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I'M A SURVIVOR, KEEP ON SURVIVING: EARLY-LIFE EXPOSURE TO CONFLICT AND SUBJECTIVE SURVIVAL PROBABILITIES IN ADULT LIFE

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I'm a survivor, keep on surviving: Early-life exposure to conflict and subjective survival probabilities in adult life*

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Abstract
Life-course analyses have shown that early-life characteristics predict health and socio-economic status in adult life. This study analyses whether experiencing a traumatic event in childhood, i.e. the Second World War (WW2), affects a novel adulthood outcome, i.e. perceived longevity. We rely on a representative sample of European adults who were differentially exposed to WW2 early in life depending on their date and place of birth. Our results show that exposure to WW2 increases expected longevity, with socio-economic and health characteristics not playing a mediating role neither in childhood nor in adulthood. War exposure also counterbalances the adverse effects of health impairments on subjective survival probabilities, but it does not affect health outcomes per se. This latter fact, jointly with low mortality rates of the cohort under investigation, suggests that selective mortality and post-traumatic stress are not the main drivers of our findings. Our evidence, instead, provides support to the hypothesis that personal growth and life appreciation emerge after traumatic events, thereby leading to optimistic perceptions of longevity among war-exposed respondents. Policy implications are discussed in the light of the importance of perceived survival for predicting future health and economic choices.

Keywords: conflict, Second World War, childhood, subjective survival probabilities, life-course approach, optimism, post-traumatic growth, PSTD, Europe.

JEL Codes: J14; I10, I31; D74, N44.

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1. Introduction

Subjective probabilities of survival are used in economic and demographic research to predict health outcomes such as actual mortality or longevity (Perozek 2008; Smith et al. 2001) as well as individuals' choices involving uncertainty about the future (Hurd and McGarry 1995 and 2002; Manski 2004; Smith et al. 2001; Elder 2013; Wang 2014), e.g. retirement or financial decisions (Van Solinge and Henkens 2009; Post and Hanewald 2013) and future health investments (Rappange et al. 2016).

Survival expectations entail individual-specific factors (e.g. perceived health status) driving intertemporal choices that are unobservable to the policy-maker and unpredictable by relying solely on objective data. For instance, individuals who expect to live longer may decide to retire at an age that does not fit the longevity risk estimated in the official life tables (Mirowsky 1999; Hurd et al. 2004; Van Solinge and Henkens 2009). Similarly, subjective survival expectations may influence risky health behaviours (Viscusi 1990; Gilleskie 1998; Adams et al. 2015). Even if individuals perfectly understand that healthy behaviours reduce morbidity and mortality, they can rationally underestimate the benefits of engaging in those behaviours on the basis of their personal judgements about survival.

These decisions may have non-negligible implications for welfare costs regarding, for instance, the sustainability of pensions and healthcare provision.

Among the factors entering the formation of survival expectations, childhood characteristics could play a key role. Most life-course research has suggested that the type of childhood experienced could predict quality of life in adulthood (e.g. Giuliano and Spilimbergo 2014; Layard et al. 2014; Elder 2018). For instance, growing up in wartime or witnessing episodes of war-related violence in early childhood are largely recognized as key predictors of health and economic performance later in life (e.g. Kesternich et al. 2014; Havari and Peracchi 2017). However, whether exposure to such hardships produces positive or negative consequences is still debated.

On the one hand, a strand of literature documents that exposure to conflict in childhood have *negative* effects on a variety of human capital dimensions in adult life, such as health (Taylor 2010; Kesternich et al. 2014; Havari and Peracchi 2017; Singhal 2018), mortality (Akbulut-Yuksel 2014), education and labour-market outcomes (Ichino and Winter-Ebmer 2004; Akbulut-Yuksel 2014), perceived quality of life (Kesternich et al. 2014), and social and risk attitudes (Conzo and Salustri 2017; Voigtländera and Voth 2015; Bucciol and Zarri 2015). In addition to physical victimization, lack of familial and social support, psychological distress or

post-traumatic stress disorder (PTSD) emerge as candidate explanations to these negative impacts (Lustig et al. 2004; Pynoos et al. 2001). In particular, PTSD has been shown to persist over time well after the trauma, as documented by medical studies conducted on adults exposed to holocaust in the childhood (Kestenberg 1992; Lev-Wiesel and Amir 2003; Kuwert et al. 2008; Yehuda et al. 2007 and 2008).

Another strand of literature, on the other hand, suggests that war or other traumatic events witnessed in the past do not translate into lower well-being in the future. Research on resilience has shown that children recover rather quickly from trauma since they tend to adapt rapidly (Garmezy 1993; Boyden and Mann 2005). Thus, adverse events in childhood may not have major or long-lasting effects (Masten 2001). *Positive* psychological changes, instead, emerge because of higher appreciation of life after a traumatic experience. In this regard, previous studies have shown that exposure to war does not reduce objective life expectancy (Sagi-Schwartz et al. 2013) or mortality (Todd et al. 2017). In contrast, some groups exposed to violence – e.g. the Jewish Holocaust survivors (Carmil and Breznitz 1991; Sigal 1998) and the Palestinians exposed to the first Intifada (Barber 2008) – appear resilient and politically engaged (Masten 2001; Werner 2007; Forstmeier et al. 2009), registering positive life changes in struggles with major life crises (Calhoun et al. 2000; Amir and Lev-Wiesel 2001; Lev-Wiesel and Amir 2003). These positive effects are consistent with 'post-traumatic growth' hypothesis: individuals who witnessed serious hardships develop 'a significant beneficial change in cognitive and emotional life' (Tedeschi et al. 1998, p.3) that allows them not only to bounce back from trauma but to further develop and grow (Calhoun and Tedeschi 2014).

Since the aforementioned studies are carried out through different methodologies, outcomes and samples, it is not surprising that they reach diverging conclusions about the long-term effects of traumas experienced in childhood. More importantly, whether and how such early-life adversities enter the formation of subjective survival probabilities is still an open question. The current study enters this debate with the aim of providing new causal evidence on whether, and in which direction, exposure to Second World War (WW2) in the childhood affects expected longevity in adult life.

We contribute to both the literature on the long-lasting effects of war exposure during childhood and the literature on the formation of subjective survival probabilities in at least four directions. First, we consider a novel policy-relevant outcome for the literature on war exposure, i.e. subjective survival probabilities. Drawing from the above-mentioned studies,

long-lasting psychological distress in the aftermath of a traumatic event would lead individuals to underestimate their survival chances, whereas post-traumatic growth and life appreciation might generate more optimistic expectations of survival.

Second, from a methodological point of view, we rely on a representative sample of European adults who happened to be exposed or non-exposed (or exposed to a varying extent) to the Second World War (WW2) early in life. This study exploits WW2 as a large-scale natural experiment, in which individuals from different cultural, economic and institutional contexts faced a common shock, but were differentially exposed to it depending on their date and place of birth. This characteristic of WW2 provides our results with higher external validity than those in the aforementioned studies, which focus on a single country or on a circumscribed population (Carmil and Breznitz 1991; Kestenberg 1992; Sigal 1998; Lev-Wiesel and Amir 2000; Masten 2001; Barber 2008; Werner 2007; Yehuda et al. 2007 and 2008; Kuwert et al. 2008; Bundervoet et al. 2009; Forstmeier et al. 2009; Sagi-Schwartz et al. 2013; Akbulut-Yuksel 2014; Singhal 2018).

Third, in order to explore the mechanisms behind our results, we use retrospective data and test if the socio-economic status of the family at the time of the war, the absence of a parent, and episodes of dispossession and hunger during WW2 absorb the effect of war on subjective survival probabilities. Such early-life circumstances are shown to be important predictors of human capital outcomes (Kesternich et al. 2014; Havari and Peracchi 2017), and hence emerge as candidate mediators of the war effects also on expected longevity.

Fourth, by exploiting the rich set of information on health conditions contained in SHARE, we also test whether early-life exposure to war moderates the adverse effects of health impairments on subjective survival probabilities. Provided that there is no sample selection on mortality or morbidity, evidence of war exposure as a protective factor against pessimistic longevity estimation would offer additional support to the post-traumatic growth hypothesis.

Identification of the causal effect of WW2 in our study rests on two sources of plausibly exogenous variation, i.e. month-place of war events and month-place of individuals' birth. Thus, the estimated impact of war exposure on later life subjective longevity lends itself well to a causal interpretation. We also implement a series of robustness checks that additionally increase the validity of our results. The empirical strategy of this paper allows also to net out confounding effects deriving, for instance, from heterogeneity in the extent of destruction and recovery capacity of the respondents' regions, or in the human capital outcomes and childhood characteristics of the surveyed individuals.

Results show that individuals exposed to WW2 episodes early in life report, on average, higher subjective survival probabilities than those who were not exposed. The effect of war exposure increases monotonically in the number of war events the respondent has been exposed to. Current health conditions and behaviours, proxies for socio-economic status both in childhood and adulthood, or other childhood characteristics mediate the effect only marginally. In addition, hunger episodes and socio-economic conditions are the only childhood factors that play a role in expected survival, though only through their effect on health and economic status in adulthood. However, even after adjusting for all the aforementioned factors, the effect of war on subjective survival probabilities persists.

Importantly, exposed and non-exposed respondents do not reach different health outcomes. This fact, jointly with low mortality rates and scarring effects for the cohort under investigation (e.g. Havari and Peracchi 2017), leads us to exclude selective mortality and post-traumatic stress as possible mechanisms driving our findings. On the other hand, war exposure counterbalances the negative effects of bad health conditions on subjective survival probabilities. This result provides support to the hypothesis that personal growth and life appreciation emerge after traumatic events, thereby leading to longer anticipated survival among respondents exposed to WW2 events.

2. Data and descriptive statistics

We combine two sources of data. The first dataset is the Survey on Health, Ageing and Retirement in Europe (SHARE). We consider wave 1, 2, 4, 5, and 6 for our variable of interest (subjective survival probabilities, *SSP*) as well as socio-demographic and health characteristics of individuals. Respondents' subjective expectations about their survival are measured by asking the following question: 'What are the chances that you will live to be age *x* or more?'; where *x* is a function of the age of each respondent (i.e. target age).[1]

We merge this information with wave 3 of SHARE (called 'SHARELIFE') containing respondents' major life-history events, which have been retrieved retrospectively. We rely on

[1] Based on respondents' age, *x* for *SSP* is defined as: 75 (age<65); 80 (65≤age<70); 85 (70≤age<75); 90 (75 ≤age<80) 95 (80≤age<85); 100 (85≤age<95); 105 (95≤age<100); 110 (100≤age<105); 120 (age≥105).

these retrospective data to identify the region where respondents lived during WW2, and to obtain relevant information about their childhood including war-related circumstances such as dispossessions for persecution, parental absence and hunger periods as well as number of books and of rooms in the house and the main occupation of the breadwinner at age ten, which we use to build a proxy for socio-economic status (SES) of their family of origin (as in Havari and Peracchi 2017).

The second source of data is an original database we have compiled about WW2 events. It contains detailed information on war episodes including battles, attacks, bombings, invasions, and occupations as reported by Ellis (1993), Davies (2008) and Collier (2004). Specifically, from these authors we retrieved information on the region and the month-year of each war episode occurred between September 1939 and April 1945.[2]

We build measures of exposure to war at the extensive and intensive margin. The first measure is a dummy variable equal to one if the respondent was exposed to at least one war episode during WW2. Exposure is calculated by combining month-place of birth with month-place of war events. Individuals born at least one month before a war episode are considered as exposed. The second measure of war is a categorical variable equal to zero if the respondent was never exposed to the war, and equal to one or two if she is respectively below or above the median number of war episodes experienced by all sample respondents (ten episodes).

To show how our war variable has been recorded, we provide an example with Sicily, the largest island of Italy. Sicily has been exposed to 78 war episodes from April to September 1943, when the Allies occupied the region. Most episodes occurred in July and August (59 and 11 respectively), while only one episode occurred in September. Thus, all respondents born in Sicily before September 1943 have experienced at least 11 war episodes. Since this number is higher than the median number of episodes, the war indicator takes value one, while the war categorical variable is equal to two. Respondents born in September 1943 experienced only the war episode occurred in their month of birth and hence both the war indicator and the war categorical variable are equal to one. Finally, respondents born after September 1943 are considered as non-exposed since they were born after the last war episode occurred in Sicily.

[2] WW2 officially began with the German invasion of Poland on September, 1st 1939 and conflicts in our sample countries ceased in April 1945.

Our sample is composed by individuals born during the WW2 (Sept 1939 – Apr 1945), in the following countries: Austria, Germany, Sweden, The Netherlands, Italy, Spain, France, Denmark, Greece, Switzerland, Belgium, Ireland, Czechoslovakia, and Poland; among these countries, Spain,[3] Switzerland, Ireland, and Sweden did not experience any WW2-related event. We restrict the analysis only to individuals who have never moved to other regions during WW2 to mitigate the bias arising from selective migration. However, in a robustness check we relax this restriction and check whether migration acts as a mediator or moderator of war exposure.
We consider only the war cohort since, in comparison with older cohorts, individuals born during WW2 are less subject to mortality and scarring effects of war exposure as documented by Havari and Peracchi (2017), which could produce a selection bias in our estimates. As a direct test for cohort differences in the war effects, we include in the sample also individuals aged 7-12 during the war and find significant effects only for those who experienced a war episode earlier in life (i.e. when they were 0-6 years old). For the older age group (7-12), instead, effects are smaller in magnitude and statistically insignificant.[4] Older cohorts (age 12 or more) have been excluded also because of their likely involvement into the army (in some cases conscription of girls and boys started at age 12). For all these reasons our analysis focuses on the age cohort 0-6, which allows us also to rely on the month and place of birth during the war as sources of (within-region) exogenous variation in WW2-exposure.

Table 1 contains descriptive sample statistics.[5] Respondents are on average 67 years old, have two children and three grandchildren. Half of the sample is composed by female respondents, and the average number of schooling years is 10.6. Most respondents are retired (70%) and married (76%). With respect to health conditions, respondents report on average one chronic disease, while 14% declares to be a smoker at the time of the interview. Regarding healthy behaviors, 19% of respondents do not drink alcohol, while the same proportion declares to do so almost everyday. Similarly, the share of respondents practicing sport activities more than once a week is 35%, while those who ever or hardly never engage into such activities is 39%. On the basis of their body mass index, most respondents fall into the normal-weight (33%) or overweight (44%) category.

[3] Since Spain has experienced the Civil War before the beginning of WW2, we have also performed a robustness check excluding Spain from our sample. Results show similar patterns and are available upon request.
[4] Results are summarized in Table A11 in SM1.
[5] See Table A1 in SM1 for variable legend.

When looking at the distribution of SSP by age (Table A2 in SM1), the subjective probability of living until a given age or more ('target age') is decreasing in respondents' age, starting by an average chance of 70% to survive until age 75 or more for respondents aged less than 65, and then decreasing to a minimum of 56% for respondents aged between 75 and 80 (who were asked to estimate their chances of survival until age 90 or more).

The maps shown in Figure 1 highlight a substantial variability in the distribution of SSP and war exposure across the NUTS-1 regions contained our sample. War-exposed respondents have better health behaviors (alcohol consumption, smoking and sport activities) and labor market outcomes (employment, retirement) than non-exposed ones, while the latter have on average higher income (Table 1).[6] No significant differences between the exposed and the non-exposed are found in terms of marital status and number of chronic diseases, while the exposed have on average less children than the non-exposed. As expected, the prevalence of adverse childhood circumstances related to war (dispossessions for persecution, hunger episodes and absence of biological father) is higher among respondents exposed to WW2. However, SES in childhood – the first factor extracted from a principal component analysis on number of books and rooms in the house (in logarithm) and the main occupation of the breadwinner at age ten – does not statically differ by war-exposure.

3. Methods

Our econometric specification writes:

$$SSP_{ijt} = \beta_0 + \beta_1 War_{jt} + \beta_k \sum_k X_{ijt,k} + \lambda_j + \pi_t + \varepsilon_{ijt} \quad \text{(Eq.1)}$$

where SSP_{ijt} is the subjective survival probability of individual *i* born in month-year *t* in country *j*; λ and π are fixed effects for the respondents' country of birth (CoB) and date of birth (month-year, DoB) respectively (estimated using two sets of dummy variables); War_{jt} measures war exposure (at the intensive or extensive margin); X_{ijt} is a vector of socio-demographic

[6] SHARE contains for each respondent the imputed household net income in Euros (variable *thinc_m*). We take the logarithm of this variable (see variable legend in SM1).

characteristics including socio-economic status (SES) in childhood[7] and in adulthood (i.e. income, years of education, job status, no. of children and grandchildren).

Additional models also include a proxy for health status (# chronic diseases) and several measures of health behavior (alcohol consumption, smoking, physical activity, and body mass index) in order to examine the mediating role of these factors. To assess whether war exposure moderates the relationship between current health status and SSP, in additional regressions we also include a measure of health status and the interaction of this measure with war exposure —we repeat this exercise for several health indicators provided by SHARE, (see Section 5). Furthermore, in alternative specifications *CoB* dummies are replaced by region dummies, which circumscribe war exposure at a finer geographical level.

All specifications are estimated through pooled OLS and include controls for gender (*female*), age, target age, and the interaction between age and target age to net out the age effect as well as the time distance to the target age when assessing survival expectations (see e.g. Arpino et al. 2018). To account for possible period effects, all models also include dummy variables for wave of interview (*wave*) and, given the (unbalanced) panel structure of the data, standard errors are clustered at individual level.

4. Results

Figure 2 shows the distribution of the average SSP by war exposure, adjusting for gender, month-year of birth, wave of interview and country of birth. Respondents exposed to at least one war episode report on average higher subjective probabilities of living until the target age than non-exposed ones.

Table 2 contains the main results from pooled OLS regressions of SSP on exposure to war (regression coefficients for all controls are in Table A3 of SM1). In column 1 we estimate our baseline model (without controls) and, consistent with Figure 2, find a positive effect of exposure to at least one war episode in childhood on SSP at the time of interview. The estimates indicate that individuals exposed to WW2 reported an average SSP 3.6 percentage points higher than their counterparts not exposed to WW2.

[7] First extracted factor from a principal component analysis on n. of books and n. of rooms at home at age 10, and breadwinner's occupation as in Havari and Peracchi (2017) – see variable legend in SM1.

In the second column of Table 2 we include childhood SES to test whether heterogeneity in socio-economic conditions of the family of origin accounts for the estimated effect of war exposure. While SES in childhood positively predicts SSP, the effect of war exposure is unaltered by the inclusion of the new regressor.

Since WW2 caused severe human losses, the impact of war exposure on perceived longevity could be due to absence of a parent during childhood, which might have shaped cognitive and non-cognitive outcomes of children besides affecting parental investment in their health and education. Our estimates suggest that this is not the case since the war effect does not change when controlling for the presence of biological father and mother at age ten (Table 2, column 3). Furthermore, during WW2 many civilians witnessed episodes of dispossession due to prosecution for ethnic or political reasons, and of hunger, mainly because of food shortages resulting from war-specific events (e.g. the end of food supply from occupied territories in Germany towards the end of WW2 or the Dutch hunger in 1944-45). Not only these events might have affected children's mental well-being and resilience capacity, but they could also have produced effects on their physical health, with consequences on subjective longevity in adulthood (Tamis-LeMonda et al. 2004; Glaesmer et al. 2011; Werner 2012; Kesternich et al. 2014 and 2015; Havari and Peracchi 2017). We take into account these potential mechanisms by controlling for whether respondents have witnessed any episode of dispossession as well as for whether they suffered from hunger during in their life.[8] We find that hunger is negatively associated with SSP in later life, whereas the war effect does not change in magnitude and statistical significance (Table 2, column 4).[9] In addition, the effect of war exposure is robust when adjusting for current differences in socio-demographic characteristics (column 5) and health status and behaviour (column 6).

[8] We also consider dispossession and hunger episodes occurred during the WW2 only. Results do not change substantially and are available upon request.

[9] A possible concern when dealing with retrospective information is measurement error. We show that information on parental absence and episodes of dispossession and hunger retrieved from respondents' memory are consistent with historical facts regarding WW2 (see SM2). Consider that the reliability of childhood information (and consistency between retrospective data and historical data) have been documented also by other recent studies using SHARELIFE, e.g. Kesternich et al. (2014), Havari and Mazzonna (2015), Havari and Peracchi (2017) and Van den Berg et al. (2016). Moreover, the distribution of these variables by country and year is in line with the results shown by Kesternich et al. (2014) who include also older cohorts, thereby suggesting that lack of significance of these events is not driven imperfect recall by respondents who were too young during WW2.

Overall these results suggest that early life exposure to war has a positive impact on SSP later in life, regardless of the characteristics of childhood environment and of the socio-economic and health status in adulthood. Adjusting for all childhood and adulthood controls only reduces the gross WW2 effect of about 14% (model 1 vs model 6, Table 2).

When looking at the effect of war exposure at the intensive margin, we find that subjective survival probability monotonically increases in the number of WW2 episodes witnessed early in life (Table 3). Also in these regressions, childhood and adulthood characteristics do not sizeably account for the estimated effect of WW2 on subjective survival (regression coefficients for all controls are in Table A4 of SM1). In fact, war coefficient reduces by 21% (14%) when comparing the specification in column 6 with that of column 1 of Table 3 (Table 2).

Since our sample is restricted to individuals who never moved to other regions during WW2, the estimated war effect is not biased by endogenous migration decisions. However, we could still be missing important part of the WW2 impact as most cities were abandoned after massive bombings. Moreover, voluntary or forced relocations were frequent during WW2 because of house destruction, border changes and ethnic or political prosecution in most European regions. It is therefore likely that relocations influenced perceived survival because, for instance, the new housing, financial and schooling environment shaped the cognitive and non-cognitive development of the child or produced long-term effects on health. Not accounting for migration could generate an omitted variable bias if, for instance, voluntary relocation was used as a war-coping strategy against war exposure, thereby leading to higher subjective survival probabilities in adult life. To assess the role of migration, we control for a dummy variable equal to one for respondents who moved to another region in the period 1939-1945,[10] and re-estimate the models in Table 2 including also these individuals. Results (Table A5 in SM1) show that migration does not act as a mediator (columns 1-6) nor as moderator (column 7) of the war effect on SSP.

[10] The third wave of our SHARE dataset (SHARELIFE) asks each respondent the year when she has changed region of residence from the birthdate to the date of interview. Our migration variable is a (0/1) dummy taking value one if the respondent has changed region of residence during the war period at least once. Migrants across regions represent 3.18% of our sample, a fraction consistent with real data considering that the population in our sample countries counted 344 millions in 1939 (Lahmeyer 2006, *Populstat* [online]; available at http://www.populstat.info; own elaboration) and the estimated number of refugees in Europe in 1945 is seven million (Barnett 2002). In SM2 we further document consistency between migration in our data and historical facts.

The evidence showing a positive effect of war exposure on SSP provides support to the post-traumatic growth hypotheses discussed in the introduction. To shed more lights on this mechanism, we re-estimate the model in column 6 of Table 2 by interacting a number of health indicators measured at the time of interview with the war-exposure dummy. Post-traumatic growth stemming from traumatic early-life exposure to WW2 would increase resilience and self-perceived adaptation skills, and make individuals appreciate their life and stay optimistic even in case of negative events (e.g. poor health conditions), thereby counteracting the negative effect of health impairments on subjective survival probabilities. We therefore expect a negative association between poor health and SSP but a positive effect of the interaction between the former and war exposure. Results in Table 4 provide evidence of such moderating role of war exposure for several mobility and morbidity indicators including, for instance, having received by a doctor diagnosis of hypertension or having experienced a stroke.[11] Let consider, for example, the case of hypertension. High blood pressure is known (not only among researchers but also among the general population) to be a risk factor for other diseases and for mortality (Prospective study collaboration 2002). Our results indicate that people are aware of this; in facts, they incorporate diagnosis of hypertension in the assessment of their survival probability. Among individuals not exposed to WW2, those who have been diagnosed with hypertension report SSPs that are about 4.8 points lower than their counterparts not being diagnosed with this medical condition. This negative effect of hypertension on SSP is also found among the WW2-exposed, yet it is much weaker (2.5 points). This implies that also the WW2-exposed understand the risks of hypertension and incorporate them in the formation of their own survival expectations; yet they weight these risks lower than individuals who were not exposed to WW2. The interaction effect between the *War* dummy and hypertension can also be interpreted in an alternative way. The effect of WW2 among individuals who have not been diagnosed with hypertension is about 2.4 point. This effect doubles (4.8) among those who suffer high blood pressure, meaning that the war effect emerges especially among people who are in worse health conditions in later life. Similar interactions effects are found for other health indicators. These results are consistent with the hypothesis that post-traumatic growth emerging after war exposure increases resilience and leads traumatized individuals to appreciate their lives more, so that they estimate a longer life-duration (in spite of health impairments) than non-traumatized ones.

[11] Regression results and the descriptive statistics for all health proxies contained in the dataset (jointly with the robustness check including migrants) are in Tables A6-A7 in SM1.

Another possible explanation to our findings can be sample selection on mortality, i.e. healthier individuals are more likely to survive WW2 events and therefore become more optimistic about their longevity. We can exclude this type of selection for two reasons. First, Havari and Peracchi (2017) document low mortality rates and scarring effects for the cohort considered in the current study (respondents born during WW2). In addition, Kesternich et al. (2014) show no sizeable differential mortality by SES among SHARELIFE respondents (see Section 5). Second, we run OLS regressions of health indicators on war exposure, assuming that selection on mortality leads to significant health differences by war exposure. If those in poor health were more likely to die during or after exposure to WW2, we should find a positive and significant association between early-life exposure to war and poor health in adulthood. Our estimates document that this is not the case —there are no significant differences by war-exposure in most health measures (Table 5), also when we include migrants (Table A8 in SM1). Hence selection on mortality does not seem to drive our findings.

Finally, we re-estimate the specifications in Table 2 excluding non-war countries in order to avoid overestimation of the war effect resulting from the inclusion of a large control group of respondents who experienced no war events. Results are very similar to those in Table 2 (Table A9 in SM1).

5. Robustness checks

All estimates presented so far include dummies for respondents' country of birth, which account for the geographic variation in exposure to war. To account for the within-country differences in exposure to war and SSP as shown in Figures 1A-B, we replace country dummies with region dummies at NUTS-1 level (as in the EU official nomenclature). The use of region instead of country dummies reduces potential unobserved differences between the treatment (WW2-exposed) and control (not WW2-exposed) group, allowing to compare individuals living in the same region who share similar political institutions, health systems/policies, intensity of war episodes and post-war recovery paths. Moreover, since data on the exact location of respondents' residence during WW2 are not available in SHARE, controlling for region instead of country of birth would reduce potential noise in the victimization measure. In addition, while respondents living miles away from a war episode are considered exposed in the same manner as those living in the place where that event occurred, our results can be nevertheless

considered as lower-bound estimates of the real war-exposure effect. In Table A10 of SM1 we replicate the estimates in Table 2 with region instead of country dummies. Our main results are robust to this check.

As argued above, sample selection due to differential mortality induced by the war might lead to biased estimates. In Section 4 we have argued that this type of selection should not produce a severe overestimation of the war effect. Kesternich et al. (2014) address the issue of differential mortality by SES induced by the war, which in our case would lead to further overestimation of the war effect if mortality was higher among low-SES respondents. The latter have also been shown to report lower subjective survival probabilities than the high-SES individuals (Arpino et al. 2018). To this purpose Kesternich et al. (2014) compare the age of death of the SHARE participants' father by SES, war vs. non-war countries, and year of birth (before 1946 vs. after 1945). They find that both low- and high-SES respondents face approximately the same reduction in the age of death of fathers over the two periods, i.e. 0.8 of a year for non-war countries and 0.4 for war countries. These figures suggest that this type of selection is not large enough to drive our findings.

To check econometrically the role of war-induced differential mortality by SES we use the age of death of father of the SHARE respondents in waves 1, 2, 4, 5, and 6 who were present in the retrospective wave 3 (SHARELIFE), from which we derive our proxy for SES in childhood. We regress age of death of fathers on the SES dummy (*SES Childhood*), on a dummy equal to one if the respondent is in a war country (*War countries*), on a time-trend variable built using respondents' month-year of birth (*DoB*), and on the interaction among these three variables. Regression results (Table A12a in SM1) show that high SES is positively correlated with longevity, while living in a war country reduces age of death of fathers, most likely because they were in the army during WW2. No interaction term is significant, suggesting that war-induced mortality does not differentially change over time by SES (columns 2 and 4). Similar results are obtained when replacing the time-trend variable with dummy variables for respondents born before, during and after WW2 (Table A12b in SM1).

A second source of sample selection can derive from out-of-sample migration, i.e. relocations towards regions outside SHARE. For instance, respondents with high SES – which is positively associated with subjective survival probabilities – may relocate to non-war places more easily than low-SES respondents through their higher financial resources, influential connections with visa officials and denser personal networks. Consider that this source of bias in our case

would lead to the underestimation of the true WW2 effect —the positive effect of war exposure on SSP would have been higher if high-SES migrants were included. However, Kesternich et al. (2014) provide again convincing evidence that out-migration during and after the war (1939-1947) was far to be easy, and hence this source of selection is not a major concern in our analysis.

Fertility decisions during WW2 could have been affected by war events. For instance, mothers who anticipated war episodes could have postponed childbirth to non-war periods. If fertility control in Europe during WW2 was, reasonably, more frequent among high-status classes, respondents whose health would have been better anyways are underrepresented in our sample, thereby generating a downward bias to our estimates. Given that previous studies have consistently show that good health conditions are positively correlated with subjective survival probabilities (and this is also empirically supported by our estimates in Table A3, column 6 in SM1), the estimated effect of WW2 exposure should be considered as a lower-bound of true war effect. However, to assess the extent of war-induced differential fertility by SES, we rely on the fertility statistics calculated for SHARE respondents by Kesternich et al. (2014). The authors compare the number of children per mother by SES across three periods, i.e. pre-war (before 1939), during war (1939-1945), and post-war (after 1945). As expected, higher fertility is found for the low-SES group, while the fertility time trend is similar for high- and low-SES respondents. For both groups before and during war there has been a fertility increase of about 0.14 children per woman, and of about one child when looking at during war and after-war periods.

As an additional check for endogenous fertility, we compare war-exposed respondents conceived up to one month *before* the first war-episode (*C_Bef*) with those of respondents conceived *afterwards* (*C_After*). For parents of the *C_Bef* group the first WW2-event was presumably more unpredictable than for parents of the *C_After* group, which includes respondents conceived when WW2 already reached the region. If there was a war-induced fertility adjustment, we should have observed a significant difference in exposure to war between these two groups. More specifically, in comparison with the *C_Bef* group, respondents conceived when WW2 episodes were more predictable (e.g. after the first conflict in the region) should appear as less exposed to WW2 if their parents adjusted fertility according to the dynamics of WW2. However, we find no significant differences in the number of war events experienced between those conceived before and those conceived after the first war event

(Figure A1A in SM1), neither within the high-SES group nor within the low-SES group (Figure A1B in SM1).

By comparing the *C_After* and the *C_Bef* group we can draw two additional conclusions. First, selective out-of-sample migration, potentially due to high-SES parents relocating in response to WW2 episodes, would not entirely explain our results. This type of migration would have implied significantly different SSP among *C_After* and *C_Bef* respondents, especially in the high-SES group. Figure A1B in SM1 suggests that this is not the case.

The second consideration refers to the 'fetal origin' hypothesis, which posits that adverse environmental circumstances before and immediately after the birth negatively affect mental and physical health (de Rooij et al. 2010; Van den Berg et al. 2016) as well as socio-economic indicators (Almond and Currie 2011) in adult life. The childhood and adulthood proxies for health and socio-economic status we have included in the previous regressions should account for the indirect effects of 'in utero' exposure to war. However, mothers' stress or health problems during pregnancy do not seem to be the key explanation to our findings. Pregnant mothers of the *C_After* group were exposed to WW2 episodes for a longer period than their counterparts in the *C_Bef* group. If WW2 affected respondents' survival expectations when they were 'in utero', a significant difference in SSP between the *C_After* and *C_Bef* group should be observed. Figures A2A-B in SM1 show that this is not the case, both when comparing the *C_After* and *C_Bef* group (Figures A2A) and when considering also SES differences between these two groups (Figure A2B).

6. Substantive importance of war-exposure on SSP

The analysis carried out in the previous sections document that the effect of early exposure to war on subjective survival probabilities is statistically significant and robust. The magnitude of the effect ranges between three and four percentage points. Even considering the lower bound of three percentage points, we can argue that the estimated effect is not only statistically but also substantially significant.

In fact, three percentage points is a non-negligible effect if compared to important correlates of subjective and objective survival (Table A3 in SM1). For example, it is similar in absolute value to the effect of one additional chronic condition or to the effect of a gap of 13 years of education (3/0.236) on subjective survival probabilities. It is also higher than the effect of being a smoker or overweight.

7. Conclusion

This paper examines whether early-life exposure to a large-scale conflict predicts subjective survival probabilities in adult life. By focussing on an underexplored, though policy-relevant, aspect of ageing, the current study bridges two main literatures. One literature documents that childhood conditions, such as exposure to war, influence several dimensions of life in the adulthood, whereas the other uses subjective survival probabilities as an important ageing measure alternative to other survey-based health measures. Exploiting variation in the time and place of conflict episodes, this study provides empirical evidence on whether, and in which direction, early-life exposure to the Second World War predicts subjective judgements about longevity.

Two main hypotheses could be drawn from previous studies on the legacies of childhood traumas, which lead to opposite predictions about the sign of the war effect on subjective survival probabilities. A negative sign is expected if children exposed to traumatic events reach inferior human-capital outcomes later in life (e.g. education, income and health) and manifest signs of PTSD also in the adulthood. A positive effect, on the contrary, should be found if, through adverse life experiences, individuals learn to appreciate their life to a larger extent and become more resilient or optimistic about their recovery capacity (post-traumatic growth).

Our evidence provides support to this last hypothesis. Other things equal, respondents exposed to WW2 events during childhood tend to report higher subjective probabilities of survival than those who were not exposed. The estimated effect is driven neither by systematic differences in objective health conditions (which would have signalled war-induced differential mortality) nor by a large set of childhood and adulthood characteristics. Furthermore, the adverse effect of health impairments on subjective survival probabilities is positively moderated by early-life exposure to WW2, meaning that the negative effect of bad health conditions on subjective assessments of survival are reduced or even eliminated for those who were exposed to WW2 during childhood. This suggests that the war experience buffers the individuals' judgments about their own longevity against several health conditions (e.g. hypertension and stroke) and mobility difficulties they face in adult life.

Since exposed and non-exposed respondents do not systematically differ in terms of objective health, a possible interpretation to our results is that the higher life appreciation and resilience acquired through the war experience make affected individuals overly optimistic about their longevity. This conclusion is also based on the fact that, as other authors (Kesternich et al. 2014; Havari and Peracchi 2017), we did not find evidence of selective mortality for the cohorts under investigation. Using data from the Human Mortality Database, Havari and Peracchi (2017) document that death rates rose in the period between the two world wars but they did not find any scarring effects at later ages among the survivors of the cohorts born during the WW2 period. This means that if one considers individuals who survived until older ages, no substantive difference in (objective) mortality risks should be found between those exposed and those not exposed to WW2. Similar conclusions have been reached by Sagi-Schwartz et al. (2013) and Todd et al. (2017).

Hence, our finding that individuals exposed to WW2 report higher subjective survival probabilities indicates that they tend to overestimate their survival chances.[12] This result has non-negligible implications for both the individual and the society. Studies on the subjective dimension of health and well-being emphasize the importance of individuals' perceptions about their current status and expectations about its future dynamic. In particular, coherently with the theory of life-cycle behavior (Hurd et al. 2004), subjective assessment of survival probabilities influences decisions in different spheres of life such as retirement, investments, and healthy behaviors (Adams et al. 2015; Carbone et al. 2005; Salm 2010; Scott-Sheldon et al. 2010). An upward bias in predicting the probability of survival might have detrimental consequences both for the individuals' well-being and the costs of the welfare state (especially in ageing societies) since, for instance, it would increase the chances of risky financial decisions and of delaying retirement. Individuals who are overly optimistic about their future longevity are also more likely to undertake unhealthy behaviours such as smoking or drinking (Adams et al. 2015); they may also be less likely to go to doctors and take medications (Pressman and Cohen 2005).

However, our results may seem contradictory with an opposing view of optimism as a positive determinant of subjective well-being and hence of health. The beneficial health-effects of

[12] We could not directly test this in our sample because of an extremely low number of death events observed across the survey waves (about 300 cases).

optimism could have nevertheless mattered before the date of interview. Put differently, the lack of significant health differences between the exposed and the non-exposed to war might signal the positive role of life appreciation in improving the health status of the former, whose health would have been otherwise worse. This does not imply that overly optimistic evaluations of life expectancy would have negligible consequences on future health. Quite on the contrary, it has been argued, and empirically proven, that optimism has positive effects on subjective well-being and health only if it is not excessive and unrealistic (for a review see Diener and Chan 2011). A recent study (Chipperfield et al. 2018), for example, found that it is maladaptive to be unrealistically optimistic when health subsequently declines in reality. In fact, the risk of death was considerably higher for individuals with optimistic expectations that were unrealistic than for individuals with realistic expectations. Given that health declines are stronger and more rapid at older ages, it can be speculated that especially at older ages negative effects of (overly) optimistic expectations may prevail over positive effects.

Against this background, our estimates suggest that individuals exposed to negative early-life circumstances such as WW2 may have generated optimistic views about their capabilities and resistance to negative external events. While this overly optimistic view might have produced null or positive consequences on subjective well-being and health in their childhood and adulthood, it might be nonetheless harmful in subsequent phases of life.

Concluding, experiencing WW2-related events in childhood increases expected survival in adult life. Individuals who witnessed such adversities early in life might develop the belief that, in spite of the health impairments associated with ageing, they are survivors and keep on surviving.

References

Adams, J., Stamp, E., Nettle, D., Milne, E. M., & Jagger, C. (2015). Anticipated survival and health behaviours in older English adults: cross sectional and longitudinal analysis of the English Longitudinal Study of Ageing. *PloS one*, 10(3), e0118782.

Akbulut-Yuksel, M. (2014). Children of war the long-run effects of large-scale physical destruction and warfare on children. *Journal of Human resources*, *49*(3), 634-662.

Almond, D., & Currie, J. (2011). Killing me softly: The fetal origins hypothesis. *Journal of economic perspectives*, 25(3), 153-72.

Amir, M., & Lev-Wiesel, R. (2001). Does everyone have a name? Psychological distress and quality of life among child Holocaust survivors with lost identity. *Journal of traumatic stress*, *14*(4), 859-869.

Arpino, B., Bordone, V., & Scherbov, S. (2018). Smoking, education and the ability to predict own survival probabilities. *Advances in Life Course Research*, 37, 23-30.

Barber, B. K. (2008). Contrasting portraits of war: Youths' varied experiences with political violence in Bosnia and Palestine. *International Journal of Behavioral Development*, *32*(4), 298-309.

Barnett, L. (2002). Global governance and the evolution of the international refugee regime. *International Journal of Refugee Law*, *14*(2_and_3), 238-262.

Boyden, J., & Mann, G. (2005). Children's risk, resilience, and coping in extreme situations. *Handbook for working with children and youth: Pathways to resilience across cultures and contexts*, *3*, 26.

Bucciol, A., & Zarri, L. (2015). The shadow of the past: Financial risk taking and negative life events. *Journal of Economic Psychology*, *48*, 1-16.

Bundervoet, T., Verwimp, P., & Akresh, R. (2009). Health and civil war in rural Burundi. *Journal of human Resources*, *44*(2), 536-563.

Calhoun, L. G., & Tedeschi, R. G. (2014). The foundations of posttraumatic growth: An expanded framework. In *Handbook of posttraumatic growth* (pp. 17-37). Routledge.

Calhoun, L. G., Cann, A., Tedeschi, R. G., & McMillan, J. (2000). A correlational test of the relationship between posttraumatic growth, religion, and cognitive processing. *Journal of Traumatic Stress: Official Publication of The International Society for Traumatic Stress Studies*, *13*(3), 521-527.

Carbone, J. C., Kverndokk, S., & Røgeberg, O. J. (2005). Smoking, health, risk, and perception. *Journal of Health Economics*, 24(4), 631–653.

Carmil, D., & Breznitz, S. (1991). Personal Trauma and World View—Are extremely stressful experiences related to political attitudes, religious beliefs, and future orientation?. *Journal of Traumatic stress*, *4*(3), 393-405.

Chipperfield, J. G., Hamm, J. M., Perry, R. P., Parker, P. C., Ruthig, J. C., & Lang, F. R. (2018). A healthy dose of realism: The role of optimistic and pessimistic expectations when facing a downward spiral in health. Forthcoming in Social Science & Medicine.

Collier, P. (2004). *The Second World War (4). The Mediterranean 1940-1945*. Oxford: Osprey Publishing.

Conzo, P., & Salustri, F. (2017). *A war is forever: The long-run effects of early exposure to World War II on trust* (No. 201735). University of Turin.

Davies, N. (2008). *No Simple Victory: World War II in Europe, 1939-1945*. Penguin.

Diener, E., & Chan, M. Y. (2011). Happy people live longer: Subjective well-being contributes to health and longevity. *Applied Psychology: Health and Well-Being*, 3(1), 1-43.

de Rooij, S. R., Wouters, H., Yonker, J. E., Painter, R. C., & Roseboom, T. J. (2010). Prenatal undernutrition and cognitive function in late adulthood. *Proceedings of the National Academy of Sciences*, 107(39), 16881-16886.

Elder, T. E. (2013). The predictive validity of subjective mortality expectations: Evidence from the health and retirement study. *Demography*, 50(2), 569-589.

Elder, G. H. (2018). *Children of the great depression*. Routledge.Ellis, J. (1993). *World War II: A statistical survey: The essential facts and figures for all the combatants*. Facts on File.

Forstmeier, S., Kuwert, P., Spitzer, C., Freyberger, H. J., & Maercker, A. (2009). Posttraumatic growth, social acknowledgment as survivors, and sense of coherence in former German child soldiers of World War II. *The American Journal of Geriatric Psychiatry*, *17*(12), 1030-1039.

Garmezy, N. (1993). Children in poverty: Resilience despite risk. *Psychiatry*, *56*(1), 127-136.

Gilleskie, D. B. (1998). A dynamic stochastic model of medical care use and work absence. *Econometrica*, 1-45.

Giuliano, P., & Spilimbergo, A. (2014). Growing up in a Recession. *The Review of Economic Studies, 81*(2 (287)), 787-817.

Glaesmer, H., Brähler, E., Gündel, H., & Riedel-Heller, S. G. (2011). The association of traumatic experiences and posttraumatic stress disorder with physical morbidity in old age: a German population-based study. *Psychosomatic Medicine*, *73*(5), 401-406.

Havari, E., & Mazzonna, F. (2015). Can we trust older people's statements on their childhood circumstances? Evidence from SHARELIFE. *European Journal of Population*, *31*(3), 233-257.

Havari, E., & Peracchi, F. (2017). Growing up in wartime: Evidence from the era of two world wars. *Economics & Human Biology*, *25*, 9-32.

Hurd, M. D., & McGarry, K. (1995). Evaluation of the subjective probabilities of survival in the health and retirement study. *Journal of Human resources*, S268-S292.

Hurd, M. D., & McGarry, K. (2002). The predictive validity of subjective probabilities of survival. *The Economic Journal*, 112(482), 966-985.

Hurd, M. D., Smith, J. P., & Zissimopoulos, J. M. (2004). The effects of subjective survival on retirement and social security claiming. *Journal of Applied Econometrics*, *19*(6), 761-775.

Ichino, A., & Winter-Ebmer, R. (2004). The long-run educational cost of World War II. *Journal of Labor Economics*, *22*(1), 57-87.

Kestenberg, J. S. (1992). Children under the Nazi yoke. *British Journal of Psychotherapy*, *8*(4), 374-390.

Kesternich, I., Siflinger, B., Smith, J. P., & Winter, J. K. (2014). The effects of World War II on economic and health outcomes across Europe. *Review of Economics and Statistics*, *96*(1), 103-118.

Kuwert, P., Spitzer, C., Rosenthal, J., & Freyberger, H. J. (2008). Trauma and post-traumatic stress symptoms in former German child soldiers of World War II. *International Psychogeriatrics*, *20*(5), 1014-1018.

Lahmeyer, J. (2006), *Populstat* [online]. Available at http://www.populstat.info

Layard, R., Clark, A. E., Cornaglia, F., Powdthavee, N., & Vernoit, J. (2014). What predicts a successful life? A life-course model of well-being. *The Economic Journal*, *124*(580), F720-F738.

Lev-Wiesel, R., & Amir, M. (2003). Posttraumatic growth among Holocaust child survivors. *Journal of Loss &Trauma*, *8*(4), 229-237.

Lev-Wiesel, R., & Amir, M. (2000). Posttraumatic stress disorder symptoms, psychological distress, personal resources, and quality of life in four groups of Holocaust child survivors. *Family Process*, *39*(4), 445-459.

Lustig, S. L., Kia-Keating, M., Knight, W. G., Geltman, P., Ellis, H., Kinzie, J. D., Keane, T., & Saxe, G. N. (2004). Review of child and adolescent refugee mental health. *Journal of the American Academy of Child & Adolescent Psychiatry*, *43*(1), 24-36.

Manski, C. F. (2004). Measuring expectations. *Econometrica*, *72*(5), 1329-1376.

Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American psychologist*, *56*(3), 227.

Mirowsky, J. (1999). Subjective life expectancy in the US: correspondence to actuarial estimates by age, sex and race. *Social science & medicine*, *49*(7), 967-979.

Overman, R., *Deutsche Militaerische Verluste im 2 Weltkrieg* (Munich: Oldenburg Verlag, 1999).

Perozek, M. (2008). Using subjective expectations to forecast longevity: Do survey respondents know something we don't know?. *Demography*, *45*(1), 95-113.

Post, T., & Hanewald, K. (2013). Longevity risk, subjective survival expectations, and individual saving behavior. *Journal of Economic Behavior & Organization*, *86*, 200-220.

Pressman, S.D., & Cohen, S. (2005). Does positive affect influence health? *Psychological Bulletin*, 131, 925–971.

Prospective Studies Collaboration. (2002). Age-specific relevance of usual blood pressure to vascular mortality: a meta-analysis of individual data for one million adults in 61 prospective studies. *The Lancet*, 360(9349), 1903-1913.

Putzger, F. W., *Historischer Weltatlas* (Biele felid: Velhagen & Klasing, 1963).

Pynoos, R. S., Kinzie, J. D., & Gordon, M. (2001). Children, adolescents, and families exposed to torture and related trauma. In *The mental health consequences of torture* (pp. 211-225). Springer, Boston, MA.

Rappange, D. R., Brouwer, W. B., & van Exel, J. (2016). A long life in good health: subjective expectations regarding length and future health-related quality of life. *The European Journal of Health Economics*, *17*(5), 577-589.

Sagi-Schwartz, A., Bakermans-Kranenburg, M. J., Linn, S., & van IJzendoorn, M. H. (2013). Against all odds: genocidal trauma is associated with longer life-expectancy of the survivors. *PLoS One*, *8*(7), e69179.

Salm, M. (2010). Subjective mortality expectations and consumption and saving behaviours among the elderly. *Canadian Journal of Economics/Revue Canadienne d'économique*, 43(3), 1040–1057

Scott-Sheldon, L. A. J., Carey, M. P., Vanable, P. A., & Senn, T. E. (2010). Subjective life expectancy and health behaviors among STD clinic patients. *American Journal of Health Behavior*, 34(3), 349–361.

Sigal, J. J. (1998). Long-term e¡ects of the Holocaust: Empirical evidence for resilience in the first, second, and third generation. *Psychoanalytic Review*, *85*, 579-585.

Singhal, S. (2018). Early life shocks and mental health: The long-term effect of war in Vietnam. *Journal of Development Economics*.

Smith, V. K., Taylor, D. H., & Sloan, F. A. (2001). Longevity expectations and death: Can people predict their own demise?. *American Economic Review*, *91*(4), 1126-1134.

Statistisches Jahrbuch für das Deutsche Reich (Statistical Yearbook), Kaiserliches Statistisches Amt (Berlin: Puttkammer & Mühlbrecht, 1909–1939).

Tamis-LeMonda, C. S., Shannon, J. D., Cabrera, N. J., & Lamb, M. E. (2004). Fathers and mothers at play with their 2-and 3-year-olds: Contributions to language and cognitive development. *Child development*, *75*(6), 1806-1820.

Taylor, S. E. (2010). Mechanisms linking early life stress to adult health outcomes. *Proceedings of the National Academy of Sciences*, *107*(19), 8507-8512.

Tedeschi, R. G., Park, C. L., & Calhoun, L. G. (Eds.). (1998). *Posttraumatic growth: Positive changes in the aftermath of crisis*. Routledge.

Todd, N., Valleron, A. J., & Bougnères, P. (2017). Prenatal loss of father during World War One is predictive of a reduced lifespan in adulthood. *Proceedings of the National Academy of Sciences*, *114*(16), 4201-4206.

Van den Berg, G. J., Pinger, P. R., & Schoch, J. (2016). Instrumental variable estimation of the causal effect of hunger early in life on health later in life. *The Economic Journal*, 126(591), 465-506.

Van Mourik, W., *Bilanz des Krieges* (Rotterdam: Lekturama, 1978).

Van Solinge, H., & Henkens, K. (2009). Living longer, working longer? The impact of subjective life expectancy on retirement intentions and behaviour. *European journal of public health*, *20*(1), 47-51.

Viscusi, W. K. (1990). Do smokers underestimate risks?. *Journal of political Economy*, 98(6), 1253-1269.

Voigtländer, N., & Voth, H. J. (2015). Nazi indoctrination and anti-Semitic beliefs in Germany. *Proceedings of the National Academy of Sciences*, 201414822.

Wang, Y. (2014). Dynamic implications of subjective expectations: Evidence from adult smokers. *American Economic Journal: Applied Economics*, 6(1), 1-37.

Werner, E. E. (2007). Resilience and protective factors in the lives of individuals who were children and youths in World War II. *Trauma und Resilienz*, 47-55.

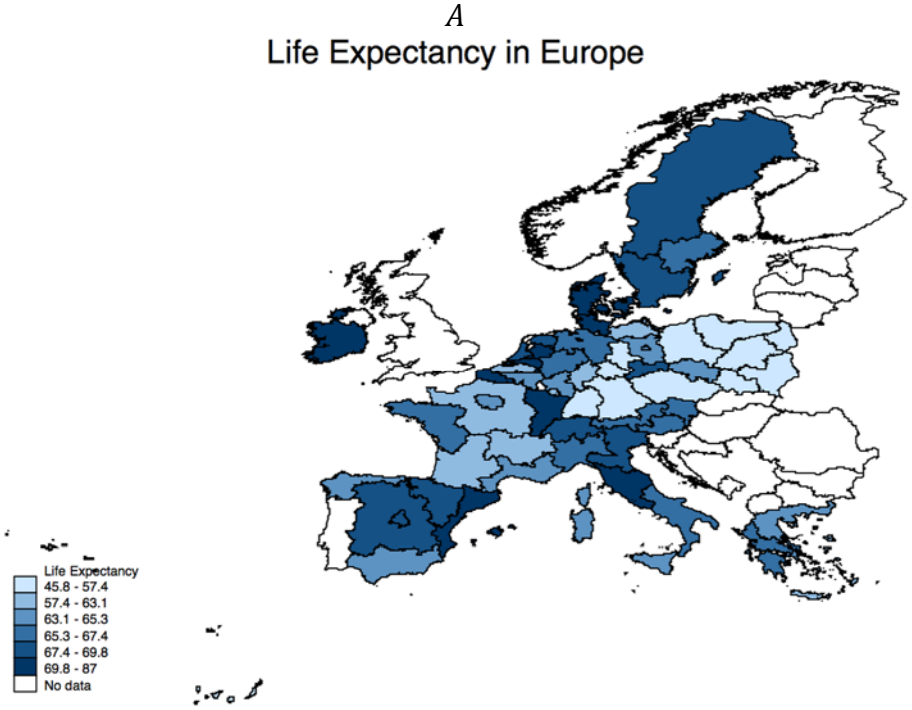
Werner, E. E. (2012). Children and war: Risk, resilience, and recovery. *Development and psychopathology*, *24*(2), 553-558.

Yehuda, R., Bell, A., Bierer, L. M., & Schmeidler, J. (2008). Maternal, not paternal, PTSD is related to increased risk for PTSD in offspring of Holocaust survivors. *Journal of psychiatric research*, *42*(13), 1104-1111.

Yehuda, R., Teicher, M. H., Seckl, J. R., Grossman, R. A., Morris, A., & Bierer, L. M. (2007). Parental posttraumatic stress disorder as a vulnerability factor for low cortisol trait in offspring of holocaust survivors. *Archives of General Psychiatry*, *64*(9), 1040-1048.

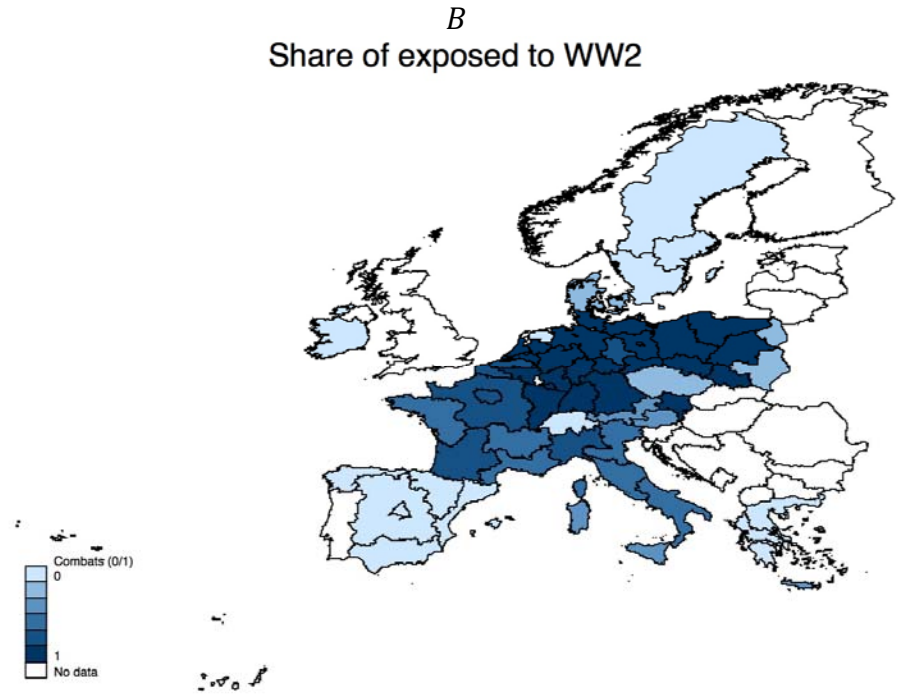
Figure 1. Life expectancy and War in Europe

A



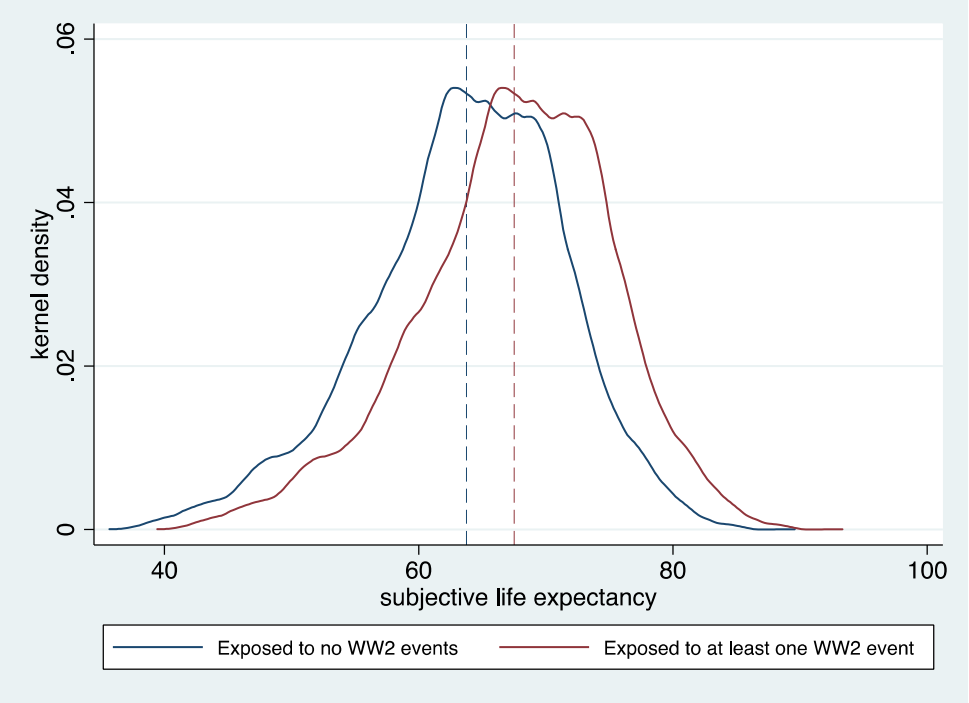
Note: Average life expectancy by region (NUTS-1 level).

B



Note: Share of respondents who have been exposed at least to one war event by region (NUTS-1 level).

Figure 2. Subjective survival probabilities and War



Notes: subjective survival probabilities adjusted for gender, month-year of birth, wave of interview and country of birth. Red and blue dashed lines represent the adjusted means of SSP for respondents never exposed and exposed to WW2 respectively.

Table 1. Descriptive statistics

Variable	Share/Mean Total (10,668 obs.)	No war (5,418 obs.)	War (5,250 obs.)	P-value	Z-stat
SSP	*65.71*	*66.4*	*65.03*	0.065	1.846
War	49.2	0	1		
Female	53.3	53.0	53.5	0.019	0.984
Country of birth:					
Austria	5.4	2.8	8.2		
Belgium	10.9	1.4	20.7		
Czechoslovakia	5.0	7.3	2.7		
Denmark	8.4	16.2	0.4		
France	6.7	1.4	12.1		
Germany	7.7	0.3	15.4		
Greece	8.7	16.3	0.9		
Italy	7.1	1.4	22.5		
Ireland	13.3	4.4	0.0		
The Netherlands	7.4	2.5	12.5		
Poland	3.1	1.6	4.8		
Spain	7.4	14.6	0.0		
Sweden	10.4	20.4	0.0		
Switzerland	4.8	9.5	0.0		
Wave:					
1	24.5	23.1	25.9	0.000	-5.393
2	29.9	31.0	28.8	0.000	4.358
4	0.2	0.1	0.2	0.081	-1.746
5	22.6	20.9	24.4	0.000	-5.953
6	22.8	24.8	20.6	0.000	7.918
Target age:					
75	45.5	45.7	45.4		
80	17.7	18.0	17.4		
85	33.9	33.4	34.5		
90	2.8	2.9	2.8		
Age	67.19	67.10	67.29	0.194	-1.300
Childhood SES (*High*)	49.5	50.5	51.8	0.897	-0.131
Mother at age 10	96.3	96.3	96.3	0.688	0.401
Father at age 10	88.7	91.3	86.1	0.000	5.208
Hunger	5.6	4.2	7.0	0.000	-3.984
Dispossession	2.5	1.4	3.8	0.000	-4.449
Log(Income)	9.96	9.91	10.02	0.000	-6.165
Years of education	10.57	10.54	10.59	0.465	-0.731
No. children	2.20	2.25	2.15	0.005	2.793
No. grandchildren	2.83	2.84	2.82	0.455	0.747
Job status:					
Retired	70.1	65.5	74.8	0.000	-7.719
Employed	11.8	16.7	6.8	0.000	12.414
Unemployed	1.5	1.4	1.6	0.477	-0.711
Sick or disabled	2.2	2.5	2.0	0.097	1.660
Homemaker	12.6	12.5	12.8	0.314	-1.007
Other	1.4	1.0		0.001	-4.044
Marital status:					
Married	76.3	76.1	76.5	0.585	-0.546
Never married	4.9	4.9	5.0	0.792	0.264
Divorced	6.9	7.7	6.0	0.194	1.299
Widowed	11.9	11.2	12.6	0.426	-0.796
# chronic diseases	1.18	1.16	1.21	0.531	-0.627
Alcohol:					
Never	19.2	18.8	19.6	0.901	-0.125
Less than 1 a month	6.4	6.7	6.1	0.604	0.518

1-2 a month	8.5	9.2	7.8	0.185	1.325
1-2 a week	15.1	17.4	12.8	0.000	4.065
3-4 a week	6.6	7.0	6.3	0.699	0.386
5-6 a week	2.2	1.9	2.5	0.046	-1.955
Almost every day	19.1	14.0	24.3	0.000	-9.838
Smoker	13.6	14.9	12.2	0.000	3.529
Bmi class:					
Underweight	0.9	0.9	0.9	0.883	-0.148
Normal	33.2	34.7	31.7	0.062	1.867
Overweight	43.6	42.5	44.8	0.100	-1.643
Obese	20.8	19.7	21.8	0.298	-1.041
Sport:					
More than 1 a week	34.8	6.4	33.2	0.099	1.650
1 a week	15.3	16.3	14.3	0.046	1.955
1-3 a month	11.0	11.9	10.0	0.025	2.241
Hardly ever or never	38.8	35.2	42.4	0.000	-5.782

Table 2. The impact of war exposure on subjective survival probabilities (extensive margin)

Dep. Var.: *SSP*	(1)	(2)	(3)	(4)	(5)	(6)
War	3.655***	3.567***	3.538***	3.546***	3.358***	3.131***
	(1.118)	(1.120)	(1.121)	(1.120)	(1.117)	(1.088)
Female	-0.561	-0.605	-0.603	-0.656	0.461	1.088
	(0.645)	(0.645)	(0.646)	(0.644)	(0.709)	(0.710)
Childhood SES		1.905***	1.964***	1.970***	1.094	0.662
		(0.706)	(0.711)	(0.709)	(0.719)	(0.695)
Mother at age 10			0.429	0.449	0.259	0.0572
			(1.763)	(1.748)	(1.728)	(1.678)
Father at age 10			-0.983	-1.102	-1.017	-1.232
			(1.198)	(1.192)	(1.179)	(1.126)
Hunger				-3.574**	-3.066*	-1.940
				(1.598)	(1.596)	(1.521)
Dispossession				-1.852	-2.476	-2.497
				(2.506)	(2.491)	(2.321)
Adulthood controls	No	No	No	No	Yes	Yes
Health and Lifestyle controls	No	No	No	No	No	Yes
Observations	10,674	10,674	10,674	10,668	10,668	10,668
R-squared	0.085	0.087	0.087	0.088	0.097	0.131

Robust standard errors in parentheses, clustered at individual level. Adulthood controls include income, years of education, marital status, job status, number of children and number of grandchildren; Health and Lifestyle include the number of chronic diseases, alcohol consumption, smoking, Bmi class, and sport activities. All models include dummies for month-year of birth and country of birth, wave, age, target age, and age*target age. Missing values are flagged for all controls. *** p<0.01, ** p<0.05, * p<0.1.

Table 3. The impact of war exposure on subjective survival probabilities (intensive margin)

Dep. Var.: *SSP*	(1)	(2)	(3)	(4)	(5)	(6)
War						
Below median (1-9)	3.512***	3.420***	3.385***	3.412***	3.234***	2.754**
	(1.174)	(1.175)	(1.176)	(1.175)	(1.171)	(1.141)
Above median (10+)	3.971***	3.892***	3.876***	3.842***	3.631***	3.957***
	(1.339)	(1.339)	(1.341)	(1.341)	(1.333)	(1.297)
Female	-0.560	-0.604	-0.603	-0.655	0.465	1.101
	(0.645)	(0.645)	(0.646)	(0.644)	(0.709)	(0.710)
Childhood SES		1.907***	1.967***	1.972***	1.096	0.666
		(0.706)	(0.710)	(0.709)	(0.719)	(0.694)
Mother at age 10			0.420	0.442	0.251	0.0355
			(1.762)	(1.748)	(1.728)	(1.674)
Father at age 10			-0.992	-1.111	-1.025	-1.256
			(1.198)	(1.192)	(1.179)	(1.126)
Hunger				-3.573**	-3.065*	-1.930
				(1.598)	(1.596)	(1.522)
Dispossession				-1.854	-2.477	-2.502
				(2.508)	(2.492)	(2.321)
Adulthood controls	No	No	No	No	Yes	Yes
Health and Lifestyle controls	No	No	No	No	No	Yes
Observations	10,674	10,674	10,674	10,668	10,668	10,668
R-squared	0.085	0.087	0.087	0.088	0.098	0.131

Robust standard errors in parentheses, clustered at individual level. Adulthood controls include income, years of education, marital status, job status, number of children and number of grandchildren; Health and Lifestyle include the number of chronic diseases, alcohol consumption, smoking, Bmi class, and sport activities. All models include dummies for month-year of birth and country of birth, wave, age, target age, and age*target age. Missing values are flagged for all controls. *** p<0.01, ** p<0.05, * p<0.1.

Table 4. The moderating role of war exposure on health and subjective survival probabilities.

Dep. Var.: *SSP*	(1)	(2)	(3)	(4)	(5)
War	2.862***	2.552**	3.006***	1.813	2.348*
	(1.097)	(1.152)	(1.100)	(1.231)	(1.215)
Iadla	-15.47***				
	(3.195)				
War*Iadla	13.85***				
	(4.361)				
Lgmuscle		-7.210***			
		(0.846)			
War*Lgmuscle		1.925*			
		(1.156)			
Stroke			-12.56***		
			(2.188)		
War*Stroke			7.650**		
			(3.360)		
# chronic diseases				-3.668***	
				(0.344)	
War* # chronic diseases				1.060**	
				(0.497)	
Hypertension					-4.755***
					(0.823)
War* Hypertension					2.505**
					(1.177)
Observations	10,668	10,668	10,663	10,668	10,663
R-squared	0.117	0.125	0.118	0.131	0.118

Robust standard errors in parentheses, clustered at individual level. All models include Childhood SES, Adulthood controls (income, years of education, marital status, job status, number of children and number of grandchildren), Health and Lifestyle (number of chronic diseases, alcohol consumption, smoking, Bmi class, and sport activities), dummies for month-year of birth and country of birth, wave, age, target age, and age*target age. Missing values are flagged for all controls.
*** p<0.01, ** p<0.05, * p<0.1.

Table 5. War exposure and health outcomes

Dep. Var.:	War	Std. Err.	N.	R-squared
Adlwa	-0.00687	(0.00956)	10,668	0.091
Iadla	-0.0143**	(0.00645)	10,668	0.053
Mobility	-0.0204	(0.0197)	10,668	0.202
Lgmuscle	$6.70e^{-05}$	(0.0205)	10,668	0.147
Grossmotor	-0.0188	(0.0150)	10,668	0.144
Finemotor	-0.00111	(0.0109)	10,668	0.075
Stroke	-0.0110	(0.00763)	10,663	0.031
Cancer	0.00377	(0.00794)	10,663	0.028
# chronic diseases	-0.0525	(0.0553)	10,668	0.134
Hypertension	0.0189	(0.0232)	10,663	0.107
Heart attack	-0.0224	(0.0165)	10,663	0.055
Cholesterol	-0.00600	(0.0222)	10,663	0.051
Diabetes	-0.0237	(0.0183)	10,663	0.088
Parkinson	-0.000406	(0.00242)	10,663	0.028
Stomach ulcer	-0.00225	(0.00825)	10,663	0.032
Cataracts	-0.000494	(0.0102)	10,663	0.038
Lung disease	-0.00679	(0.0116)	10,663	0.033
Hip fracture	-0.00301	(0.00474)	10,663	0.025

Each line summarize the main results from a regression of the selected health measure on war exposure (controls as in column 6 of Table 2). Robust standard error in parentheses, clustered at individual level. *** p<0.01, ** p<0.05, * p<0.1.

SUPPLEMENTARY MATERIALS 1

Table A1. Variable Legend

Variable	Description
SSP	0-100 scale variable for the respondent's expectation to live for at least 10 years. It answers the question "What are the chances that you will live to be age *x* or more?", where *x* is the target age belonging to the set {75, 80, 85, 90, 95, 100, 105, 110}.Based on respondents' age, *x* for *SSP* is defined as: 75 (age<65); 80 (65≤age<70); 85 (70≤age<75); 90 (75 ≤age<80) 95 (80≤age<85); 100 (85≤age<95); 105 (95≤age<100); 110 (100≤age<105); 120 (age≥105).
Target age	Age targeted for the SSP question (75, 80, 85, 90, 95, 100, 105, 110).
War	(0/1) dummy for the exposure to at least 1 war episode during the WW2.
War (*above and below the median*)	Categorical variable measuring the exposure to war events during the WW2 with respect to the median number of war events to which respondents have been exposed (i.e., 10). 0 = Never exposed; 1 = Exposed to 1-9 war episodes; 2 = Exposed to 10+ war episodes.
Female	(0/1) dummy for females.
Age	Age of respondents at the time of interview.
Childhood SES (*High*)	(0/1) dummy for respondent with childhood SES above the median. Childhood SES has been computed with the first extracted factor from a principal component analysis (PCA) on childhood socio-economic characteristics (natural logarithm of the no. of rooms at age 10, natural logarithm of the no. of books at age 10, occupation of the breadwinner at age 10).
Mother at age 10	(0/1) dummy for biological mother alive when the respondent was 10.
Father at age 10	(0/1) dummy for biological father alive when the respondent was 10.
Hunger	(0/1) dummy for experience of hunger episodes during the whole life.
Dispossession	(0/1) dummy for experience of dispossession episodes during the whole life.
Log(Income)	Logarithm of net household income. In wave 1, SHARE generates the variable from the respondents' gross household income, that is before taxes and subsidies, and then adjusts it throughout the EU tax-benefit micro-simulation model EUROMOD; in the subsequent waves SHARE imputes net household income by aggregating all individual net incomes at household level.
Years of education	Years of education of respondent.
Children	No. of children of respondent.
Grandchildren	No. of grandchildren of respondent.
Job (*Ref = Retired*)	Categorical variable for job status (Retired, Employed or Self employed, Unemployed, Sick or Disabled, Homemaker).
Marital status (*Ref = Married*)	Categorical variable for the marital status of respondents (1 = Married, 2 = Never married, 3 = Divorced,4= Widowed).
# chronic diseases	Number of chronic diseases that respondent has declared as diagnosed by doctors (among the following 12: Heart attack, High blood pressure or hypertension, High blood cholesterol, Stroke or Cerebral Vascular Disease, Diabetes or High Blood Sugar, Chronic Lung Disease, Cancer or Malignant Tumour, Stomach or Duodenal Ulcer, Peptic Ulcer, Parkinson, Cataracts, Hip Fracture or Femoral Fracture).
Alcohol consumption (*Ref = Never*)	Categorical variable for the days of alcoholic drinks consumption (1 = Never, 2 = Less than 1 a month, 3 = 1-2 a month, 4 = 1-2 a week, 5 = 3-4 a week , 6 = 5-6 a week, 7 = almost every day).
Smoker	(0/1) dummy for the smokers.
Bmi class (*Ref = Normal*)	Categorical variable for the Body Mass Index (BMI) class (1 = Underweight, 2 Normal, 3 = Overweight, 4 = Obese).
Sport (*Ref = More than once a week*)	Categorical variable for the days of sport activities (1 = More than 1 a week, 2 = 1 a week, 3 = 1-3 a month, 4 = Hardly ever of never)
DoB	Date of birth of respondent (month-year)
Country of birth	Country of birth of respondent.
Wave	Wave of interview (1, 2, 4, 5, 6)
Migrated	(0/1) dummy for respondent who has changed region of residence during the WW2 period.

Mobility measures:	(0/1) dummy for the respondent with difficulties in performing at least one of the following tasks:
Adlwa	Dressing, bathing or showering, and eating or cutting up food (Wallace and Herzog).
Iadla	Telephone calls, taking medications, and managing money.
Mobility	Walking 100 meters, walking across a room, climbing several flights of stairs, and climbing one flight of stairs.
Lgmuscle	Sitting two hours, getting up from chair, stooping, kneeling, crouching, and pulling or pushing large objects.
Gross motor	Walking 100 meters, walking across a room, climbing one flight of stairs, and bathing or showering.
Fine motor	Picking up a small coin, eating or cutting up food, and dressing.
Disease:	(0/1) dummy for the respondent having being told by a doctor to have one of the following diseases (i.e., being treated or bothered by the disease at the time of interview):
Stroke	Stroke or cerebral vascular disease
Cancer	Cancer or malignant tumour
Hypertension	High blood pressure or hypertension
Heart attack	Heart attack
Parkinson	Parkinson disease
Stomach Ulcer	Stomach or duodenal or peptic ulcer
Cholesterol	High blood cholesterol
Diabetes	Diabetes or high blood sugar
Cataracts	Cataracts
Lung disease	Chronic lung disease
Hip fracture	Hip fracture or femoral fracture

Table A2. Subjective probabilities of living until target age or more

Target age	Obs	Mean	Std. Dev	Min	Max
75	4,856	70.04	24.574	0	100
80	1,889	64.92	27.002	0	100
85	3,621	61.10	26.524	0	100
90	302	56.26	27.643	0	100

Note: There are no individuals aged 80 or more in our sample. Hence the highest target age considered is 90.

Table A3. The impact of war exposure on subjective survival probabilities (extensive margin)

Dep. Var.: SSP		(1)	(2)	(3)	(4)	(5)	(6)
War		3.655***	3.567***	3.538***	3.546***	3.358***	3.131***
		(1.118)	(1.120)	(1.121)	(1.120)	(1.117)	(1.088)
Female		-0.561	-0.605	-0.603	-0.656	0.461	1.088
		(0.645)	(0.645)	(0.646)	(0.644)	(0.709)	(0.710)
Age		1.674	1.627	1.618	1.562	2.088*	1.857*
		(1.102)	(1.101)	(1.101)	(1.100)	(1.102)	(1.072)
Target age (Ref = 75)							
	80	-66.75	-67.09	-65.74	-69.21	-57.66	-65.17
		(76.49)	(76.46)	(76.49)	(76.49)	(76.90)	(76.32)
	85	-31.08	-31.44	-31.32	-32.60	-29.86	-37.35
		(27.53)	(27.50)	(27.50)	(27.51)	(27.78)	(27.67)
	90	-161.6	-163.7	-166.4	-185.9	-161.9	-153.0
		(494.7)	(494.5)	(494.9)	(492.3)	(496.8)	(498.1)
Age * SSP target age (Ref = 75)							
	80	0.890	0.896	0.876	0.928	0.747	0.860
		(1.148)	(1.147)	(1.148)	(1.148)	(1.154)	(1.145)
	85	0.275	0.281	0.279	0.299	0.245	0.353
		(0.400)	(0.399)	(0.399)	(0.400)	(0.404)	(0.402)
	90	1.909	1.939	1.973	2.235	1.899	1.782
		(6.566)	(6.564)	(6.569)	(6.535)	(6.594)	(6.611)
High childhood SES			1.905***	1.964***	1.970***	1.094	0.662
			(0.706)	(0.711)	(0.709)	(0.719)	(0.695)
Mother at age 10				0.429	0.449	0.259	0.0572
				(1.763)	(1.748)	(1.728)	(1.678)
Father at age 10				-0.983	-1.102	-1.017	-1.232
				(1.198)	(1.192)	(1.179)	(1.126)
Hunger					-3.574**	-3.066*	-1.940
					(1.598)	(1.596)	(1.521)
Dispossession					-1.852	-2.476	-2.497
					(2.506)	(2.491)	(2.321)
Log(Income)						0.605*	0.442
						(0.337)	(0.332)
Years of education						0.295***	0.236***
						(0.0918)	(0.0888)
Children						-0.224	-0.168
						(0.320)	(0.311)
Grandchildren						0.233*	0.217*
						(0.134)	(0.129)
Job (Ref = Retired)							
	Employed					2.904***	2.137**
						(0.906)	(0.886)
	Unemployed					-2.699	-2.905
						(2.023)	(2.002)
	Sick or disabled					-7.689***	-4.446**
						(1.959)	(1.904)
	Homemaker					-1.664*	-1.668*
						(0.997)	(0.977)
	Other					-0.873	-0.0504
						(2.137)	(2.043)
Marital status (Ref = Married)							
	Never married					-3.875**	-3.221**
						(1.585)	(1.535)
	Divorced					-1.361	-0.743
						(1.390)	(1.346)
	Widowed					-2.647**	-1.926*
						(1.048)	(1.030)

# chronic diseases						-3.135***
						(0.258)
Alcohol consumption (Ref = Never)						
Less than once a month						0.579
						(1.184)
1/2 days a month						1.509
						(1.094)
1/2 a week						1.623*
						(0.949)
3/4 days a week						4.561***
						(1.133)
5/6 days a week						2.888
						(1.776)
Almost everyday						1.746*
						(0.927)
Smoker						-1.897**
						(0.892)
Bmi class (Ref = Normal)						
Underweight						-1.360
						(2.911)
Overweight						1.153*
						(0.669)
Obese						0.453
						(0.877)
Sport (Ref = More than once a week)						
Once a week						-3.199***
						(0.736)
1—3 times a month						-3.344***
						(0.827)
Hardly ever or never						-5.631***
						(0.658)
DoB	Yes	Yes	Yes	Yes	Yes	Yes
Country of birth	Yes	Yes	Yes	Yes	Yes	Yes
Wave	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,674	10,674	10,674	10,668	10,668	10,668
R-squared	0.085	0.087	0.087	0.088	0.097	0.131

Robust standard errors in parentheses, clustered at individual level. Missing values are flagged for all controls.
*** p<0.01, ** p<0.05, * p<0.1.

Table A4. The impact of war exposure on subjective survival probabilities (intensive margin)

Dep. Var.: *SSP*	(1)	(2)	(3)	(4)	(5)	(6)
War						
Below median (1-9)	3.512***	3.420***	3.385***	3.412***	3.234***	2.754**
	(1.174)	(1.175)	(1.176)	(1.175)	(1.171)	(1.141)
Above median (10+)	3.971***	3.892***	3.876***	3.842***	3.631***	3.957***
	(1.339)	(1.339)	(1.341)	(1.341)	(1.333)	(1.297)
Female	-0.560	-0.604	-0.603	-0.655	0.465	1.101
	(0.645)	(0.645)	(0.646)	(0.644)	(0.709)	(0.710)
Age	1.697	1.650	1.642	1.584	2.108*	1.915*
	(1.104)	(1.102)	(1.103)	(1.102)	(1.103)	(1.074)
Target age (Ref = 75)						
80	-66.32	-66.65	-65.29	-68.80	-57.27	-63.99
	(76.47)	(76.44)	(76.47)	(76.46)	(76.88)	(76.27)
85	-31.15	-31.51	-31.39	-32.66	-29.92	-37.54
	(27.53)	(27.51)	(27.50)	(27.51)	(27.79)	(27.68)
90	-165.0	-167.2	-170.0	-189.1	-164.9	-162.3
	(494.8)	(494.7)	(495.0)	(492.5)	(497.0)	(498.4)
Age * Target age (Ref = 75)						
80	0.884	0.889	0.869	0.922	0.741	0.842
	(1.147)	(1.147)	(1.147)	(1.147)	(1.153)	(1.144)
85	0.276	0.282	0.279	0.300	0.245	0.355
	(0.400)	(0.399)	(0.399)	(0.400)	(0.404)	(0.402)
90	1.954	1.985	2.021	2.277	1.938	1.905
	(6.568)	(6.566)	(6.570)	(6.537)	(6.596)	(6.615)
High childhood SES		1.907***	1.967***	1.972***	1.096	0.666
		(0.706)	(0.710)	(0.709)	(0.719)	(0.694)
Mother at age 10			0.420	0.442	0.251	0.0355
			(1.762)	(1.748)	(1.728)	(1.674)
Father at age 10			-0.992	-1.111	-1.025	-1.256
			(1.198)	(1.192)	(1.179)	(1.126)
Hunger				-3.573**	-3.065*	-1.930
				(1.598)	(1.596)	(1.522)
Dispossession				-1.854	-2.477	-2.502
				(2.508)	(2.492)	(2.321)
Log(Income)					0.605*	0.440
					(0.337)	(0.332)
Years of education					0.295***	0.235***
					(0.0918)	(0.0887)
Children					-0.221	-0.161
					(0.320)	(0.311)
Grandchildren					0.231*	0.212
					(0.134)	(0.129)
Job (Ref = Retired)						
Employed					2.902***	2.126**
					(0.907)	(0.887)
Unemployed					-2.682	-2.855
					(2.024)	(2.007)
Sick or disabled					-7.697***	-4.457**
					(1.958)	(1.903)
Homemaker					-1.669*	-1.680*
					(0.997)	(0.977)
Other					-0.886	-0.0887
					(2.138)	(2.045)
Marital status (Ref = Married)						
Never married					-3.861**	-3.175**
					(1.583)	(1.531)

Divorced					-1.359	-0.731
					(1.391)	(1.346)
Widowed					-2.654**	-1.943*
					(1.049)	(1.030)
# chronic diseases						-3.145***
						(0.259)
Alcohol consumption (Ref = Never)						
Less than once a month						0.577
						(1.183)
1/2 days a month						1.529
						(1.094)
1/2 a week						1.617*
						(0.949)
3/4 days a week						4.581***
						(1.135)
5/6 days a week						2.951*
						(1.778)
Almost everyday						1.767*
						(0.926)
Smoker						-1.919**
						(0.892)
Bmi class (Ref = Normal)						
Underweight						-1.396
						(2.906)
Overweight						1.164*
						(0.669)
Obese						0.449
						(0.877)
Sport (Ref = More than once a week)						
Once a week						-3.192***
						(0.736)
1—3 times a month						-3.350***
						(0.827)
Hardly ever or never						-5.650***
						(0.657)
DoB	Yes	Yes	Yes	Yes	Yes	Yes
Country of birth	Yes	Yes	Yes	Yes	Yes	Yes
Wave	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,674	10,674	10,674	10,668	10,668	10,668
R-squared	0.085	0.087	0.087	0.088	0.098	0.131

Robust standard errors in parentheses, clustered at individual level. Missing values are flagged for all controls.
*** p<0.01, ** p<0.05, * p<0.1.

Table A5. The role of migration

Dep. Var.: *SSP*	(1)	(2)	(3)	(4)	(5)	(6)	(7)
War	3.690***	3.583***	3.557***	3.572***	3.411***	3.153***	3.266***
	(1.111)	(1.111)	(1.112)	(1.112)	(1.107)	(1.076)	(1.078)
Migrated	-2.198	-2.426	-2.453	-2.360	-2.496	-2.225	-0.269
	(1.953)	(1.958)	(1.962)	(1.967)	(1.938)	(1.867)	(3.012)
War * Migrated							-2.992
							(3.743)
Female	-0.402	-0.449	-0.450	-0.488	0.649	1.227*	1.221*
	(0.636)	(0.636)	(0.637)	(0.636)	(0.699)	(0.700)	(0.700)
Childhood SES		1.813***	1.866***	1.875***	0.958	0.507	0.517
		(0.691)	(0.696)	(0.695)	(0.706)	(0.681)	(0.681)
Mother at age 10			0.389	0.424	0.229	-0.0578	-0.0486
			(1.714)	(1.703)	(1.679)	(1.624)	(1.626)
Father at age 10			-0.842	-0.960	-0.898	-1.223	-1.227
			(1.177)	(1.175)	(1.160)	(1.106)	(1.107)
Hunger				-3.031**	-2.577*	-1.446	-1.429
				(1.539)	(1.531)	(1.459)	(1.459)
Dispossession				-1.136	-1.709	-1.959	-1.982
				(2.388)	(2.373)	(2.218)	(2.215)
Adulthood controls	No	No	No	No	Yes	Yes	Yes
Health and Lifestyle controls	No	No	No	No	No	Yes	Yes
Observations	11,007	11,007	11,007	11,001	11,001	11,001	11,001
R-squared	0.085	0.086	0.086	0.087	0.097	0.131	0.131

Robust standard errors in parentheses, clustered at individual level. Adulthood controls include income, years of education, marital status, job status, number of children and number of grandchildren; Health and Lifestyle include the number of chronic diseases, alcohol consumption, smoking, Bmi class, and sport activities. All models include dummies for month-year of birth and country of birth, wave, age, target age and age * target age; Missing values are flagged for all controls. *** p<0.01, ** p<0.05, * p<0.1.

Table A6. Descriptive statistics of diseases and health functionalities

	With migrated				Without migrated			
Health variable	***% Yes***	***# No***	***# Yes***	***N***	***% Yes***	***# No***	***# Yes***	***N***
			Mobility indicators					
Adlwa	7.2	10,207	794	11,001	7.2	9,906	762	10,668
Iadla	2.0	10,776	225	11,001	2.0	10,451	217	10,668
Mobility	28.1	7,906	3,095	11,001	28.1	7,668	3,000	10,668
Lgmuscle	37.2	6,911	4,090	11,001	37.2	6,701	3,967	10,668
Gross motor	13.3	9,539	1,462	11,001	13.3	9,254	1,414	10,668
Fine motor	7.9	10,137	864	11,001	7.8	9,836	832	10,668
			Diseases					
At least one chronic disease	66.1	3,730	7,266	10,996	66.1	3,610	7,053	10,663
Stroke	3.1	10,658	338	10,996	3.1	10,334	329	10,663
Cancer	4.6	10,494	502	10,996	4.5	10,182	481	10,663
Hypertension	40.9	6,501	4,495	10,996	40.8	6,311	4,352	10,663
Heart attack	11.2	9,768	1,228	10,996	11.2	9,472	1,191	10,663
Cholesterol	26.7	8,056	2,940	10,996	26.8	7,810	2,853	10,663
Diabetes	13.0	9,571	1,425	10,996	13.1	9,268	1,395	10,663
Parkinson	0.8	10,910	86	10,996	0.8	10,580	83	10,663
Stomach ulcer	4.3	10,519	477	10,996	4.3	10,203	460	10,663
Cataracts	6.8	10,248	748	10,996	6.8	9,938	725	10,663
Lung disease	5.9	648	10,348	10,996	5.9	10,038	625	10,663
Hip fracture	1.3	138	10,858	10,996	1.3	10,528	135	10,663

See variable legend in Table A1 for details on the health variables.

Table A7a. The moderating role of war exposure on health and subjective survival probabilities (excluding migrants)

	War	Std. Err.	Health impairment	Std. Err.	War* Health impairment	Std. Err.	Obs.	R-squared
				Mobility indices				
Adlwa	3.119***	(1.109)	-9.638***	(1.832)	1.776	(2.342)	10,668	0.120
Iadla	2.860***	(1.097)	-15.47***	(3.195)	13.86***	(4.360)	10,668	0.117
Mobility	2.550**	(1.141)	-9.103***	(0.957)	1.748	(1.289)	10,668	0.130
Lgmuscle	2.546**	(1.152)	-7.215***	(0.845)	1.933*	(1.155)	10,668	0.125
Gross motor	2.833***	(1.095)	-8.974***	(1.349)	2.084	(1.782)	10,668	0.122
Fine motor	3.079***	(1.107)	-10.93***	(1.685)	2.652	(2.182)	10,668	0.122
				Diseases				
# chronic diseases	1.811	(1.231)	-3.668***	(0.344)	1.060**	(0.497)	10,668	0.131
Stroke	3.005***	(1.100)	-12.56***	(2.188)	7.649**	(3.359)	10,663	0.117
Cancer	3.359***	(1.106)	-5.681***	(2.105)	-0.148	(2.793)	10,663	0.115
Hypertension	2.352*	(1.215)	-4.742***	(0.823)	2.491**	(1.176)	10,663	0.118
Heart attack	3.229***	(1.129)	-7.499***	(1.365)	-0.446	(1.933)	10,663	0.121
Parkinson	3.304***	(1.105)	-9.221*	(5.410)	8.451	(6.721)	10,663	0.114
Stomach ulcer	3.293***	(1.103)	-3.355*	(2.004)	0.984	(2.756)	10,663	0.114
Cholesterol	2.858**	(1.159)	-3.626***	(0.910)	1.697	(1.278)	10,663	0.116
Diabetes	2.964***	(1.137)	-7.363***	(1.243)	1.467	(1.885)	10,663	0.120
Cataracts	3.448***	(1.116)	-0.094	(1.495)	-1.650	(2.199)	10,663	0.114
Lung disease	3.197***	(1.103)	-6.536***	(1.750)	1.719	(2.491)	10,663	0.116
Hip fracture	3.384***	(1.106)	0.360	(3.159)	-3.857	(4.799)	10,663	0.113

Each row displays regression coefficients from the full specification model in Table 2, column 6, with SSP as dependent variable and War and the interaction between War and the listed health impairment as additional controls. The variable '# chronic diseases' is excluded from each specification.

Table A7b. The moderating role of war exposure on health and subjective survival probabilities (including migrants).

	War	Std. Err.	Health impairment	Std. Err.	War* Health impairment	Std. Err.	Obs.	R-squared
				Mobility indices				
Adlwa	3.162***	(1.099)	-9.896***	(1.810)	2.072	(2.309)	11,001	0.120
Iadla	2.902***	(1.087)	-15.42***	(3.151)	13.83***	(4.261)	11,001	0.117
Mobility	2.545**	(1.128)	-9.228***	(0.944)	1.886	(1.267)	11,001	0.130
Lgmuscle	2.405**	(1.138)	-7.576***	(0.840)	2.468**	(1.141)	11,001	0.125
Gross motor	2.840***	(1.085)	-9.046***	(1.321)	2.282	(1.743)	11,001	0.122
Fine motor	3.111***	(1.098)	-11.21***	(1.656)	2.892	(2.144)	11,001	0.122
				Diseases				
# chronic diseases	1.855	(1.213)	-3.691***	(0.339)	1.034**	(0.486)	11,001	0.131
Stroke	3.077***	(1.089)	-12.19***	(2.187)	7.463**	(3.313)	10,996	0.117
Cancer	3.414***	(1.095)	-5.575***	(2.093)	-0.103	(2.754)	10,996	0.115
Hypertension	2.551**	(1.200)	-4.599***	(0.814)	2.074*	(1.157)	10,996	0.118
Heart attack	3.237***	(1.117)	-7.598***	(1.350)	-0.137	(1.901)	10,996	0.121
Parkinson	3.354***	(1.094)	-10.12*	(5.237)	8.534	(6.612)	10,996	0.114
Stomach ulcer	3.313***	(1.097)	-3.717*	(1.950)	1.274	(2.685)	10,996	0.114
Cholesterol	2.836**	(1.143)	-3.764***	(0.900)	1.957	(1.259)	10,996	0.116
Diabetes	2.998***	(1.126)	-7.425***	(1.227)	1.605	(1.860)	10,996	0.120
Cataracts	3.502***	(1.104)	-0.588	(1.479)	-1.701	(2.171)	10,996	0.114
Lung disease	3.259***	(1.090)	-6.431***	(1.731)	1.303	(2.454)	10,996	0.116
Hip fracture	3.435***	(1.095)	0.398	(3.172)	-3.604	(4.744)	10,996	0.113

Each row displays regression coefficients from the full specification model in Table 2, column 6, with SSP as dependent variable and War and the interaction between War and the listed health impairment as additional controls. The variable '# chronic diseases' is excluded from each specification.

Table A8. The impact of war-exposure on health (including migrants)

Dep. Var.:	War	Std. Err.	Observations	R-squared
Adlwa	-0.00529	(0.00971)	11,001	0.090
Iadla	-0.0137**	(0.00646)	11,001	0.052
Mobility	-0.0214	(0.0191)	11,001	0.202
Lgmuscle	0.00255	(0.0200)	11,001	0.147
Gross motor	-0.0201	(0.0147)	11,001	0.146
Fine motor	-0.000807	(0.0108)	11,001	0.076
Stroke	-0.00843	(0.00774)	10,996	0.034
Cancer	0.00239	(0.00770)	10,996	0.029
# chronic diseases	-0.0620	(0.0540)	11,001	0.135
Hypertension	0.0128	(0.0226)	10,996	0.108
Heart attack	-0.0232	(0.0160)	10,996	0.056
Cholesterol	-0.00753	(0.0216)	10,996	0.051
Diabetes	-0.0235	(0.0178)	10,996	0.087
Parkinson	-0.000627	(0.00235)	10,996	0.027
Stomach ulcer	0.000621	(0.00846)	10,996	0.031
Cataracts	-0.00324	(0.0100)	10,996	0.039
Lung disease	-0.00935	(0.0114)	10,996	0.034
Hip fracture	-0.00295	(0.00461)	10,996	0.024

Each line summarizes the main results from a regression of the selected health measure on war exposure (controls as in column 6 of Table 2). Robust standard error in parentheses, clustered at individual level. *** p<0.01, ** p<0.05, * p<0.1.

Table A9. The impact of war exposure on subjective survival probabilities (excluding non-war countries).

Dep. Var.: *SSP*	(1)	(2)	(3)	(4)	(5)	(6)
War	3.369***	3.296***	3.298***	3.300***	3.186***	2.917***
	(1.121)	(1.122)	(1.123)	(1.122)	(1.122)	(1.094)
Female	-0.414	-0.442	-0.435	-0.504	0.850	1.452*
	(0.716)	(0.717)	(0.718)	(0.716)	(0.787)	(0.792)
Childhood SES		1.531**	1.517**	1.567**	0.666	0.162
		(0.763)	(0.766)	(0.763)	(0.790)	(0.769)
Mother at age 10			0.693	0.686	0.776	0.430
			(2.043)	(2.011)	(1.991)	(1.922)
Father at age 10			-0.0518	-0.177	-0.198	-0.489
			(1.336)	(1.332)	(1.321)	(1.255)
Hunger				-3.782**	-3.341*	-2.314
				(1.747)	(1.744)	(1.675)
Dispossession				-1.924	-2.396	-2.622
				(2.529)	(2.509)	(2.365)
Adulthood	No	No	No	No	Yes	Yes
Health and Lifestyle	No	No	No	No	No	Yes
Observations	8,282	8,282	8,282	8,276	8,276	8,276
R-squared	0.097	0.097	0.097	0.099	0.108	0.139

Robust standard errors in parentheses, clustered at individual level. Adulthood include income, years of education, marital status, job status, number of children and number of grandchildren; Health and Lifestyle include the number of chronic diseases, alcohol consumption, smoking, Bmi class, and sport activities. All models include dummies for month-year of birth and country of birth, wave, age, target age and age * target age. Missing values are flagged for all controls. *** p<0.01, ** p<0.05, * p<0.1.

Table A10. The impact of war exposure on subjective survival probabilities (with region fixed-effects)

Dep. Var.: *SSP*	(1)	(2)	(3)	(4)	(5)	(6)
War	3.681***	3.588***	3.575***	3.507**	3.414**	3.297**
	(1.370)	(1.365)	(1.368)	(1.370)	(1.364)	(1.339)
Female	-0.597	-0.641	-0.639	-0.683	0.329	0.985
	(0.641)	(0.641)	(0.641)	(0.640)	(0.706)	(0.708)
Childhood SES		1.912***	1.965***	1.951***	1.159	0.761
		(0.712)	(0.716)	(0.715)	(0.728)	(0.703)
Mother at age 10			0.445	0.469	0.305	0.108
			(1.755)	(1.738)	(1.726)	(1.687)
Father at age 10			-0.883	-1.024	-0.964	-1.203
			(1.194)	(1.190)	(1.180)	(1.129)
Hunger				-3.556**	-3.101*	-1.991
				(1.597)	(1.594)	(1.520)
Dispossession				-2.173	-2.740	-2.741
				(2.374)	(2.369)	(2.212)
Adulthood controls	No	No	No	No	Yes	Yes
Health and Lifestyle controls	No	No	No	No	No	Yes
Observations	10,674	10,674	10,674	10,668	10,668	10,668
R-squared	0.098	0.099	0.099	0.100	0.108	0.140

Robust standard errors in parentheses, clustered at individual level. Adulthood include income, years of education, marital status, job status, number of children and number of grandchildren; Health and Lifestyle include the number of chronic diseases, alcohol consumption, smoking, Bmi class, and sport activities. All models include dummies for month-year of birth and region (NUTS-1 level), wave, age, target age, and age*target age. Missing values are flagged for all controls. *** p<0.01, ** p<0.05, * p<0.1.

Table A11. The impact of war exposure on subjective survival probabilities (including children aged 7-12).

Dep. Var.: *SSP*	(1)	(2)
At least 1 event when 0-6	1.988**	1.790**
	(0.807)	(0.790)
At least 1 event when 7-12	0.733	0.980
	(0.918)	(0.899)
Female	1.231**	1.166**
	(0.560)	(0.551)
Childhood SES	0.352	0.257
	(0.545)	(0.535)
Mother at age 10	0.564	0.127
	(1.395)	(1.347)
Father at age 10	-0.949	-1.003
	(0.867)	(0.850)
Hunger	-0.804	-0.699
	(0.961)	(0.932)
Dispossession	-4.371***	-3.490**
	(1.484)	(1.445)
Migrated		0.796
		(1.410)
Observations	18,105	20,454
R-squared	0.153	0.152

Robust standard errors in parentheses, clustered at individual level. All models include Adulthood (income, years of education, marital status, job status, number of children and number of grandchildren), Health and Lifestyle (number of chronic diseases, alcohol consumption, smoking, Bmi class, and sport activities), dummies for month-year of birth and country of birth, wave, age, target age and age * target age. Missing values are flagged for all controls. *** p<0.01, ** p<0.05, * p<0.1.

Table A12a. The role of war-induced differential mortality by SES

Dep. Var.: *Age of death of father*	(1)	(2)	(3)	(4)
Childhood SES	1.557***	2.015	1.573***	1.661
	(0.394)	(1.217)	(0.273)	(1.048)
War countries	-2.457***	-1.649	-4.822***	-4.181**
	(0.793)	(2.308)	(0.0782)	(1.716)
DoB	0.00101	0.00199	0.00106	0.00232
	(0.00139)	(0.00428)	(0.00132)	(0.00435)
Childhood SES * War countries		-0.643		-0.328
		(1.612)		(1.443)
Childhood SES * DoB		-0.000179		-0.000445
		(0.00266)		(0.00277)
War countries * DoB		-0.00139		-0.00195
		(0.00460)		(0.00472)
Childhood SES * War countries * DoB		0.000305		0.00115
		(0.00351)		(0.00364)
Country dummies	NO	NO	YES	YES
Observations	15,768	15,768	15,768	15,768
R-squared	0.010	0.010	0.020	0.020

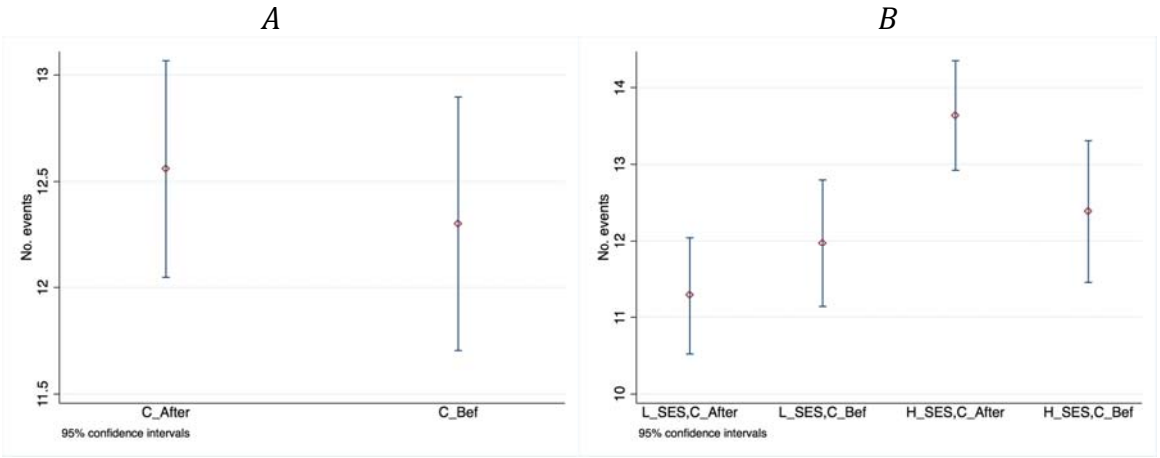
Robust standard errors in parentheses clustered at country level. Only native-born respondents from SHARE waves 1, 2, 4, and 6 who are present also in wave 3 (SHARELIFE) are included. *** p<0.01, ** p<0.05, * p<0.1

Table A12b. The role of war-induced differential mortality by SES

Dep. Var.: *Age of death of father*	(1)	(2)	(3)	(4)
Childhood SES	1.522***	2.080**	1.528***	1.698**
	(0.390)	(0.683)	(0.273)	(0.612)
War countries	-2.481***	-1.473	-4.808***	-4.151***
	(0.803)	(1.393)	(0.0801)	(0.638)
Born during WW2	0.105	1.266	0.133	1.171
	(0.408)	(1.310)	(0.366)	(1.290)
Born after WW2	0.727	1.356*	0.755*	1.436**
	(0.413)	(0.658)	(0.394)	(0.646)
Childhood SES * War countries		-0.904		-0.422
		(0.996)		(0.889)
Childhood SES * Born during WW2		0.0491		-0.0506
		(0.809)		(0.854)
Childhood SES * Born after WW2		-0.572		-0.667
		(0.903)		(0.858)
War countries * Born during WW2		-2.216		-2.028
		(1.430)		(1.391)
War countries * Born after WW2		-0.632		-0.732
		(0.807)		(0.813)
Childhood SES * War countries * Born during WW2		1.318		1.445
		(1.352)		(1.369)
Childhood SES * War countries * Born after WW2		0.360		0.587
		(1.091)		(1.067)
Country dummies	NO	NO	YES	YES
Observations	15,768	15,768	15,768	15,768
R-squared	0.011	0.011	0.021	0.021

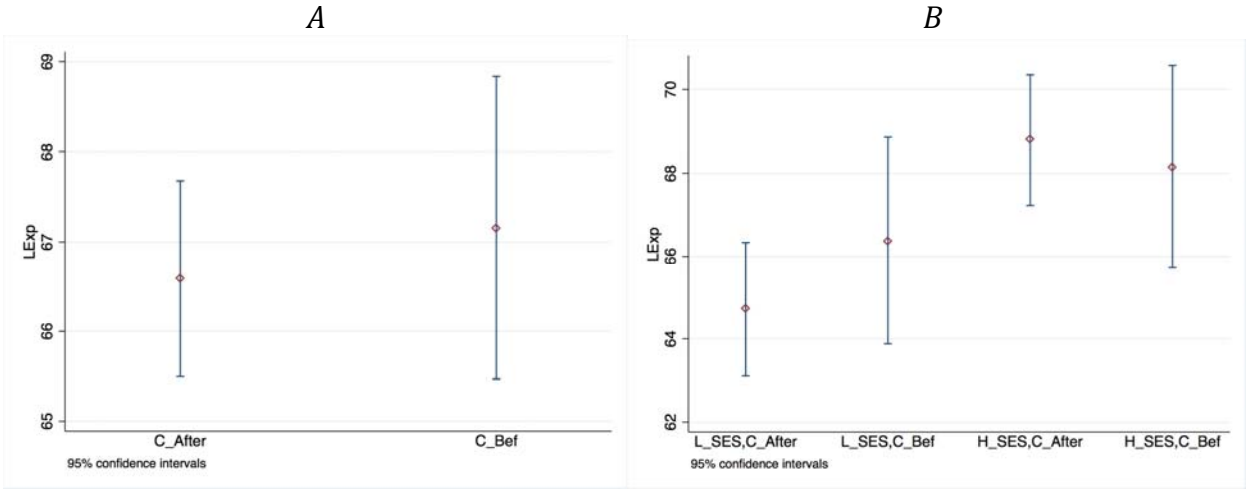
Robust standard errors in parentheses clustered at country level. Only native-born respondents from SHARE waves 1, 2, 4, and 6 who are present also in wave 3 (SHARELIFE) are included. Omitted category: *Born before WW2*. *** p<0.01, ** p<0.05, * p<0.1

Figure A1. War-exposure by childhood SES and conception period



Legend: *C_After* = Conceived during or after the first WW2 event in the region of birth; *C_Bef* = Conceived up to the first WW2 event in the region of birth; *L_SES*= Below the median value of SES in the childhood; *H_SES* = Above (or equal to) the median value of SES in the childhood. No. of events ranges from 1 to 24; we have categorized as '25+' the 10% of respondents in our sample who experienced from 25 to 158 WW2 events. Only war-exposed respondents.

Figure A2. Subjective survival by childhood SES and conception period



Legend: *C_After* = Conceived during or after the first WW2 event in the region of birth; *C_Bef* = Conceived up to the first WW2 event in the region of birth; *L_SES*= Below the median value of SES in the childhood; *H_SES* = Above (or equal to) the median value of SES in the childhood. Only war-exposed respondents.

SUPPLEMENTARY MATERIALS 2

Consistency between retrospective and historical WW2 facts

To evaluate measurement error in the retrospective account of war episodes we first compare the reported periods of hunger witnessed during WW2 with real historical spells of famine in the respondent's country. Figure A1A in displays the distribution of the year from which respondents started experiencing hunger in each war country. Large spikes are observed in Austria and Germany at the end of the war, which is consistent with the food shortage those countries experienced in 1945, when food supply from occupied countries ceased. We also find correspondence between the high fraction of Dutch respondents reporting that their hunger period started in 1944 and the 'Dutch famine' occurred in 1944-1945. Finally, as expected, the distribution of hunger episodes by year appears different when comparing war and non-war countries, especially in the period 1943-1946 (Figure A1B in Appendix), during which most war countries in our dataset experienced famine.[1] Regarding parental absence, about 14 (6) percent of respondents in war countries lived without a biological father (mother) at age ten. The distribution of absent parents by country confirms the harsh impact of WW2 in Germany, Austria and Poland (Figure A2A in Appendix). This figure also matches with the highest share of WW2 total deaths registered in those countries (Figure A2B in Appendix).[2]

Overall, the documented consistencies between self-reported and historical facts suggest that respondents' memory of events occurred in early childhood is fairly reliable. However, an additional concern might emerge if misreporting of hunger episodes is caused by respondents who were too young during WW2 to remember such a circumstance. In other terms, differences in self-reported hunger could be driven by the better memory of respondents who were older during WW2. Looking at our sample statistics, about six percent of respondents report a period of hunger in their life, with only 0.2 percent of missing values and 1.2 percentage-points difference between war and non-war countries. Most of them set the beginning of hunger

[1] The war countries with the highest share of respondents reporting hunger episodes during WW2 are Germany (12.2 percent), Netherlands (5.5 percent), Austria (5.4 percent), Greece (4.6 percent), Italy (4.3 percent) and Poland (4.1 percent). These figures are consistent with the country-level hunger statistics for the WW2 period contained in Kesternich et al. (2014).

[2] Data are collected from Van Mourik (1978), Putzger (1963), Overman (1999) and Statistical Yearbook for the German Reich (1939) as in Kesternich et al. (2014).

between 1940 and 1950. This figure is strikingly similar to the distribution of hunger episodes in Kesternich et al. (2014), who use SHARELIFE as in our study, but include also individuals born before 1939 (28 percent of the SHARELIFE sample). The similarity of responses between our sample composed by cohorts 1939-1945 and the sample including also older respondents suggests that our hunger measure is not subject to age-driven misreporting.

As an additional consequence of war, frequent dispossessions of property - mostly driven by prosecution - might have affected family composition, housing conditions and relocation decisions, with effects on trust similar to those hypothesized for migration. To explore this possible channel, we rely on self-reported dispossession episodes. More specifically, SHARELIFE respondents are asked whether (and when) they or their family were ever dispossessed of any property as a result of war or persecution. About six percent of the sample witnessed at least one episode of dispossession. The majority of these episodes occurred towards the end and after WW2 (Figure A3A), most likely because of ethnic persecutions *during* war or because of the change in geo-political situation in Europe and the nationalizations carried out in Eastern countries *after* the end of the war. The distribution of dispossession episodes by country and year is similar to that shown by Kesternich et al. (2014), suggesting again that recalling bias is not driven by our cohort restriction. German, Austria and Poland have the highest share of dispossessed respondents during WW2, whereas Czechoslovakia ranks first in episodes of dispossession after war (Figure A3B).

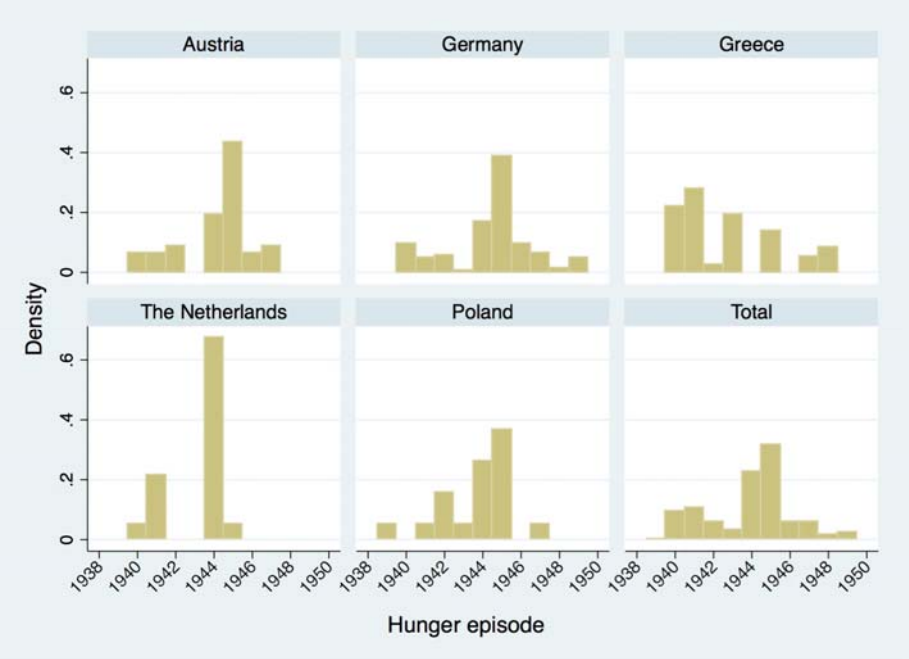
To account for migration to other regions, we have included in a robustness check also respondents who moved to another region in the period 1939-1945. Most respondents in our sample relocated when the war was about to finish (from 1944) and moved mainly from Eastern Europe (especially from Poland) to the present borders of Germany (Figure A4A-B in Appendix), most likely because of the border changes in those areas and the consequent expulsion of German ethnic groups during the last stages of the war and in the post-war period. Since the same migration pattern is observed if we extend the sample to older cohorts, also in this case we can exclude measurement error due to cohort restriction.[3] Furthermore, the migration paths documented in our sample are consistent with the country distribution of population inflows and outflows during and after the end of WW2 as calculated by Kesternich

[3] Available upon request.

et al. (2014) on the basis of historical data, thereby further underlining the reliability of retrospective information.

Figure A1. Year in which hunger period started

A



B

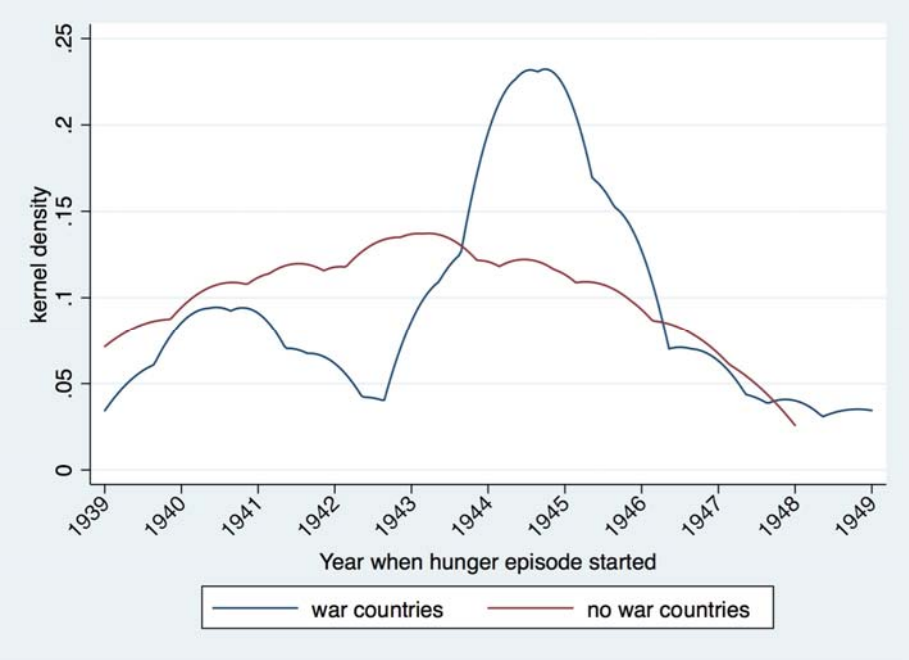


Figure A2. Absence of parents and war

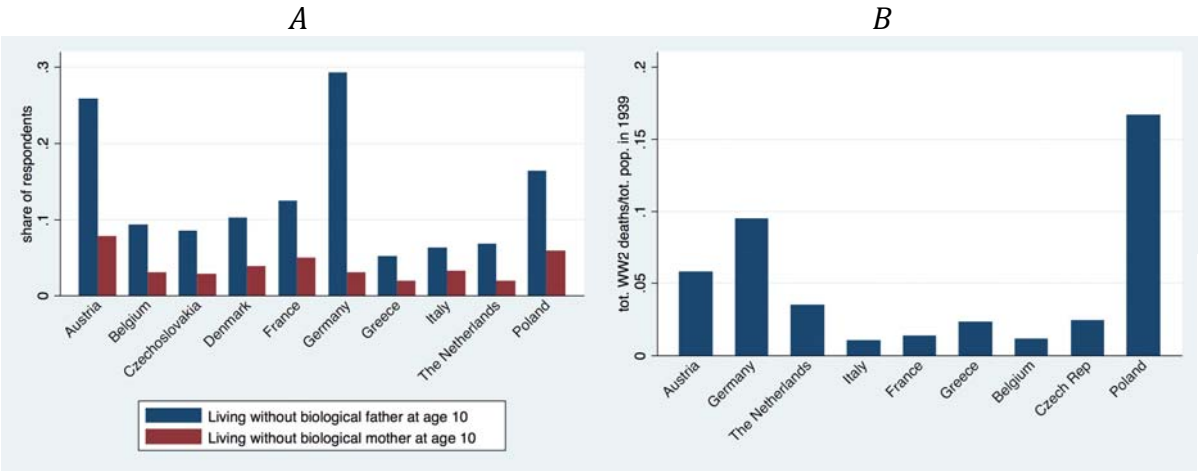


Figure A3. Dispossession for prosecution

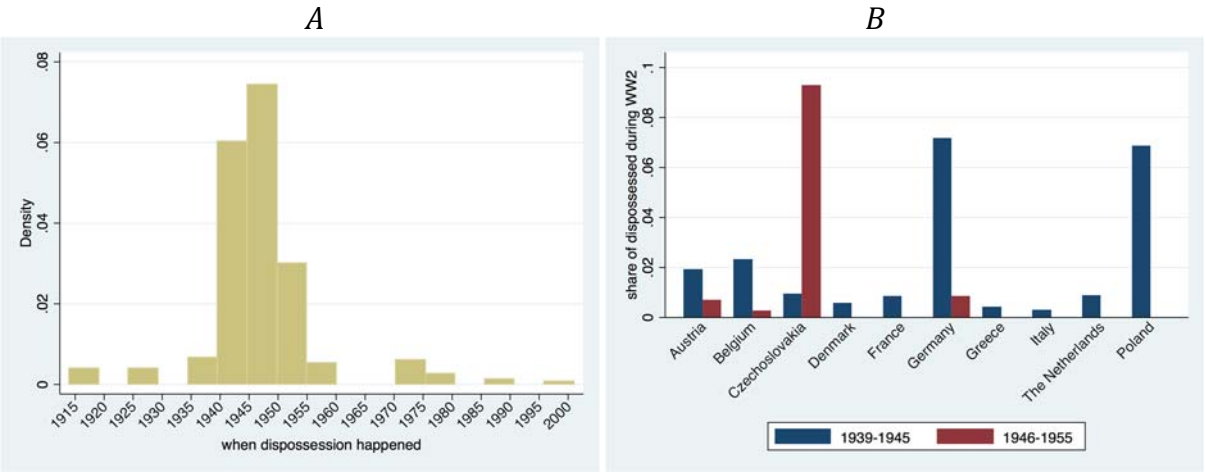


Figure A4. Migration and war