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Socialism, Identity and the Well-Being of Unemployed Women

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Abstract

Unemployment influences people's life satisfaction beyond negative income shocks. A large body of literature investigates these non-pecuniary costs of unemployment and stresses the importance of social identity and therefore social norms, especially for men. We add to this literature by showing that norm non-compliance may equally inflate the non-pecuniary loss of well-being for unemployed women. Drawing upon large-scale German panel data, we use the German division as a natural experiment to compare unemployment-related life satisfaction losses between different cohorts of East and West German women. We hypothesise that being exposed to different legal norms concerning workforce participation and different opportunity cost of working after the division shaped social identities and thus social norms around work for the two German female populations in different ways. Specifically, East German women were required to work full-time whereas West German women were expected to focus on family care. We find that East German women suffer significantly more from unemployment than West German women. This difference is driven by a significantly worse unemployment experience for East German females that were exclusively raised in the former GDR. We do not find such diverging patterns for German men. Our findings imply that women may suffer as much from unemployment as men, if socialised in the same way.

JEL-Codes: P300, I310, J160, J600, N340.

Keywords: well-being, gender, unemployment, social identity, social norms, German division.

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1 Introduction

It has become a stylised fact that unemployment negatively affects individual life satisfaction beyond the associated income loss, in particular for men (Clark and Oswald, 1994; Knabe *et al.*, 2010; Van der Meer, 2014). The non-pecuniary cost of unemployment are estimated to be an order of magnitude higher than the partial effect of forgone income (Winkelmann and Winkelmann, 1998; Knabe and Rätzel, 2011). Past research investigating the different components of these cost stresses the importance of the social norm to work (Stutzer and Lalive, 2004; Roex and Rözer, 2018). To the extent that working-age individuals meet this norm by having a job, they are able to conform to an ideal self-concept and, hence, enjoy identity utility. By contrast, violating social norms leads to decreased feelings of self-worth and, therefore, unhappiness (Hetschko *et al.*, 2014, 2021). Based on the notion of a traditional male breadwinner identity, studies often conclude that the social norm to work predominately explains the misery of unemployed men (Clark, 2003; Howley and Knight, 2022; Heyne and Voßemer, 2023). As we show in this study, unemployment may be equally harmful for women who were socialised into a culture of gender-equal workforce participation.

While our empirical analysis is based on the historical context of the German division, we expect our findings to be of particular importance for modern societies. There has been a significant shift toward a more equal participation of women and men in the labour market. Women’s labour force participation has risen markedly across the world between 1990 and 2019, with the exception of some transition economies (e.g., South Asia) and some countries where the level was already quite high to begin with (Winkler, 2022). With women in paid work becoming the dominant observable behaviour, they may identify themselves increasingly over their workforce participation so that complying with the social norm to work becomes more important. In turn, they might suffer greater losses of well-being when unemployed.¹

To analyse gender-specific changes in social identity and how these impact on the non-monetary cost of unemployment, we focus on a population of women that may have undergone this transition already. Sitting at the intersection of labour economics, identity economics and economic history, our study exploits the German division to show how unemployment affects the life satisfaction of East German women differently from West German women, presumably

¹Throughout this study we follow Schöb (2013) linking social identity and social norms in a simple manner: By identifying with a certain social group, individuals internalise social norms, the unwritten rules about behaviour shared by the group (Legros and Cislighi, 2020). The social norm to work requires individuals to participate in paid employment (Roex and Rözer, 2018).

as a result of different social identities. East German women were exposed to a version of socialism that no longer promoted the male breadwinner model and changed attitudes towards work and gender across Central-Eastern European societies, accordingly (Campa and Serafinelli, 2019). The German division following World War II exposed two segments of a formerly unified population to fundamentally different political ideologies and institutions. Crucially, the opportunity cost of work for mothers differed substantially. Western institutions favoured a more traditional role for women as caregivers in society, whereas the socialist German Democratic Republic (GDR) enforced the labour force participation of men and women alike, while providing all-day childcare, including for the youngest children (Rosenfeld *et al.*, 2004). There is ample evidence showing how the exposure to in many ways opposite political regimes has led to differences in preferences and economic behaviour between East Germans and West Germans until the present day (Alesina and Fuchs-Schündeln, 2007; Bauernschuster and Rainer, 2012; Beblo and Görges, 2018; Lippmann *et al.*, 2020; Nikolova and Popova, 2023). Likewise, these institutional differences may have led to a divergence of the social identity of working-age women and in how much they feel required to comply with the social norm to work.

We therefore hypothesise that the non-pecuniary cost of unemployment are larger for East German women than for West German women, whereas we do not expect such a difference between the two male populations. Using data from the German Socio-Economic Panel study for the post-reunification years from 1991 to 2020, we compare the experience of unemployment across multiple groups of German workers to test this hypothesis. East German and West German origin is identified according to where the individual lived in 1989 before the fall of the Berlin wall. In the first step, we show that unemployment is associated with negative within-person changes of life satisfaction that differ significantly between East and West German women in the expected manner, but not between East and West German men. To identify differences in the non-pecuniary effects of job loss on well-being, we control for income and wealth in the process. We address the endogeneity of unemployment via controlling for individual-fixed effects and via focusing on involuntary unemployment (e.g., Nikolova and Ayhan (2019)).

We then distinguish further between cohorts of East German women in order to test for the influence of the different regimes assuming that behaviour observed in role models during childhood influences social identities later in life (Fernández *et al.*, 2004). We expect that cohorts born in Germany before 1945 were brought up in a relatively uniform manner under the male breadwinner model while East German women born later were exposed to institutions that

treated men and women much more equally when it comes to paid work. Again relying on the premise that these institutional and resulting behavioural changes have shaped the social identity, we hypothesise that this younger cohort should suffer higher non-pecuniary losses of life satisfaction from unemployment due to violating the social norm to work. If gendered work norms were undone completely by the GDR regime, East German women raised after 1945 should, *ceteris paribus*, display a similar difference in well-being between employment and unemployment as East German men. On the contrary, women raised in West Germany should cope better with job loss than male Germans, as well as the younger cohort of East German women, regardless of whether they were socialised before the German division or afterwards. The comparison of the two cohorts of East German women with the same cohorts of West German women additionally ensures that age effects cannot explain differences between these two cohorts. Likewise, the comparison with East German men allows us to rule out that the results are driven by cohort-specific impacts of the German division unrelated to gender.

Our findings conform to the prediction that East German women raised after the division suffer stronger non-monetary losses of life satisfaction than the older East German cohort of women. There is no such significant difference between female cohorts who lived in the West before reunification. Moreover, we find no significant differences in the effect of unemployment on life satisfaction between cohorts of East German men or cohorts of West German men. The gap in well-being between unemployed East German women of the division cohort and their employed counterparts compares to that measured between unemployed and employed East and West German men.

Our results are confirmed by a battery of sensitivity analyses addressing the issues of internal migration, immigration to Germany and East-West differences that are unrelated to the German division, among other things. In addition, we shed some light on the question of whether gendered work norms realign between East and West after reunification. To this end, we examine the well-being of East German women born after 1974 who spent their working life entirely after the fall of the Berlin Wall. We find no indication that they suffer less from unemployment than cohorts born in the East between 1945 and 1974, but significantly more than the pre-1945 cohort. This implies persistent work norm differences between East and West, in keeping with the notion that socialisation during childhood shapes social identity during working age. Our findings are further corroborated by an analysis of a more direct measure of the norm to work.

We interpret these findings as evidence for the importance of social identity and social norms

for the non-monetary cost of unemployment, adding to two decades of previous work relying on other empirical settings (Clark, 2003; Stutzer and Lalive, 2004; Powdthavee, 2007; Van Hoorn and Maseland, 2013; Chadi, 2014; Hetschko *et al.*, 2014, 2020; Howley and Knight, 2022). Methodologically, our work is closely related to that of Kassenboehmer and Haisken-DeNew (2009) who also examine the effect of involuntary unemployment on life satisfaction by gender and region. In contrast to their work, our empirical strategy aims at detecting the role of childhood exposure to different economic systems and thus institutions promoting female employment. We therefore additionally distinguish between different cohorts of East/West German women and engage in statistical comparisons with male East Germans to control for general East-West differences in the experience of job loss (e.g., labour market conditions).² Our work is also related to a recent sociological article by Heyne and Voßemer (2023) who argue that any East-West differences in the life satisfaction effect of unemployment are driven by men. Unlike our work, their analysis neither addresses the endogeneity of unemployment nor examines cohort differences.

Our study is the first to show how historical changes in institutions influence the well-being effect of unemployment. On that basis, we are also able to complement the previous literature on a more general level by highlighting how gender interacts with socialisation in the experience of unemployment. It turns out that women may be as much negatively affected by job loss as men, depending on the institutional and societal environment during the early period of their life. As a result, our study suggests that gender differences in life satisfaction responses to unemployment are down to nurture, not nature. Finally, we contribute to the aforementioned literature on the lasting consequences of the German division, which has mostly focused on persistent gaps in attitudes and behaviours, and provide an example of how these shape the well-being of post-reunification Germans.³

We structure our paper in the following way: [Section 2](#) introduces the historical background of our study, while also summarising previous studies on the German division looking at gender and the labour market. [Section 3](#) details our identification strategy, empirical model, data and sampling. [Section 4](#) presents our main results and tests their robustness. It also covers analyses of the persistence of division effects and of East-West gaps in the importance of work. [Section 5](#) concludes.

²We also note that Kassenboehmer and Haisken-DeNew (2009) obtain somewhat ambiguous results across regions for women dependent on the type of dismissal. Our results fully replicate in a plant closure only sample, presumably because we are able to rely on many more waves of SOEP data.

³See Otrachshenko *et al.* (2023) for another recently published example of lasting well-being differences originating from the communist past in Eastern Europe.

2 Background

2.1 Institutional differences in the divided Germany

In line with socialist ideology, the GDR regime stressed the importance of equal rights for men and women by repealing ‘all laws and regulations that oppose the equality of women’ (own translation following the 1949 constitution of the GDR. One of the main drivers for this push towards gender equality was the economic need to integrate as many men and women as possible into the workforce to combat labour shortages and meet ambitious five-year production plans (Maier, 1993; Kranz, 2005). Work reluctance was deemed antisocial and people of working age were generally obliged to work and punished for non-compliance, irrespective of the person’s gender. Persistent refusal to take up a job could lead to forced labour and a prison sentence of up to five years (§42 and §249 of the criminal code of the GDR (StGB-DDR)).⁴

Establishing the social acceptance of men and women as equals when it comes to workforce participation required the diffusion of new gender roles into the East German society (Braun *et al.*, 1994). In 1950, the Mother and Child Care and Women’s Rights Act (§14 and §15 MKSchG (1950)) formally granted women equal say in their marriage in household decisions and stated that women could not be prevented from taking up employment or vocational training due to their marriage. In order to enable women to consistently participate in the labour market, the government established an extensive network of childcare facilities (Leitner *et al.*, 2008). Women were granted five months of paid maternity leave for the first child (increased to one year only in 1986) and another 12 months for each additional child (Heisig and Zierow, 2019). In a nutshell, the opportunity cost of working were considerably reduced for mothers, whereas the opportunity cost of not working were increased for all women as per a gender-neutral obligation to work.

On the contrary, West German women were not required to work. Even though an equal rights act formally abolished the male privilege of sole determination in all household decisions in 1958, women were still only allowed to work if this did not interfere with their family and household responsibilities (§1356 of the law concerning equal rights for men and women (GleichberG)) until 1977. Aided by a tax system that advantages married couples with unequal income, husbands usually earned enough to provide for the whole family while their wives were mainly

⁴Maier (1993) notes that "every citizen had both a right and an obligation to paid employment, the process of integrating the female half of society was supported ideologically by equating paid employment with emancipation and equality of the sexes." (p. 268)

expected to devote their time to taking care of household and children. Childcare facilities such as kindergartens were rare and often operated until noon only. Many schools sent kids back home for lunch instead of making offers on-site (Trappe and Rosenfeld, 2000). As a result, the opportunity cost of working for mothers were high, whereas the opportunity cost of not working were relatively low.

The institutional differences between East and West Germany led to a strong divergence in observable behaviour. Official GDR statistics claim that right before reunification as much as 90.1% of women aged 15-59 years were active in the labour force, while this was true for slightly more than 58% of West German women only (Beblo and Görges, 2018). The fraction of full-time working women in the GDR was more than twice as large as that of the West, with mothers being no exception (Heisig and Zierow, 2019).

2.2 Differences in attitudes and gendered norms: previous studies

A comprehensive account of recent research shows that East-West differences in attitudes originate from the different political regimes. In their pioneering study of preferences for state intervention in East and West Germany, Alesina and Fuchs-Schündeln (2007) find a regional divide along the former German border in data from the Socio-economic Panel (SOEP). Their results show that East Germans are more likely to support an active state in the economy than West Germans, which still holds true even 27 years after reunification (Bondar and Fuchs-Schündeln, 2023). Using data from the German General Social Survey (ALLBUS), Bauernschuster and Rainer (2012) find that East Germans have a more ‘progressive’ understanding of the role of women in society than West Germans.

Using additional waves of the same dataset, Beblo and Görges (2018) investigate East-West differences in preferences for work between men and women. They find that gender differences are significantly smaller in East Germany than in West Germany and that this so-called ‘gap-in-the-gap’ persists even twenty years after reunification. Campa and Serafinelli (2019) support these findings with a spatial regression-discontinuity study of SOEP data along the German border. They find persistent East-West differences which are not driven by people living in areas of East and West Germany that are more distant and hence potentially more different already prior to the division.

Lippmann *et al.* (2020) analyse if the region of residence before reunification determines economic outcomes in dual-earner couples. Unlike their East German counterparts, West German

women who start to contribute more to household income than their partner are relatively more likely to reduce labour market participation within the next year and to experience a divorce within the next five years. Notably, the authors conclude that the GDR regime has managed to undo the male breadwinner model.

2.3 Why cohorts matter: the importance of childhood experience

A growing literature studies the time in a person's life when attitudes and social identities are shaped until they become relatively stable over the remaining life course. In regard to work and gender, [Fernández *et al.* \(2004\)](#) show that men whose mother worked when they were boys (up to 14 years old) are more often partnered with working women than other men. This result was only recently confirmed for German data by [Schmitz and Spiess \(2022\)](#). It also squares with findings by [Boelmann *et al.* \(2021\)](#) according to which German women who live in the West but were raised in the East show much stronger labour market attachment after the birth of a child than their West German colleagues.

We take from these findings that the social norm to work, and whether it is gender-specific or not, may be internalised during early socialisation (in other words, childhood), as social identities are chosen based on family role models. In addition, social norms internalised early on in life seem to be particularly stable afterwards, at least in the context relevant to our study. For our question of differences in unemployment-related changes in well-being between East and West German women, this means that a crucial distinction needs to be made between different birth cohorts. Women who lived in the GDR, but were raised before the German division (1945⁵), may still carry gendered work norms from the pre-division era throughout their lives. When we ascertain the role of the gendered social norm to work empirically, they serve as a comparison group for those East German women who are at the core of our study, namely the ones that experienced the more gender-egalitarian institutions of the GDR regime right from the beginning of life.

⁵The German division starts with the separation of the country in different occupation zones in 1945 and was completed with the foundation of the two German states in 1949.

3 Methodology

3.1 Theoretical considerations

Work not only generates income, but also entails psychological benefits which are lost when becoming unemployed (Stam *et al.*, 2016; Hussam *et al.*, 2022). Among the non-monetary benefits of work (Jahoda, 1981), the focus of this study is on identity which is inextricably linked with the issue of complying with social norms. We closely follow Schöb (2013) who conceptualises the non-monetary cost of unemployment within the identity utility framework of Akerlof and Kranton (2000). The total utility U_i of individual i depends on a standard utility component V_i and identity utility I_i (for the sake of illustration, additive separability is assumed).

$$U_i(V_i, I_i) = V(a_i, a_{-i}) + I(a_i, a_{-i}, c_i, P, \epsilon_i) \quad (1)$$

V_i represents standard neoclassical utility which depends on one's own actions a_i (e.g., private goods consumption) and the actions of others a_{-i} (e.g., public goods consumption). According to the social identity approach (Tajfel and Turner, 1979; Turner, 2010), people assign themselves to social categories c when defining their identity. These social categories come with prescriptions P , essentially, social norms, which define appropriate behaviours for members of this particular social group. Individuals gain identity utility if their actions a_i and personal characteristics ϵ_i meet the norms of their social categories. Otherwise, individuals suffer a loss in identity utility. Part of these negative identity utility effects of norm (non)compliance could be recognition or stigmatisation from others (a_{-i}).⁶

As Akerlof and Kranton (2000) point out, individuals may have limited agency over choosing their social categories. Building on the literature discussed in Section 2.3, we assume that finding one's identity is to some extent part of the socialisation process early in life, depending on influential role models observed during childhood. Women born in the GDR may have chosen their social identity when it comes to work and career while observing their mothers and practically all other female adults working. In contrast, West German women may have been influenced by mothers staying at home to take care of their children and perhaps working part-time, or after the children have come of age. This was likely aided by the fact that childcare

⁶For instance, West German mothers were stigmatised as uncaring mothers (in German, *Rabenmutter*, see Boelmann *et al.* (2021)) if they focused strongly on career goals and had their children looked after in childcare facilities.

facilities in the West were rare. In contrast, young women in the GDR may have found it hard to imagine not to work given the legal environment.

If individuals are constraint in their choice of a social category, meeting relevant social norms becomes crucial for identity utility. Following our previous considerations, we assume that working-age females raised in East Germany predominately identify as productive members of society via their role in the workforce. Accordingly, the social norm for this group prescribes to be in paid work. It seems reasonable to assume the same is true for East and West German men. This means that unemployment not only affects the standard utility of these groups via changing income and time available for leisure, they also cease meeting a relevant social norm of one of their social categories and, as a result, lose identity utility.

On the contrary, women of working age who were raised in West Germany may define their social identity more strongly over their role as caretakers, focusing on household production (e.g., childcare), implying that the social norm to work applies less strongly to them. The loss of identity utility in unemployment is smaller, accordingly. Now assume that the total utility effects of unemployment may be measured by changes in life satisfaction and that standard utility in unemployment is similar across these groups or, alternatively, that differences in this regard may be eliminated statistically, for instance, via controlling for income. Then this leads to the hypothesis that women raised in West Germany during the division of Germany may experience smaller losses in life satisfaction when being unemployed later in life compared to women raised in East Germany. For the same reason, the cohort of East German women raised before the division (born before 1945) may suffer smaller losses of life satisfaction than East German women raised after the division (born after 1945). If East German socialism has undone gender differences in the norm to work entirely, women raised in the East would suffer as much from unemployment as German men do, everything else being equal.

3.2 Empirical model

The German division provides a unique setting to study the importance of social identity for the experience of unemployment due to the exogenous variation in institutions for a formerly unified population ([Beblo and Gorges, 2018](#)). Attributing any observed East-West differences in preferences and norm-related behaviour to institutional variation rests on the assumption that without the German division the two populations would have been comparable in this regard. Much of the research discussed that uses the German history as a natural experiment

(see [Section 2.2](#)) shows convincingly that East and West Germany were comparable in terms of employment structure, female employment share, marriage rates and fertility outcomes before the German division. Despite this evidence, [Becker et al. \(2020\)](#) caution against using East-West level differences after the German reunification to infer causal effects of institutional change. Their analysis of historical data reveals important structural differences along the inner-German border prior to the German division.

Our identification strategy takes into account the cautionary finding by [Becker et al. \(2020\)](#) by using cohort differences within the East German and West German populations. Crucially, we not only distinguish between East German and West German women, but also between East German women born after 1945 and East German women born before 1945. This allows us to isolate differences originating from being raised in the socialist regime of the GDR in the effect of unemployment on well-being, despite potentially pre-existing differences.

Equation (2) describes our empirical model. The dependent variable is life satisfaction (LS).

$$LS_{it} = \beta \cdot UE_{it} + \gamma \cdot (UE_{it} \times East_i) + \delta \cdot (UE_{it} \times D_i) + \psi \cdot (UE_{it} \times East_i \times D_i) \quad (2)$$

$$+ \mathbf{X}'_{it}\boldsymbol{\theta} + \mu_i + \tau_t + \rho_r + \epsilon_{it}$$

To begin with, we focus on the sample of German women. The general effect of unemployment (UE) on their life satisfaction is given by the model parameter β if the following interaction terms are not yet included. Otherwise, it reveals the effect of unemployment on West German women born prior to the division. γ measures the East-West difference in the unemployment experience for this pre-division cohort, while δ picks up any differences between the pre-division cohort and the post-1945 division cohort (D) common to East and West German women. Our main coefficient of interest is ψ . It measures the East-West difference in the difference between the pre-division cohort and the division cohort in the effect of unemployment on well-being.

When comparing cohorts with each other, one issue could be that they differ in regard to their labour market prospects, for instance because of the difference in age. This issue is addressed via the comparison of East German women with West German women. In fact, any common age-related issues that might drive cohort differences in the effect of unemployment on female life satisfaction after reunification are tackled via the comparison with West German women that are part of the division cohort.

Age-related differences in labour market prospects may differ between East and West. To

address this issue, we additionally estimate our empirical model for men who are exposed to different macroeconomic circumstances in the East and the West as much as women. We then compare the results with the female sample by fully interacting equation (2) with a gender dummy. In fact, any cohort-specific East-West differences in the effect of unemployment on life satisfaction are addressed via the additional comparison with men.

What is more, unemployment might affect East German women after reunification differently from West German women *and* East German men (e.g., labour market prospects in connection with different sectors of industry). The cohort comparison helps here, assuming that the issue concerns different cohorts of East German women to a similar degree. There remains the possibility of specific labour market challenges after the reunification that are region-specific (East vs West), age-specific (or cohort-specific) and gender-specific. However, we note that the pre-division cohort of unemployed East German women in our sample was particularly affected by high unemployment levels, implying that those challenges were not harder for the division cohort (see [Table A1](#)). Nonetheless, to address this issue, we control for the duration of the current unemployment spell at the individual level and for the annual gender-specific federal-state unemployment rate.

The time fixed effects τ_t capture macroeconomic conditions common to all individuals within a given year. We include federal-state fixed effects ρ_r to control for common time-invariant local characteristics that might affect the unemployment experience.⁷ To address the endogeneity of unemployment, we focus on involuntary unemployment (i.e., layoffs) and control for individual-fixed effects μ_i . This implies that we rely on within-person variation over time. While the inclusion of individual-fixed effects controls for time-stable internalised work norms, the effect of unemployment on identity is identified by individuals who switch from a state of norm-conformity (employment) into a state of norm-violation (unemployment). X_{it} includes a set of control variables that we use to separate the pecuniary from the non-pecuniary cost of unemployment. As these variables change within individuals over time, controlling for them helps address potentially remaining concerns about the endogeneity of entering and leaving unemployment (see [Section 3.3](#) for details).

In our main specifications, we follow [Ferrer-i Carbonell and Frijters \(2004\)](#) and estimate linear models via OLS. As life satisfaction is measured as an ordered response variable, we check that our results are not sensitive to the underlying linearity assumption (see [Section 4.2](#)).

⁷As a robustness check, we estimate all models including a full set of year-state interactions (see [Section 4.2](#))

The robustness check dichotomises our outcome variable at various cut-off points and estimates separate conditional-fixed effects logit models for each dichotomisation. This also addresses concerns regarding the reliability of results from estimating ordered response models in general (Schröder and Yitzhaki, 2017; Bond and Lang, 2019; Kaiser and Vendrik, 2023).

3.3 Data

To implement our empirical strategy, we use all waves of the German Socio-Economic Panel study (SOEP) from 1991 until 2020. The SOEP is a representative longitudinal household survey of the German population which started in 1984 with West German respondents only. Households from East Germany were added to the survey in 1990. In recent times, the survey has interviewed about 30,000 individuals from almost 15,000 households on an annual basis (Goebel *et al.*, 2019). The long duration of the panel enables us to investigate the post-1990 unemployment experience of individuals born well before the end of World War II in 1945.

We focus on working-age individuals who are between 18 and 60 years old and observed in either employment or unemployment. Observations of people out of the workforce (e.g., retirees, students) as well as self-employed people are excluded from our sample, accordingly. We follow the literature and consider unemployment spells initiated by a dismissal or a plant closure as involuntary (Kassenboehmer and Haisken-DeNew, 2009). Dismissals are arguably not completely exogenous. Dissatisfied people might display diminishing work performance eventually leading to their dismissal (Marcus, 2013). To address this concern, we check if results change while considering unemployment spells initiated by a plant closure only (Section 4.2).

Various studies show that unemployment yields prospective effects on individual life satisfaction (Clark *et al.*, 2008). Wunder and Zeydanli (2021) find that such effects extend to presumably unexpected causes of unemployment, even plant closures. To make our estimation sample more robust to anticipation effects, we only use unemployment spells for which we observe at least two consecutive years in employment prior to the job loss.

We use all yearly observations of any unemployment spell meeting the above requirements. As an indicator of the region of socialisation, we use information on the respondents' place of residence in 1989. Since there was no free movement between East and West Germany before the German reunification, this indicator should credibly identify people raised in either East or West Germany with only minor measurement error due to a small number of internal migrants. Consequently, we exclude all respondents born after 1989 from our main analysis sample. The

issue of migration is considered further in [Section 4.2](#). Different cohorts of East and West German workers are identified by the year of birth. The pre-division cohort consists of people born before 1945, the division cohort are people born between 1945 and 1989.

All person-year observations are dropped if information is missing on one of our dependent or independent variables (described below). Our main analysis sample includes 274,297 person-year observations. It covers 132,211 person-year observations of 4,898 East German women and of 11,869 West German women. The male subsample comprises 142,082 person-year observations of 4,705 East German men and 12,691 West German men.

Respondents indicate their life satisfaction on a scale from 0 to 10 at the end of their individual SOEP interview:

We would like to ask you about your satisfaction with your life in general. Please answer according to the following scale: 0 means ‘completely dissatisfied’, 10 means ‘completely satisfied’. How satisfied are you with your life, all things considered?

The SOEP provides a variety of individual and household-level information which we consider as time-varying control variables. To account for respondents’ socio-demographic background, we include variables for the individual civil status (single, married, divorced, widowed), a dummy variable for having attained a high education (ISCED 1997 classification level 5 or 6) and separate indicators for having at least one child and having a person in need of care living in the household. To account for health and age effects, we consider disability status and a categorical age variable which divides the range of our sample’s age distribution in three-year age brackets. Pecuniary effects of unemployment are disentangled from non-pecuniary effects by controlling for equalised real household income⁸ and home ownership as a proxy for household wealth. In addition to the SOEP data, we use information on gender-specific unemployment rates at the federal state level obtained from the German Federal Employment Agency to control for time-varying macroeconomic conditions ([Statistik der Bundesagentur für Arbeit, 2023](#)).

The descriptive statistics for all covariates may be found in [Table A1](#) for our female sample and [Table A2](#) for our male sample. Notable East-West German differences are the much larger share of women with a college degree in East Germany and the higher household income and wealth of West German men and women. East Germans also live in federal states with

⁸For calculating equalised household income, we apply the modified OECD scale. It assigns a weight of 1 to the household head, a weight of 0.5 to every additional household member above the age of 14 years and a weight of 0.3 to children younger than 14 years. Inflation adjustment (to 2020 prices) is performed using the consumer price index provided by [Statistisches Bundesamt \(2023\)](#).

a higher average unemployment rate. For our other control variables, East-West differences seem negligible. Interestingly, East German women and West German men experience longer unemployment spells than their counterparts of the same gender.

4 Results

4.1 Main findings

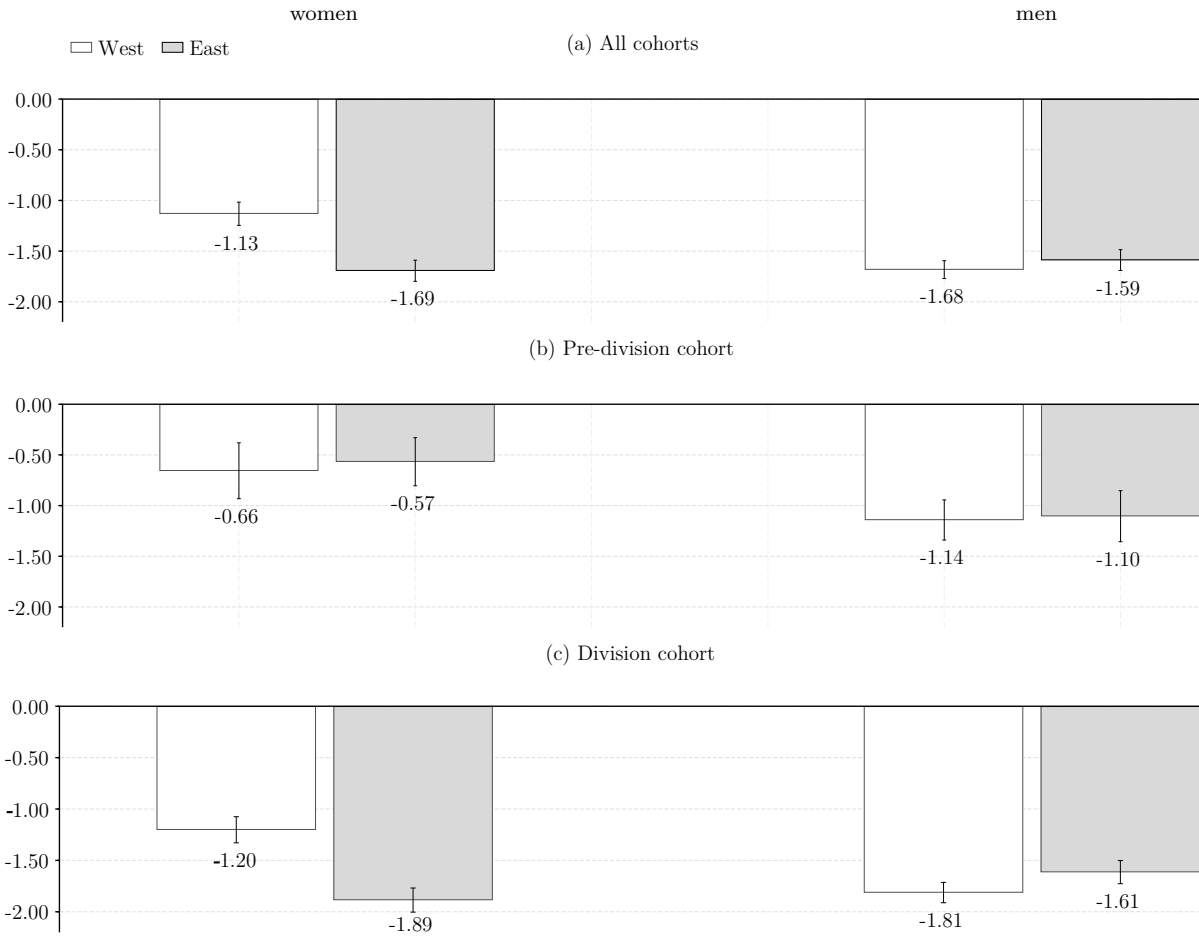
[Figure 1](#) displays raw differences in average life satisfaction between employed and unemployed workers in our main analysis sample, without imposing the empirical model of equation (2). We distinguish between women (left-hand side) and men (right-hand side) as well as West German origin (white) and East German origin (grey) according to the place of residence in 1989. Panel (a) provides the mean differences for the whole sample, i.e., considering respondents from all birth cohorts.⁹ The two lower panels display the mean differences separately for the pre-division cohort (b) and the division cohort (c).

The life satisfaction of unemployed workers is lower compared to employed workers across the board, in keeping with a large body of literature ([Suppa, 2021](#)). Panel (a) shows that this gap is larger for East German women than West German women. East German men do not differ from West German men in this regard. Crucially, the gender gap in the unemployment-employment difference in life satisfaction stressed by the literature is found in West German workers only. Panels (b) and (c) of [Figure 1](#) reveal a large heterogeneity in average life satisfaction differences between employed and unemployed workers across cohorts. For the pre-division cohort, differences are generally smaller than for the whole sample. The difference in average life satisfaction is smaller for women than for men in East Germany and in West Germany. Importantly, West German women of this cohort do not differ from East German women here. These results are different for the division cohort, where we find a much larger difference in average life satisfaction between employed and unemployed East German women. This difference now clearly exceeds the same difference measured in West German women and compares with the two male groups. In other words, women who were raised entirely in the GDR appear to suffer as much from unemployment as German men.

In keeping with our empirical strategy, we compare these unemployment-related gaps in life satisfaction between East German women of the post-1945 division cohort and East German

⁹These mean differences can also be calculated with the information provided in the upper panel of [Table A1](#) and [Table A2](#).

Figure 1: Differences in mean life satisfaction between employed and unemployed



Source: SOEPv37

Notes: Pooled cross-sections of our main analysis sample (see Section 3.3). Whiskers denote 95% confidence intervals.

women born prior to 1945 with the same cohort difference in West German women. In other words, we are interested in the East-West gap in the difference between the pre-division cohort and the division cohort. The calculation yields a highly statistically significant result of -0.78 ($p < 0.01$). Replicating the same calculation for men yields a small positive, but statistically insignificant result of 0.16 ($p \approx 0.36$). This supports the hypothesis that, during the German division, there was an East-West divergence in the social identity of working-age women and thus the social norms relevant to them. The following regression analysis corroborates this result, while addressing the endogeneity of unemployment, and controlling for the pecuniary effects of job loss.

Table 1 shows the estimation results for our main model specification (see equation (2)). Starting with the overall effect of unemployment, we find that this life event reduces the subjective well-being of German men and women (cf. columns 1, 4). Both effects are highly

significant. Interestingly, the difference in the effect between men and women is not significantly different from zero ($p \approx 0.629$), in contrast to previous studies mentioned above. A major reason for this result is, as we argue in what follows, that unemployment affects East German women and West German women in different ways.

Table 1: Unemployment and life satisfaction in East and West Germany

	Female			Male		
	(1)	(2)	(3)	(4)	(5)	(6)
UE	-0.741*** (0.055)	-0.598*** (0.076)	-0.550*** (0.151)	-0.780*** (0.058)	-0.918*** (0.077)	-0.689*** (0.170)
UE \times East		-0.277*** (0.100)	0.314 (0.204)		0.281*** (0.093)	0.233 (0.214)
UE \times D			-0.049 (0.169)			-0.262 (0.176)
UE \times East \times D			-0.712*** (0.232)			0.050 (0.236)
N	132,211	132,211	132,211	142,082	142,082	142,082
R ²	0.014	0.010	0.010	0.020	0.020	0.020
Control variables	✓	✓	✓	✓	✓	✓
Individual FE	✓	✓	✓	✓	✓	✓
Time FE	✓	✓	✓	✓	✓	✓
Federal state FE	✓	✓	✓	✓	✓	✓

Sources: SOEPv37, [Statistisches Bundesamt \(2023\)](#), [Statistik der Bundesagentur für Arbeit \(2023\)](#)

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors clustered at the individual level. Control variables include dummy variables for civil status (ref.: single), high educational attainment according to the ISCED classification (ref.: below ISCED 5), age categorised in three-year age brackets (ref.: 18-20), the presence of children in household, people in need of care living in household, disability status, home ownership, gender-specific federal state unemployment rates, and an interaction between the unemployment indicator and the duration of the current unemployment spell. We also control for log equivalised real household income. Descriptive statistics for all covariates may be found in [Table A1](#) and [Table A2](#). [Table A3](#) shows the estimated coefficients for the time-varying control variables (see [Section 3.3](#)).

Comparing workers of East and West German origin (interaction effect UE \times East in columns 2, 5) reveals that these overall effects mask sizable differences between the two regions. West German women suffer the least from unemployment. Here, in line with the literature, the gender difference in the effect of unemployment on life satisfaction is statistically significant. East German women are not only impacted more strongly than West German women, the magnitude of the joint effect of UE and UE \times East compares with East German men. Interestingly, unemployed men in East Germany seem to suffer less than their West German counterparts.

In column 3, we go one step further and consider additional cohort differences. The interaction effect $UE \times East$ now relates to the East German pre-division cohort only. It is no longer negative and seems more similar to the effect found for East German men born prior to the division (cf. columns 3, 6). As opposed to the effect of unemployment in column 2, we do not find any significant East-West difference in the estimate for the pre-division cohort only. There is also no significant cohort difference in the effect of unemployment for West German women, as indicated by the interaction effect $UE \times D$.

Our main result is the three-way interaction effect of unemployment, East German origin and the division cohort ($UE \times East \times D$). It reveals a statistically significant divergence in the effect of unemployment between cohorts of East and West German women. While post-division born West German women hardly differ from their pre-division born counterparts, East German women experience a significantly bigger loss of life satisfaction in unemployment *if* born after the division. This implies that general East-West differences in the consequences of unemployment after 1990 cannot explain the bigger loss of life satisfaction in unemployed women from East Germany compared to unemployed women from West Germany found in column 2. The fact that this cohort difference is found in East German women, but not in West German women, additionally implies that it does not originate from general cohort effects (e.g., differences in age). Overall, we obtain strong evidence that having been exclusively raised in the East makes unemployment more harmful for women, *ceteris paribus*.

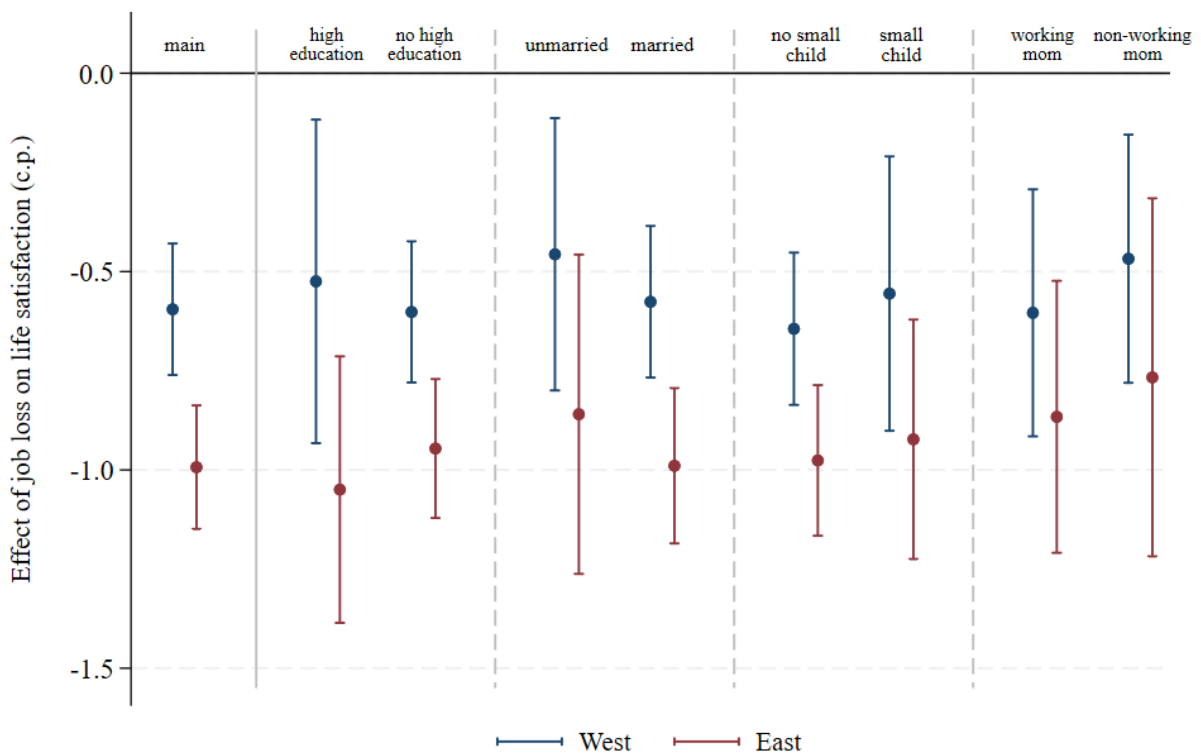
Next, we turn again to the results for men to consider the possibility that the unemployment experience in the East after reunification was more difficult for workers born after 1945 regardless of gender (column 6). The abrupt transition from a socialist planning economy to a market economy, associated with the disappearance of whole industries and mass unemployment, created high future uncertainty for many East Germans.¹⁰ Assuming that issues like this concern East German women and men alike, comparing the triple interaction effects in columns 3 and 6 corrects for the potential bias. Reassuringly, there is no systematic divergence in cohort differences for East and West German men, indicating that our main finding is specific to the experience of East German women born after 1945. A statistical test of the difference in these effects across genders confirms that the East-West difference between cohorts is unique to women ($p \approx 0.021$).¹¹

¹⁰As changing careers becomes increasingly difficult with age, this should actually disadvantage the older generation of East German women the most, biasing our main effect of interest downwards. On the other hand, job loss places more lifetime income at risk if the worker is younger.)

¹¹Speaking to the credibility of our findings, covariate effects are in line with the life satisfaction literature

Finally, we study if the East-West difference in the negative *ceteris paribus* effect of unemployment on life satisfaction for women is driven by any particular subgroup of the female population. For that matter, we further divide the division cohort along socio-demographic dimensions for which one might expect the experience of unemployment to be different due to varying levels of labour market attachment. This applies to highly educated women (versus less educated women), for unmarried women (versus married women), for women with older or no children (versus mothers with at least one child younger than 12 years) and women that grew up with a working mother at age 15 (versus a non-working mother). Figure 2 shows that the negative effect of unemployment is larger for East German women compared to West German women in each of the subgroup considered. What is more, East German women of all subgroups show a similar loss in life satisfaction when unemployed all else being equal. We find a similar homogeneity in effects across the subsamples of West German women.

Figure 2: Effects across different groups of women in the division cohort



Sources: SOEPv37, Statistisches Bundesamt (2023), Statistik der Bundesagentur für Arbeit (2023)

Notes: Whiskers denote 95% confidence intervals based on robust standard errors clustered at the individual level. Estimation of our main model specification (see equation (2)) for subsamples of the division cohort of women: education at least ISCED level 5 vs. lower levels, single vs. married, children below age 12 vs. children below age 12, working mother at age 15 vs. no working mother at age 15.

(Weimann *et al.*, 2015). For instance, widowhood and disability reduce life satisfaction. Income and wealth (home ownership) attract positive effects (see Table A3).

4.2 Robustness analyses

To evaluate the sensitivity of our results, we conduct multiple robustness checks. We limit the discussion to the main effect of interest, namely the triple interaction effect between unemployment, East German origin and the division cohort (UE×East×D). To further address potential endogeneity of unemployment, we focus on plant closures, instead of all layoffs. This hardly affects results. If anything, the size of the triple interaction effect in the female sample seems larger than in the main specification, as can be seen by comparing columns 1 and 2 in [Table A4](#) (see [Table A5](#) for males). The triple interaction effect is less pronounced in the male sample ($p \approx 0.037$). To address potential bias from prospective effects of unemployment, we exclude the two years in employment prior to each unemployment spell (column 3). Furthermore, we include state-year interaction effects to control for changing local macroeconomic conditions (column 4).¹² Our main effect of interest in the female specification remains substantial and statistically significant at the 5%-level in either case, also if additionally compared with the same effect in the male sample.

As discussed in [Section 3](#), we account for the monetary consequences of job loss. Our main specification controls for current household income and home ownership, but permanent income shocks due to unemployment may be addressed further. [Knabe and Rätzl \(2011\)](#) address the issue approximating permanent income with the average income across all survey waves. This does not work for us, as our individual-fixed effects control for time-invariant variables. Instead, we calculate the individual average of real household income over the following three years for any person-year observation. If the total income effect of a job loss has a permanent component, then this should be reflected in future income levels. Controlling for future income in this way does not affect our results (column 5).

Next, we check if our results can be explained by differences in private circumstances of the unemployed. For instance, if women have a working partner, they experience unemployment differently than men ([Knabe et al., 2016](#)). What is more, the family environment may systematically differ between East and West Germans, as family structures and fertility rates somewhat diverged during the division especially after the 1980s ([Beblo and Gorges, 2018](#)). To account for this, we augment our model from equation (2) with an additional indicator of having a partner, basic partner characteristics (labour force status, education), the age of the youngest child in

¹²As we estimate our empirical model separately by gender, the state-year interaction effects are perfectly collinear to our annual federal state unemployment rate. Hence, we drop the unemployment rate from our set of control variables in this robustness check.

the household, and the number of children below age 12. These additional family controls do not change our results (column 6).

Our identification of the region of socialisation rests on the assumption that the place of residence just before the fall of the Berlin wall is actually the region where people were socialised and spend their childhood. While this assumption seems reasonable for individuals born after the construction of the Berlin wall in 1961, and the concomitant restrictions on East-West migration, the same may not be true for individuals born earlier. To rule out that our results are biased by internal migration movements, we exclude all individuals born between 1945 and 1961 from our sample. Column 2 in [Table A6](#) (females) respectively [Table A7](#) (males) shows that our results are robust to this additional sample restriction. As a second check, we use information about where individuals attended school (column 3). Here, we exclude all individuals who lived in East Germany before the fall of the wall, but attended school in West Germany, and *vice versa*. We also exclude all individuals who indicate that they attended school in East Germany and in West Germany. To some extent, this further addresses the issue of pre-existing differences between East and West Germany raised by [Becker et al. \(2020\)](#). Had the two regions been on different paths regarding gendered identities in relation to working life, people migrating from East to West should carry them. This would have biased the results in our main specification (which includes these migrants) downwards, whereas the check should have strengthened results. However, the check leaves effect sizes virtually unchanged.¹³

We use 1945 as the cut-off year to distinguish between the pre-division and the division cohort. From that year onwards, the division arose gradually. Crucially, the Soviet occupation in the East established a socialist regime. The East German state, however, was only founded in 1949. To check the sensitivity of our results to the selection of the cohort cut-off year, we plot the three-way interaction effect ($UE \times East \times D$) in the female sample dependent on alternative options (see [Figure A1](#)). Reassuringly, choosing any other year to distinguish the pre-division cohort from the post-division birth during the 1940s hardly changes results. As one would expect, the effect of interest becomes less significant with cut-off birth years close to 1950, where an increasing number of East German females are artificially assigned to the pre-division cohort even though they were actually socialised under increasingly gender-egalitarian institutions.

We also assess whether the cohort differences we are interested in are actually driven by the

¹³Another check excludes external migrants. Column 4 of [Table A6](#) and [Table A7](#) shows that our main effect of interest decreases in size if we only consider individuals without migration background, but remains statistically significant. The comparison with the same effect in the male sample is no longer statistically significant, due to the reduced sample size and the slightly smaller difference in estimates.

East-West divide along the former inner German border, or whether other regional divisions could account for these effects. For instance, we do not detect similar effects when dividing Germany into a Protestant and a Catholic region based on relative majorities in each federal state (see also [Becker *et al.* \(2020\)](#)). Moreover, we employ a variant of the permutation test proposed by [Lippmann *et al.* \(2020\)](#). It produces multiple combinations of two German regions based on any possible combination of its federal states.¹⁴ We re-estimate our main specification for each of these 2,002 federal state combinations. We then create an indicator variable for specifications in which our main effect of interest (i.e., the triple interaction effect in column 3 of [Table 1](#)) is negative and statistically significant. A linear probability model regresses the number of East German federal states in the ‘smaller’ five-state region on our indicator variable. We are unable to use the indicator for a person’s place of residence in 1989 in this permutation test, as it does not differentiate between federal states in East and West Germany. To overcome this problem, we use the current place of residence as a proxy for the region of socialisation while excluding all people that moved between East and West German after reunification from the analysis sample. [Table A8](#) shows that our main results are robust to using this proxy. [Table A9](#) displays the results of the permutation test differentiating between various conventional significance levels for our main effect of interest. It becomes apparent that the number of East German states is highly predictive for the effect size and significance of our indicator variable. This test increases the confidence that it is indeed the historical division between East and West Germany that drives our results and not some other regional divide.

Lastly, we check if our results are likely to be susceptible to the problem of reversibility due to individual interpretations of the satisfaction scale ([Bond and Lang, 2019](#)). Following [Kaiser and Vendrik \(2023\)](#), the response scale of our dependent variable is dichotomised at every scale point provided that we observe respondents scoring below/above the point. We then estimate separate conditional fixed effects logit models [Chamberlain \(1980\)](#) for each of these dichotomisations in the female sample. This procedure also relaxes the cardinality assumption imposed by our linear regression models. The results in [Table A10](#) show that our main effect of interest is almost always negative across the satisfaction scale. The risk of reversibility seems small.

¹⁴We are able to identify respondents in the five East German states, 10 West German states, or Berlin (regardless of West or East). In SOEP waves prior to 2000, there is no unique federal state indicator for Saarland. It is merged with neighbouring Rhineland-Palatinate. Berlin is excluded from this analysis.

4.3 Persistence of East-West differences

Up to here, our findings indicate that the exposure to different institutional settings has lasting effects on the social categories that individuals identify with throughout their lives and hence the social norms they seek to adhere to. This interpretation is in line with some of the literature discussed in [Section 2](#) which implies that the GDR institutions were successful in undoing traditional gender norms. A logical follow-up question is whether the East-West difference found in our study have started to disappear again after reunification. Early evidence by [Alesina and Fuchs-Schündeln \(2007\)](#) suggests that differences in some attitudes have diminished over time. This seems less clear in more recent studies ([Beblo and Görge, 2018](#); [Campa and Serafinelli, 2019](#); [Bondar and Fuchs-Schündeln, 2023](#)).

Convergence in our context might be the result of two processes. First, since Germany has been reunified, one would expect the two populations to influence each other again and therefore become more similar when it comes to economic preferences, social norms and labour market behaviour. For instance, [Jessen *et al.* \(2023\)](#) document how the labour market behaviour of West German women has been influenced by the presence of East German women since the formerly two German populations have started to mix again. Second, there has been a general trend towards equal roles for men and women on the labour market in West Germany over the last decades, too. The provision of childcare has improved substantially. It is therefore reasonable to expect that the identity of women of working age in West Germany has started to center more strongly around their role in working life as well ([Boelmann *et al.*, 2021](#); [Sprengholz *et al.*, 2022](#)).

It is nevertheless an open question whether these two processes may lead to signs of convergence in our data already. As argued before, childhood experience may shape social identity most of all. The women of working age observed during our investigation period have mostly been socialised before reunification. In addition, sharp East-West differences in female work-force participation and childcare provision outlasted the German division for many years ([Kubis *et al.*, 2009](#); [Bönke *et al.*, 2019](#); [Müller and Wrohlich, 2020](#)).

To shed some light on the issue of convergence in the strength of the social norm to work and hence the well-being cost of unemployment, we investigate potential heterogeneity within the division cohort of East and West German women. The division cohort is compartmentalised further into four smaller birth cohorts (roughly, decades) which replace our binary cohort indicator in equation (2). Women born after 1974 are of particular interest. They were mostly raised

prior to the division, but have spent their working life entirely afterwards (recall that workers born after 1989 are excluded). Based on equation (2), we predict the average life satisfaction for the various cohorts in employment and unemployment separately by gender to illustrate our findings.

Figure 3 displays the resulting profile plots. Panel (a) shows for women that the predicted average life satisfaction in employment is more or less constant across East and West German cohorts. For unemployment, we find regional differences for all cohorts born after 1945. In line with our main findings, we interpret the opening gap in the life satisfaction loss due to unemployment as indicative of diverging social work norms for East and West German women. Crucially, the gap does not become smaller with younger cohorts.

Turning to the profile plots for men in panel (b), we see that the predicted average life satisfaction in employment and in unemployment is comparable between East and West German men. Again, the profile plots for employment are almost flat. We do not find any systematic divergence in the unemployment experience across the East German and West German male cohorts.

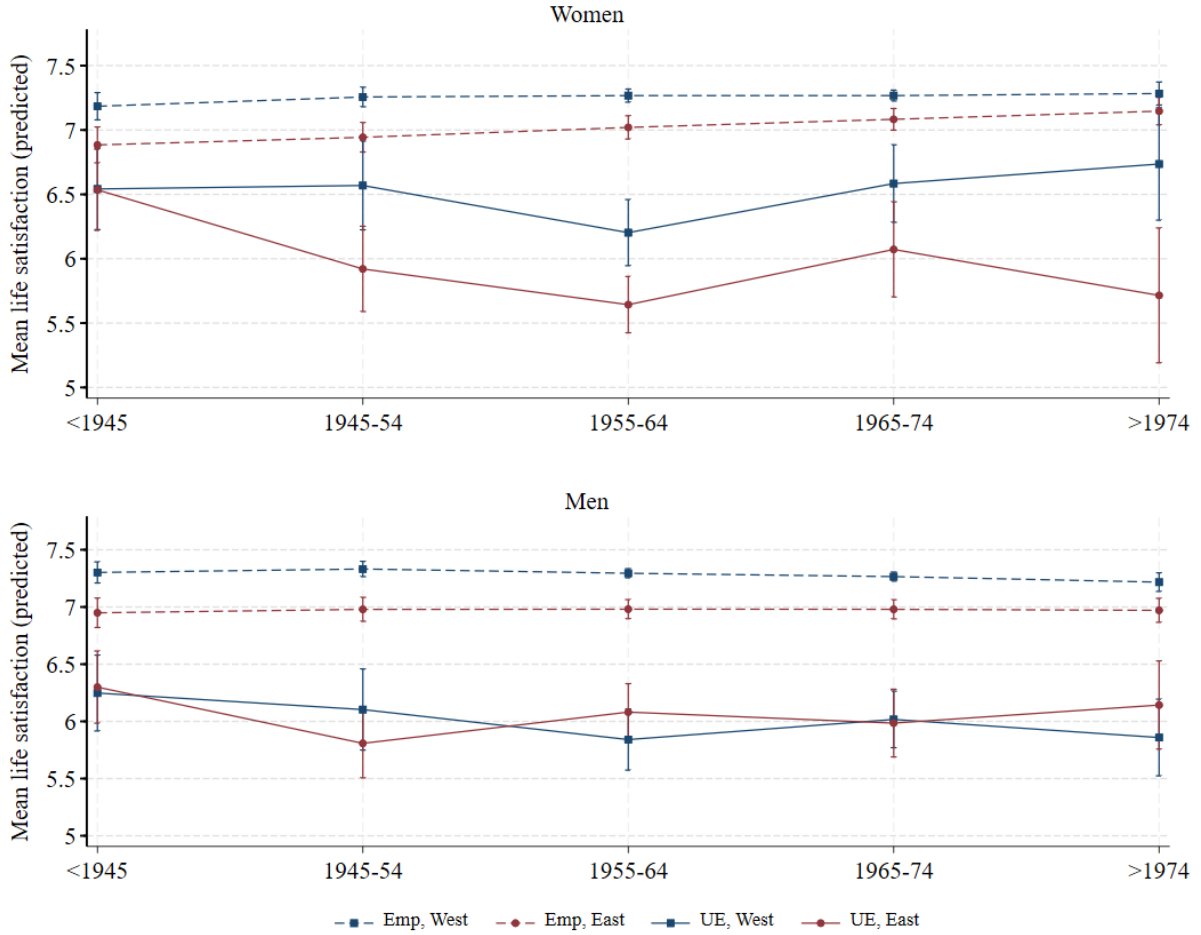
Overall, these results suggest that differences in the negative effect of unemployment for life satisfaction between East and West women are highly persistent. In keeping with the literature on socialisation mentioned in Section 2.3, we interpret this result as further evidence that childhood experience in particular shapes work-related identity. The small and gradual changes around the time of reunification have not yet left a strong enough mark on German women born 1974-1989 for the well-being cost of unemployment to equalise.

4.4 Direct evidence on differences in social identity

Our approach measures the importance of social identity for the experience of unemployment indirectly via the non-pecuniary effect of unemployment on life satisfaction. Following the literature on attitudes in Section 2.2, and hereby particularly closely Lippmann *et al.* (2020), we investigate if our result of varying cohort differences between East and West German women squares with a direct proxy of the importance of career success. It is assumed that, the more a person defines their identity over paid work, the more important they will deem career success. Accordingly, the attitude is a measure of how strongly people of working age have internalised the social norm to work (Winkelmann, 2014).

A few waves of the SOEP data include information about how important having a successful

Figure 3: Life satisfaction for various birth cohorts



Sources: SOEPv37, Statistisches Bundesamt (2023), Statistik der Bundesagentur für Arbeit (2023)

Notes: Whiskers denote 95% confidence intervals based on robust standard errors clustered at the individual level. Plots are based on a modification of our main specification (see equation (2)) in which our binary cohort indicator is replaced by separate indicators for the following birth cohorts: <1945 (ref.), 1945-1954, 1955-1964, 1965-1974, 1974-1989. Predictions are based on gender-specific sample means of the covariates. The underlying regression estimates may be found in Table A11. All models include the same control variables as our main specification (see Table 1 and Table A3).

career is for respondents.¹⁵ Answers are coded on a Likert scale from 1 (not important at all) to 4 (very important). We recode answers into a binary indicator for individual work norms. A value of 1 indicates that career success is ‘important’ or ‘very important’ to a person. We then re-estimate a parsimonious specification of equation (2) only including time fixed effects and federal-state fixed effects in separate probit models, one for each birth cohort.¹⁶ We interact our indicator for region of socialisation (i.e., our East dummy) with being female to investigate how

¹⁵In some years, the question on career importance is specified in relation to the person’s well-being, in others, just in relation to the person. We need to assume that this slight difference in wording does not affect our results, as we collapse the responses to both versions of the question into one variable. Otherwise the samples of the different cohorts would be too small.

¹⁶Variables such as earnings may be bad controls, as they depend on work attitudes. Individual-fixed effects may capture differences in work importance, since attitudes tend to be largely stable over the life course.

the gender gap in the importance of career success differs across regions and cohorts. Table 2 displays the results.

Table 2: Direct evidence: Importance of career success

	(1)	(2)	(3)	(4)	(5)
	<1945	1945-54	1955-64	1965-74	>1974
East	0.670*** (0.164)	0.048 (0.109)	0.078 (0.070)	0.018 (0.063)	0.049 (0.071)
Female	-0.295*** (0.065)	-0.385*** (0.050)	-0.313*** (0.035)	-0.388*** (0.032)	-0.297*** (0.044)
East × Female	-0.123 (0.111)	0.192** (0.089)	0.140** (0.066)	0.241*** (0.066)	0.169** (0.077)
N	6,467	13,022	23,977	22,793	11,210
R ²	0.050	0.050	0.030	0.040	0.030
Control variables	✗	✗	✗	✗	✗
Individual FE	✗	✗	✗	✗	✗
Time FE	✓	✓	✓	✓	✓
Federal state FE	✓	✓	✓	✓	✓

Source: SOEPv37

Notes: *** p<0.01, ** p<0.05, * p<0.10. Separate probit regressions based on a pooled version of our main analysis for indicated birth cohorts. Models include time fixed effects and federal state fixed effects.

For West German women, career success is less important than it is for men across all considered birth cohorts (effect of the ‘Female’ dummy). For the pre-division cohort, there is no significant gender difference between East and West Germans (interaction effect of East and female). This stands in contrast to all ensuing cohorts born after 1945, where the gender difference is consistently smaller for East Germans compared to West Germans. This clearly corroborates our interpretation of the differences in the effect of unemployment on life satisfaction.¹⁷

5 Conclusion

The conclusions of our study concern two areas in particular, the lasting impact of East European socialism and the psychological cost of unemployment. From an economic historian’s perspective, we note that the German division influenced how unemployment affects the life satisfaction of women. All else being equal, East German women born and raised entirely in the GDR appear to suffer more from unemployment than West German women. We trace this effect back to

¹⁷It would seem that East German men born before the German division deem career success more important than West German men, but there are no such significant differences for any of the following birth cohorts.

childhood socialisation during which, we argue, social identity in relation to work and career is shaped and hence the degree to which violating the social norm to work impacts on life satisfaction. It would seem in our study that the GDR regime has managed to ‘ungender’ the social norm to work which, as a result, seems to matter for East German women as much as for any German men. These insights confirm a number of studies pointing to the substantial (and sometimes lasting) influence the GDR regime has had on a variety of preferences and attitudes (see [Section 2.2](#)). This seems especially true for career attitudes, in line with the work of [Beblo and Görge](#) (2018) and [Campa and Serafinelli](#) (2019). The consequences of which show not only in the labour supply of workers, but also in their well-being when unemployed.

When it comes to the psychological cost of unemployment, this study sheds light on the question whether the gender difference documented in the previous literature is down to ‘nature or nurture’. Our findings imply that there is nothing inherently biologic about women’s ability to cope better with unemployment than men. As having been raised in the GDR appears to eliminate any male-female gap in the life satisfaction effect of job loss, the gender difference in the psychological cost of unemployment would seem to depend entirely on socialisation and the identities individuals adopt. This implication is certainly strong and requires that women do not suffer greater losses in the psychological cost of unemployment for other reasons. Moreover, the findings from studying the specific German context would need to generalise. Both assumptions could be tested by future research.

Our results offer a lesson for other societies, too. Where female workforce participation catches up with male levels, the well-being effect of unemployment may also equalise. From a policy perspective, this needs to be taken into account alongside the many benefits of higher female workforce participation ([Duflo, 2012](#)). If individuals and societies were to find ways of diversifying social identity more so that people’s work role and career success become less central, then the psychological cost of unemployment may be alleviated for women and men alike.

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Appendix

Table A1: Sample descriptive statistics: female

	East		West				
	Total	Total	PD	D	Total	PD	D
Life Satisfaction [0-10]							
<i>Employed</i>	7.21 (1.64)	6.94 (1.64)	6.39 (1.69)	6.97 (1.63)	7.32 (1.63)	7.12 (1.67)	7.33 (1.63)
<i>Unemployed</i>	5.67 (2.10)	5.25 (2.09)	5.82 (1.83)	5.08 (2.13)	6.19 (1.99)	6.46 (1.76)	6.13 (2.04)
Socio-economic controls							
Age	42.54 (9.88)	42.03 (9.95)	54.57 (3.42)	41.38 (9.74)	42.77 (9.84)	55.20 (3.40)	42.10 (9.63)
Single	0.21	0.22	0.01	0.23	0.21	0.04	0.22
Married	0.61	0.61	0.83	0.60	0.61	0.85	0.68
Separated, divorced	0.15	0.14	0.10	0.14	0.16	0.09	0.09
Widowed	0.02	0.02	0.05	0.02	0.02	0.02	0.00
Education: ISCED 5-6	0.31	0.38	0.36	0.38	0.28	0.26	0.37
Person in need of care in HH	0.02	0.02	0.03	0.01	0.02	0.04	0.02
Disability	0.05	0.04	0.06	0.04	0.05	0.13	0.05
Child in HH	0.47	0.47	0.08	0.49	0.47	0.22	0.52
Household finances							
Eq. real HH income	1712.06 (1190.71)	1474.74 (796.21)	1111.57 (561.47)	1493.61 (802.07)	1820.07 (1318.04)	1443.66 (814.35)	1863.10 (2772.71)
Home ownership	0.50	0.44	0.42	0.44	0.52	0.57	0.55
Unemployment controls							
Unemployment rate (%)	9.41 (4.83)	13.47 (5.93)	18.69 (4.23)	13.19 (5.88)	7.57 (2.67)	8.52 (2.98)	8.17 (3.10)
Unemployment duration (years)	1.32 (1.54)	1.45 (1.71)	1.73 (1.76)	1.37 (1.69)	1.15 (1.28)	2.49 (2.49)	1.47 (2.14)
N x t	132,211	41,350	2,043	39,307	90,861	3,772	87,089
<i>Employed</i>	130,435	40,358	1,820	38,538	90,077	3,624	86,453
<i>Unemployed</i>	1,776	992	223	769	784	148	636
N	16,767	4,898	333	4,565	11,869	696	11,173

Sources: SOEPv37, [Statistisches Bundesamt \(2023\)](#), [Statistik der Bundesagentur für Arbeit \(2023\)](#)

Notes: Standard deviations of continuous variables in parentheses. In our empirical analysis, we include separate indicator variables for three-year age brackets. For calculating equivalised income we use the OECD-modified scale. We index household income to 2020 prices. The unemployment rate refers to the annual gender-specific federal state unemployment rate.

Table A2: Sample descriptive statistics: male

	East				West		
	Total	Total	PD	D	Total	PD	D
Life Satisfaction [0-10]							
<i>Employed</i>	7.20 (1.59)	6.88 (1.62)	6.37 (1.66)	6.92 (1.61)	7.33 (1.56)	7.26 (1.57)	7.33 (1.55)
<i>Unemployed</i>	5.49 (2.00)	5.29 (1.97)	5.26 (1.96)	5.30 (1.98)	5.64 (2.01)	6.12 (1.84)	5.52 (2.04)
Socio-economic controls							
Age	42.63 (9.93)	41.98 (10.03)	54.68 (3.43)	41.13 (9.75)	42.88 (9.88)	55.20 (3.40)	42.10 (9.63)
Single	0.22	0.25	0.02	0.27	0.21	0.04	0.22
Married	0.68	0.65	0.92	0.63	0.69	0.85	0.68
Seperated, divorced	0.09	0.09	0.04	0.10	0.09	0.09	0.09
Widowed	0.01	0.01	0.03	0.01	0.00	0.02	0.00
Education: ISCED 5-6	0.36	0.35	0.53	0.34	0.37	0.26	0.37
Person in need of care in HH	0.02	0.02	0.03	0.02	0.02	0.04	0.02
Disability	0.05	0.04	0.05	0.04	0.06	0.13	0.05
Child in HH	0.49	0.47	0.15	0.49	0.50	0.22	0.52
Household finances							
Eq. real HH income	1729.30 (2337.28)	1452.58 (858.33)	1088.00 (473.56)	1477.07 (872.72)	1838.17 (2698.18)	1443.66 (814.35)	1863.10 (2772.71)
Home ownership	0.52	0.46	0.40	0.46	0.55	0.57	0.55
Unemployment controls							
Unemployment rate (%)	9.51 (4.16)	12.86 (4.63)	13.05 (3.95)	12.84 (4.67)	8.19 (3.09)	8.52 (2.98)	8.17 (3.10)
Unemployment duration (years)	1.44 (1.96)	1.13 (1.46)	1.07 (1.00)	1.15 (1.55)	1.69 (2.25)	2.49 (2.49)	1.47 (2.14)
N x t	142,082	40,114	2,525	37,589	101,968	6,061	95,907
<i>Employed</i>	139,862	39,115	2,340	36,775	100,747	5,804	94,943
<i>Unemployed</i>	2,220	999	185	814	1,221	257	964
N	17,396	4,705	404	4,301	12,691	1,089	11,602

Sources: SOEPv37, [Statistisches Bundesamt \(2023\)](#), [Statistik der Bundesagentur für Arbeit \(2023\)](#)

Notes: Standard deviations of continuous variables in parentheses. In our empirical analysis, we include separate indicator variables for three-year age brackets. For calculating equivalised income we use the OECD-modified scale. We index household income to 2020 prices. The unemployment rate refers to the annual gender-specific federal state unemployment rate.

Table A3: Effects of unemployment on life satisfaction

	Female			Male		
	(1)	(2)	(3)	(4)	(5)	(6)
UE	-0.741*** (0.055)	-0.598*** (0.076)	-0.550*** (0.151)	-0.780*** (0.058)	-0.918*** (0.077)	-0.689*** (0.170)
UE × East		-0.277*** (0.100)	0.314 (0.204)		0.281*** (0.093)	0.233 (0.214)
UE × D			-0.049 (0.169)			-0.262 (0.176)
UE × East × D			-0.712*** (0.232)			0.050 (0.236)
High education	-0.022 (0.047)	-0.022 (0.047)	-0.023 (0.047)	-0.036 (0.042)	-0.036 (0.042)	-0.037 (0.042)
Married	-0.017 (0.030)	-0.017 (0.030)	-0.018 (0.030)	0.110*** (0.028)	0.110*** (0.028)	0.110*** (0.028)
Seperated	-0.037 (0.045)	-0.036 (0.045)	-0.036 (0.045)	-0.118*** (0.044)	-0.118*** (0.044)	-0.118*** (0.044)
Widowed	-0.383*** (0.112)	-0.383*** (0.112)	-0.386*** (0.112)	-0.437*** (0.164)	-0.439*** (0.163)	-0.440*** (0.163)
Child in HH	0.020 (0.018)	0.020 (0.018)	0.020 (0.018)	0.092*** (0.016)	0.092*** (0.016)	0.092*** (0.016)
Person in need of care in HH	-0.204*** (0.056)	-0.203*** (0.056)	-0.204*** (0.056)	-0.209*** (0.045)	-0.207*** (0.045)	-0.207*** (0.045)
Disability	-0.240*** (0.041)	-0.241*** (0.041)	-0.240*** (0.041)	-0.288*** (0.037)	-0.288*** (0.037)	-0.288*** (0.037)
Eq. household income (log)	0.422*** (0.020)	0.423*** (0.020)	0.422*** (0.020)	0.412*** (0.019)	0.411*** (0.019)	0.411*** (0.019)
Home owner	0.046** (0.020)	0.046** (0.020)	0.046** (0.020)	0.049*** (0.018)	0.049*** (0.018)	0.049*** (0.018)
UE × UE duration	0.026 (0.029)	0.031 (0.029)	0.026 (0.029)	-0.055 (0.040)	-0.049 (0.040)	-0.052 (0.039)
UE rate	-0.016*** (0.004)	-0.016*** (0.004)	-0.016*** (0.004)	-0.003 (0.004)	-0.003 (0.004)	-0.003 (0.004)
N	132,211	132,211	132,211	142,082	142,082	142,082

Sources: SOEPv37, [Statistisches Bundesamt \(2023\)](#), [Statistik der Bundesagentur für Arbeit \(2023\)](#)

Notes: *** p<0.01, ** p<0.05, * p<0.10. Robust standard errors clustered at the individual level. Control variables include dummy variables for civil status (ref.: single), high educational attainment according to the ISCED classification (ref.: below ISCED 5), age categories (three-year age brackets, ref.: 18-20 years), the presence of children in household, people in need of care living in household, disability status, home ownership, gender-specific federal state unemployment rates, and an interaction between the unemployment indicator and the duration of the current unemployment spell. We also control for log equalised (OECD-modified equivalance scale) real household income indexed at 2020 prices. Descriptive statistics for all covariates can be found in [Table A1](#) and [Table A2](#).

Table A4: Robustness checks (female)

	(1)	(2)	(3)	(4)	(5)	(6)
	Main spec.	Plant closures	Anticipate	State-time FE	Perm. income	Family
UE	-0.550*** (0.151)	-0.936*** (0.249)	-0.608*** (0.180)	-0.472*** (0.152)	-0.554*** (0.177)	-0.554*** (0.156)
UE × East	0.314 (0.204)	0.598* (0.363)	0.354 (0.248)	0.111 (0.205)	0.346 (0.231)	0.329 (0.209)
UE × D	-0.049 (0.169)	0.454 (0.295)	-0.002 (0.200)	-0.113 (0.171)	-0.095 (0.200)	-0.051 (0.176)
UE × East × D	-0.712*** (0.232)	-1.285*** (0.423)	-0.812*** (0.276)	-0.527** (0.233)	-0.671** (0.263)	-0.695*** (0.238)
N	132,211	123,135	128,232	132,211	89,682	122,065
R ²	0.010	0.010	0.010	0.025	0.018	0.016
Control variables	✓	✓	✓	✓	✓	✓
Individual FE	✓	✓	✓	✓	✓	✓
Time FE	✓	✓	✓	✓	✓	✓
Federal state FE	✓	✓	✓	✓	✓	✓

Sources: SOEPv37, [Statistisches Bundesamt \(2023\)](#), [Statistik der Bundesagentur für Arbeit \(2023\)](#)

Notes: *** p<0.01, ** p<0.05, * p<0.10. Robust standard errors clustered at the individual level. All models include the same control variables as our main specification (see [Table 1](#) and [Table A3](#)). Column (1) displays our main results from [Table 1](#). In column (5) we additionally control for the average equivalised real household income of the following three years. In column (6), we additionally control for having a partner in the household, the labour force status of the partner (employed, unemployed, out of the labour force), high educational attainment of the partner according to the ISCED classification (ref.: below ISCED 5), the number of children below age 12 in the household, and the age of the youngest child in the household.

Table A5: Robustness checks (male)

	(1)	(2)	(3)	(4)	(5)	(6)
	Main spec.	Plant closures	Anticipate	State-time FE	Perm. income	Family
UE	-0.689*** (0.170)	-1.256*** (0.344)	-0.854*** (0.181)	-0.609*** (0.169)	-0.671*** (0.186)	-0.661*** (0.169)
UE × East	0.233 (0.214)	0.216 (0.448)	0.275 (0.239)	0.045 (0.211)	0.229 (0.231)	0.210 (0.214)
UE × D	-0.262 (0.176)	0.273 (0.356)	-0.121 (0.190)	-0.330* (0.175)	-0.238 (0.194)	-0.265 (0.176)
UE × East × D	0.050 (0.236)	0.069 (0.491)	-0.028 (0.262)	0.211 (0.234)	0.086 (0.258)	0.048 (0.238)
N	142,082	130,791	137,616	142,082	96,998	134,910
R ²	0.020	0.010	0.020	0.031	0.022	0.024
Control variables	✓	✓	✓	✓	✓	✓
Individual FE	✓	✓	✓	✓	✓	✓
Time FE	✓	✓	✓	✓	✓	✓
Federal state FE	✓	✓	✓	✓	✓	✓

Sources: SOEPv37, [Statistisches Bundesamt \(2023\)](#), [Statistik der Bundesagentur für Arbeit \(2023\)](#)

Notes: *** p<0.01, ** p<0.05, * p<0.10. Robust standard errors clustered at the individual level. All models include the same control variables as our main specification (see [Table 1](#) and [Table A3](#)). Column (1) displays our main results from [Table 1](#). In column (5) we additionally control for the average equivalised real household income of the following three years. In column (6), we additionally control for having a partner in the household, the labour force status of the partner (employed, unemployed, out of the labour force), high educational attainment of the partner according to the ISCED classification (ref.: below ISCED 5), the number of children below age 12 in the household, and the age of the youngest child in the household.

Table A6: Migration checks (female)

	(1) Main spec.	(2) Not born 45-61	(3) School region	(4) No mig. background
UE	-0.550*** (0.151)	-0.598*** (0.156)	-0.554*** (0.151)	-0.538*** (0.154)
UE × East	0.314 (0.204)	0.330 (0.205)	0.311 (0.203)	0.305 (0.206)
UE × D	-0.049 (0.169)	0.096 (0.186)	-0.047 (0.169)	-0.063 (0.174)
UE × East × D	-0.712*** (0.232)	-0.805*** (0.258)	-0.705*** (0.232)	-0.700*** (0.235)
N	132,211	87,516	130,330	126,284
R ²	0.010	0.011	0.015	0.015
Control variables	✓	✓	✓	✓
Individual FE	✓	✓	✓	✓
Time FE	✓	✓	✓	✓
Federal state FE	✓	✓	✓	✓

Sources: SOEPv37, [Statistisches Bundesamt \(2023\)](#), [Statistik der Bundesagentur für Arbeit \(2023\)](#)

Notes: *** p<0.01, ** p<0.05, * p<0.10. Robust standard errors clustered at the individual level. All models include the same control variables as our main specification (see [Table 1](#) and [Table A3](#)). Column (1) displays our main results from [Table 1](#). In column (2) we exclude all individuals born between 1945 and 1961. In column (3) we exclude all individuals that attended school in East (West) Germany and lived in West (East) Germany in 1989 and that attended school in East Germany and West Germany. In column (4) we exclude all individuals with any migration background.

Table A7: Migration checks (male)

	(1) Main spec.	(2) Not born 45-61	(3) School region	(4) No mig. background
UE	-0.689*** (0.170)	-0.678*** (0.173)	-0.684*** (0.171)	-0.684*** (0.171)
UE × East	0.233 (0.214)	0.238 (0.214)	0.246 (0.215)	0.232 (0.214)
UE × D	-0.262 (0.176)	-0.267 (0.185)	-0.271 (0.177)	-0.283 (0.178)
UE × East × D	0.050 (0.236)	0.076 (0.255)	0.064 (0.238)	0.065 (0.238)
N	142,082	92,039	140,110	135,879
R ²	0.020	0.016	0.020	0.020
Control variables	✓	✓	✓	✓
Individual FE	✓	✓	✓	✓
Time FE	✓	✓	✓	✓
Federal state FE	✓	✓	✓	✓

Sources: SOEPv37, [Statistisches Bundesamt \(2023\)](#), [Statistik der Bundesagentur für Arbeit \(2023\)](#)

Notes: *** p<0.01, ** p<0.05, * p<0.10. Robust standard errors clustered at the individual level. All models include the same control variables as our main specification (see [Table 1](#) and [Table A3](#)). Column (1) displays our main results from [Table 1](#). In column (2) we exclude all individuals born between 1945 and 1961. In column (3) we exclude all individuals that attended school in East (West) Germany and lived in West (East) Germany in 1989 and that attended school in East Germany and West Germany. In column (4) we exclude all individuals with any migration background.

Table A8: Region of socialisation by current place of residence

	Female		Male	
	(1) Main spec.	(2) Current	(3) Main spec.	(4) Current
UE	-0.550*** (0.151)	-0.605*** (0.143)	-0.689*** (0.170)	-0.726*** (0.162)
UE × East	0.314 (0.204)	0.389** (0.196)	0.233 (0.214)	0.298 (0.209)
UE × D	-0.049 (0.169)	-0.018 (0.159)	-0.262 (0.176)	-0.198 (0.167)
UE × East × D	-0.712*** (0.232)	-0.759*** (0.226)	0.050 (0.236)	-0.046 (0.231)
N	132,211	137,014	142,082	149,074
R ²	0.010	0.010	0.020	0.020
Control variables	✓	✓	✓	✓
Individual FE	✓	✓	✓	✓
Time FE	✓	✓	✓	✓
Federal state FE	✓	✓	✓	✓

Sources: SOEPv37, [Statistisches Bundesamt \(2023\)](#), [Statistik der Bundesagentur für Arbeit \(2023\)](#)

Notes: *** p<0.01, ** p<0.05, * p<0.10. Robust standard errors clustered at the individual level. All models include the same control variables as our main specification (see [Table 1](#) and [Table A3](#)). Columns (1) and (3) display our main results from [Table 1](#). In columns (2) and (4) we use the current place of residence as an indicator for the region of socialisation while excluding all respondents who moved between East and West Germany after reunification.

Table A9: Placebo test: Regional permutations (female)

	(1) Sig. < 1%	(2) Sig. < 5%	(3) Sig. < 10%
One East	0.000 (0.015)	0.000 (0.025)	0.002 (0.029)
Two East	0.004 (0.015)	0.061** (0.024)	0.117*** (0.028)
Three East	0.106*** (0.016)	0.256*** (0.026)	0.331*** (0.031)
Four East	0.289*** (0.026)	0.600*** (0.044)	0.778*** (0.051)
All East	1.000*** (0.153)	1.000*** (0.253)	1.000*** (0.297)
Constant	0.000 (0.014)	0.000 (0.022)	0.000 (0.026)
Observations	2,002	2,002	2,002

Sources: SOEPv37, [Statistisches Bundesamt \(2023\)](#), [Statistik der Bundesagentur für Arbeit \(2023\)](#)
Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Standard errors in parentheses. Linear probability model regressing the number of East German federal states in the five-state region of our regional permutations on an indicator variable for our main effect of interest ($UE \times East \times D$) being negative and statistically significant at the indicated significance level. For constructing the indicator variable we re-estimate our main specification (see equation (2)) with regional permutations of Germany into one part with five federal states and a second part with nine federal states based on the current place of residence. Saarland is merged with Rhineland Palatinate, Berlin is excluded from all permutations. All estimations include the same control variables as our main specification (see [Table 1](#) and [Table A3](#)). The number of observations corresponds to 2,002 regional permutations.

Table A10: Conditional fixed effects logit estimations (female)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
UE	-0.974 (0.860)	-0.209 (0.872)	-0.822 (0.566)	-0.803* (0.418)	-0.710** (0.343)	-1.366*** (0.325)	-0.788*** (0.295)	-0.623 (0.614)	-0.831 (1.111)
UE × East	1.876 (1.360)	-0.938 (1.105)	-0.386 (0.789)	0.086 (0.523)	0.213 (0.413)	1.056*** (0.409)	0.847** (0.396)	0.384 (0.772)	2.446* (1.408)
UE × D	-0.050 (0.997)	-0.649 (0.916)	-0.178 (0.594)	-0.214 (0.441)	-0.152 (0.368)	0.534 (0.350)	-0.080 (0.320)	0.312 (0.641)	0.949 (1.146)
UE × East × D	-2.371 (1.494)	0.020 (1.168)	-0.114 (0.830)	-0.797 (0.564)	-0.665 (0.452)	-1.379*** (0.447)	-0.993** (0.448)	-0.682 (0.835)	-2.852* (1.531)
N	4,640	12,515	26,321	40,581	67,214	83,938	98,728	67,748	24,240
Control variables	✓	✓	✓	✓	✓	✓	✓	✓	✓
Individual FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Time FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Federal state FE	✓	✓	✓	✓	✓	✓	✓	✓	✓

Sources: SOEPv37, [Statistisches Bundesamt \(2023\)](#), [Statistik der Bundesagentur für Arbeit \(2023\)](#)

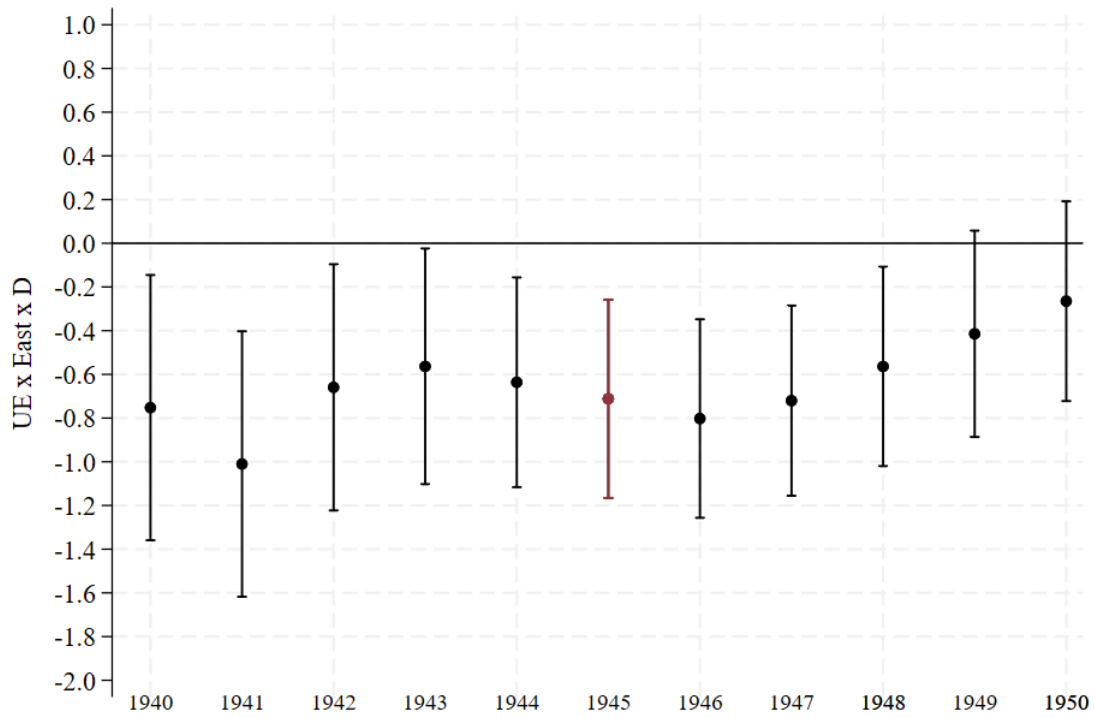
Notes: *** p<0.01, ** p<0.05, * p<0.10. Robust standard errors clustered at the individual level. Estimation of separate conditional logit models with individual-fixed effects ([Chamberlain, 1980](#)) for various dichotomisations of the life satisfaction scale based on equation (2). E.g., in column (1) the life satisfaction scale is collapsed into a binary response variable at the cutoff value of 1 and in column (9) the life satisfaction scale is collapsed into a binary response variable at the cutoff value of 9. All estimations include the same control variables as our main specification (see [Table 1](#) and [Table A3](#)).

Table A11: Persistence analysis

	(1) Female	(2) Male
UE	-0.553*** (0.151)	-0.690*** (0.170)
UE × East	0.313 (0.204)	0.234 (0.214)
UE × East × 1945-54	-0.728** (0.308)	-0.257 (0.309)
UE × East × 1955-64	-0.569** (0.259)	0.288 (0.277)
UE × East × 1965-74	-0.639** (0.308)	-0.072 (0.281)
UE × East × >1974	-1.205*** (0.394)	0.303 (0.325)
N	132,211	142,082
R ²	0.020	0.020
Control variables	✓	✓
Individual FE	✓	✓
Time FE	✓	✓
Federal state FE	✓	✓

Sources: SOEPv37, [Statistisches Bundesamt \(2023\)](#), [Statistik der Bundesagentur für Arbeit \(2023\)](#)
Notes: *** p<0.01, ** p<0.05, * p<0.10. Robust standard errors clustered at the individual level. Estimations are based on a modification of our main specification (see equation (2)) in which our binary cohort indicator is replaced by separate indicators for the following birth cohorts: <1945 (ref.), 1945-1954, 1955-1964, 1965-1974, 1974-1989. Predictions are based on gender-specific sample means of the covariates. All models include the same control variables as our main specification (see [Table 1](#) and [Table A3](#)).

Figure A1: Different cohort cut-off years



Sources: SOEPv37, [Statistisches Bundesamt \(2023\)](#), [Statistik der Bundesagentur für Arbeit \(2023\)](#)

Notes: Whiskers indicate 95% confidence intervals based on robust standard errors clustered at the individual level. Coefficient plot of the triple interaction effects of unemployment, the East dummy and the cohort indicator (see equation (2)) for various cohort cut-off years in the female sample. All models include the same control variables as our main specification (see [Table 1](#) and [Table A3](#)). The estimate of our preferred cohort definition from [Table 1](#) is highlighted in red.