therefore not surprising that the coefficients on the two controls on unemployment experience are greater for the outcomes which are positively correlated with unemployment (depression and difficulties in MEM) and reduced for the others once we include the unemployment ratio measure in the regression. In fact in all seven cases when we add the ratio the coefficients on unemployment experience are no longer statistically significant. In two of the seven regressions – in the case of house ownership and difficulties in MEM the coefficients on the unemployment ratio are statistically significant and suggest a possible mechanism which may drive the results presented in

Table 3. The estimates suggest that while the initial unemployment shock can be thought of as the primary reason for the long-term deterioration of economic conditions of individuals who experienced it, what essentially determines the outcomes is not so much the single experience of a lay-off, but rather its consequences in the form of longer spells out of work. Spending the entire period in unemployment increases the chances of declaring great difficulties in making ends meet by about 21 pp and reduces the probability of house ownership by over 12 pp. No firm conclusions could be drawn for the wellbeing measures as the coefficients are not statistically significant, but for the initial experience of unemployment in 1989-91 and the unemployment ratio the coefficients have the expected signs and point in the same direction.

Table 5. Time spent in unemployment between 1988 and 2008/retirement and later life outcomes

	House ownership	HH real assets (PLN)	Log HH income (PLN)	Great difficulties with MEM	Life satisfaction (9+)	Quality of life (40+ CASP)	Depression (4+ on EURO-D)
Unemployed in 1989-1991[1]	-0.043 (0.048)	-13040.8 (8958.6)	-0.204 (0.133)	0.049 (0.064)	-0.090 (0.081)	-0.128 (0.080)	0.109 (0.079)
Unemployed in 1992-1995[2]	-0.065 (0.041)	-10682.8 (7286.4)	0.113 (0.111)	0.056 (0.054)	0.069 (0.057)	0.031 (0.062)	0.071 (0.066)
Unemployment ratio: 1988-2008/retirement	-0.123** (0.060)	-5363.8 (10705.3)	-0.236 (0.162)	0.214*** (0.076)	-0.104 (0.091)	-0.081 (0.093)	0.030 (0.095)
Other in 1989-1991[1]	0.008 (0.032)	-2465.1 (4972.6)	-0.037 (0.069)	0.054 (0.035)	0.016 (0.036)	-0.017 (0.041)	0.076* (0.041)
Other in 1992-1995[2]	-0.000 (0.025)	-7590.0* (3890.1)	-0.109** (0.055)	0.082*** (0.028)	-0.073** (0.030)	-0.041 (0.033)	0.089*** (0.033)
Estimation method	RE-logit	MI RE	MI RE	RE-logit	RE-logit	RE-logit	RE-logit

Source and notes: see Table 3. "Unemployment ratio 1988-2008/retirement" computed as the ratio of time spent in unemployment relative to the period of 1988-2008 or the period from 1988 to retirement if the respondent is already retired in 2008.

Conclusions

Better understanding of the processes which the countries of Central and Eastern Europe have gone through since the fall of the communist regimes and detailed examination of long-term consequences of the changes for the respective populations are essential if we want to draw meaningful lessons from these unique historical developments. Such lessons can be of interest in countries still undergoing or embarking on major economic reforms and can provide arguments in the discussion on the potential long-term consequences of the continued economic slowdown in many developed economies.

There is little doubt that on the whole the Polish socio-economic transition of the late 1980s and early 1990s has proved to be a success story, in particular in relative terms to many other countries of the region. Having said that, it needs to be stressed that large groups of the population experienced

economic hardship during the initial years of the transition process and since 1989 there have been groups of the Polish population who gained much more than others. Yet, the transition cannot be lived through again and we will therefore not know what would have happened had Poland taken a different route of reforms, or indeed if the reform process had been stopped by the communist regime. The socio-economic transformation has been an example of a large scale "natural experiment" and it offers a unique chance to draw lessons and to shed light on more general socio-economic relationships. In our analysis we demonstrated large and statistically significant effects of the experience of unemployment in the initial years of the transition in Poland on outcomes measured about two decades later. Throughout the paper we argued that our results with respect to the implications of the unemployment experience in the early 1990s, and in particular with respect to the initial years of the transition, can be give a causal interpretation. This is, on the one hand, due to the nature of job separations in the early years of the transition and, on the other, due to our ability to control for a large number of individual characteristics related both to current and past information on the respondents.

Our estimates suggest that becoming unemployed in the early years of the transition translates into significantly worse material conditions and wellbeing measured in the two waves of the SHARE survey in 2007 and 2012, i.e. about two decades after the transition started. Experiencing unemployment in the initial years of the transition reduces the value of the household income by over 30% and significantly increases the probability of declaring great difficulty in making ends meet (by about 15 pp). It also has a negative effect on the probability of house ownership and the value of real assets. On top of that becoming unemployed between 1989 and 1991 reduces the probability to score high on overall life satisfaction (14 pp) and on a general measure of the quality of life (16 pp), while it also increases the risk of suffering from depressive symptoms. Interestingly, while experiencing a job loss for the first time after 1988 a few years later (between 1992-95) has similar consequences for material conditions in 2007 and 2012, the effect on wellbeing can only be linked to unemployment suffered in the initial years of the transition. In this respect there seems to be something unique about the job separations which occurred immediately after the transition started, which in our view deserves further investigation in the future.

Appendix:

A. SHARE questions used in the analysis: quality of life
CASP items (for more details see Von dem Knesebeck et al., 2005): [response categories: often, sometimes, rarely never]

1) How often do you think your age prevents you from doing the things you would like to do?
2) How often do you feel that what happens to you is out of your control?
3) How often do you feel left out of things?
4) How often do you think that you can do the things that you want to do?
5) How often do you think that family responsibilities prevent you from doing what you want to do?
6) How often do you think that shortage of money stops you from doing the things you want to do?
7) How often do you look forward to each day?
8) How often do you feel that your life has a meaning?
9) How often, on balance, do you look back on your life with a sense of happiness?
10) How often do you feel full of energy these days?
11) How often do you feel that life is full of opportunities?
12) How often do you feel that the future looks good for you?

B. SHARE questions used in the analysis: symptoms of depression
EURO-D items (for more details see Prince et al., 1999):

1) What are your hopes for the future?
    1. Any hopes mentioned
    2. No hopes mentioned
2) In the last month, have you felt that you would rather be dead?
    1. Any mention of suicidal feelings or wishing to be dead
    2. No such feelings
3) Do you tend to blame yourself or feel guilty about anything?
    1. Obvious excessive guilt or self-blame
    2. No such feelings
    3. Mentions guilt or self-blame, but it is unclear if these constitute obvious or excessive guilt or self-blame
4) Have you had trouble sleeping recently?
    1. Trouble with sleep or recent change in pattern
    2. No trouble sleeping
5) In the last month, what is your interest in things?
    1. Less interest than usual mentioned
    2. No mention of loss of interest
    3. Non-specific or uncodeable response

6) Have you been irritable recently?
        1. Yes
        5. No

7) What has your appetite been like?
        1. Diminution in desire for food
        2. No diminution in desire for food
        3. Non-specific or uncodeable response

8) In the last month, have you had too little energy to do the things you wanted to do?
        1. Yes
        5. No

9) How is your concentration? For example, can you concentrate on a television programme, film or radio programme?
        1. Difficulty in concentrating on entertainment
        2. No such difficulty mentioned

10) Can you concentrate on something you read?
        1. Difficulty in concentrating on reading
        2. No such difficulty mentioned

11) What have you enjoyed doing recently?
        1. Fails to mention any enjoyable activity
        2. Mentions ANY enjoyment from activity

12) In the last month, have you cried at all?
        1. Yes
        5. No

C. Full list of control variables in the outcomes regressions in Tables 3, 4 and 5:

Controls derived from Wave 3 information:

- regional dummies for voivodships in Poland (16),
- dummies for industry of employment in 1988 (14),
- any severe disabilities, injuries or illnesses until 1988,
- living in rural area in 1988,
- poor self-reported health at age 10,
- more than three times in hospital within a 12-month period until age 15,
- one shelf of books or less at home at age 10,
- less than 1 room per household member at home at age 10,
- parents or guardians owned the place of living at age 10,
- lived in collective accommodation at age 10,
- dummies for selected accommodation features at home at age 10:
  - fixed bath
  - cold running water

- o hot running water
- o inside toilet
- o central heating

Controls derived from Wave 2 and Wave4 information:

- HH size,
- partner in HH,
- household respondent,
- month of interview dummies.

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