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ORIGINAL ARTICLE

Open Access



# Unemployment's long shadow: the persistent impact on social exclusion

Laura Pohlan<sup>1,2,3,4\*</sup>

## Abstract

This paper studies the long-term consequences of unemployment on different dimensions of social exclusion. Based on longitudinal linked survey and administrative data from Germany and an event study analysis combined with inverse propensity score weighting, I document that becoming unemployed has lasting adverse effects on both individuals' material well-being and their subjective perception of social status and integration, persisting even after four years. An examination of effect heterogeneity underscores that the enduring effects of job loss are more pronounced for individuals confronted with challenging labor market conditions, those with a history of repeated unemployment, and individuals with lower levels of educational attainment.

**Keywords** Unemployment, Social exclusion, Panel data, Event study, Inverse probability weighting

**JEL Classification** I31, J64

## 1 Introduction

Job loss often results in a significant reduction in the economic and social well-being of individuals and their families, with adverse impacts on opportunities for social inclusion. Numerous studies have established that unemployment is associated with both physical and mental health issues (see, e.g., Cygan-Rehm et al. 2017; Stauder 2019) and that unemployment diminishes overall life satisfaction (Suppa 2021a, for example, provides an overview). Furthermore, losing employment increases the risk of social exclusion and marginalization, as documented by studies focusing on specific dimensions of social inclusion such as material standards of living, social relationships, social participation and the sense of belonging

to society (see, e.g., Gundert and Hohendanner 2014; Dieckhoff and Gash 2015; Christoph and Lietzmann 2016; Kunze and Suppa 2017).

The existing research literature points to a negative association between unemployment and various aspects of social integration. However, the literature suffers from two blind spots. Firstly, these studies focus on single dimensions only. Secondly, it is often not possible to definitively establish whether the observed social exclusion among the unemployed can be attributed solely to unemployment. Pohlan (2019) examines the effects of job loss on multiple dimensions of social exclusion. Based on German linked survey and administrative data and a combined inverse propensity score weighting and difference-in-differences approach, the author finds that unemployment has particularly detrimental effects on the subjective perception of social integration, access to economic resources, and an individual's well-being. Becoming unemployed also impedes the satisfaction of psychosocial needs typically associated with employment, such as social status and enhanced self-efficacy. However, Pohlan (2019) only considers the effects for a maximum duration of one year in unemployment. In this paper, I shed light on the long-term impact of job loss on

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different dimensions of social exclusion, as well as the heterogeneity of these effects dependent on labor market conditions and individual resources.<sup>1</sup>

On the one hand, the material and social effects of unemployment may intensify the longer the period of unemployment lasts, as stress factors such as financial pressure, unsuccessful job applications, and psychosocial deficits might accumulate over extended periods of joblessness (Paul and Moser 2009).<sup>2</sup> On the other hand, it could also be the case that unemployed individuals get used to their situation, leading to a reduction in the magnitude of these effects over time. However, the empirical literature on subjective well-being suggests little to no habituation to unemployment (see, e.g., Clark et al. 2008). Ultimately, some people will also find a job again over time, which could prevent and counteract the process of social exclusion.

The well-being literature generally shows that reemployment improves subjective well-being. However, the extent of improvement remains ambiguous, as several large-scale longitudinal studies have found evidence of long-term scarring effects of unemployment, i.e. negative effects that persist even after returning to work (see, e.g., Clark et al. 2001; Lucas et al. 2004; Young 2012; Mousteri et al. 2018; Eberl et al. 2023).<sup>3</sup>

How effectively reemployment can heal these scars should depend, not least, on the quality of working and employment conditions (Gundert and Hohendanner 2014). In particular, long periods of unemployment can result in unstable employment relationships as well as substantial and persistent wage declines in the future (e.g., Arulampalam 2001; Böheim and Taylor 2002; Gangl 2006; Jost 2022). Moreover, unemployment may not only leave financial scars but also non-pecuniary scars, as the loss of a job can lead to increased feelings of future uncertainty as well as lower job security, work quality and job satisfaction (e.g., Dieckhoff 2011; Young 2012; Brand 2015; Hetschko et al. 2019).

The contribution of this paper to the literature is threefold. Firstly, this paper provides a careful analysis of the long-term impact of unemployment on several dimensions of social exclusion based on the most recent version

of the PASS-ADIAB, which links 15 waves of panel survey data with administrative data from the German Federal Employment Agency. This allows me to draw conclusions about which aspects of social exclusion - access to material resources, social engagement, and a person's subjective perception of social integration and social status - are most affected by unemployment and which recover more quickly than others. Secondly, I delve into mechanisms by examining the heterogeneity of these effects, dependent on future employment status, general labor market conditions, and individual resources. Thirdly, this paper methodologically extends previous studies by applying a combination of inverse propensity score weighting and event study analysis, increasing the reliability of the results by making workers who become unemployed comparable to workers who remain employed across many dimensions, including individual labor market histories. In this way, I get as close as possible to determining the causal long-term effect of unemployment on social exclusion without relying on exogenous variation.

In this paper, I track individuals for up to four years after becoming unemployed and show that unemployment has long-lasting effects on different dimensions of social exclusion. In terms of material resources, the findings reveal a substantial decline in disposable household income, which amounts to 20 percent after one year and decreases to 13 percent after four years. This tighter financial situation is further manifested in the deterioration of living standards among individuals who experienced job loss. They suffer from an enduring deprivation of basic goods and activities.

These economic constraints, in turn, also impact the opportunities available to individuals for participating in social and cultural activities. As a consequence, individuals tend to forgo relatively costly activities such as dining out at restaurants, attending cinema or theater events. Interestingly, there are no observable changes in their memberships in social organizations like clubs over the course of the observation period. These findings are consistent with Kunze and Suppa (2017), who document strong and lasting effects of unemployment on the attendance of cultural events, cinema, and pop concerts, but no effects on active participation in sports or voluntary work. The authors even find a positive long-term effect on helping friends and neighbours. Rözer et al. (2020) also show that some dimensions of social networks, such as contact with relatives or neighbors, may actually improve with longer periods of unemployment while support from acquaintances, including colleagues, systematically declines as a result of short- and long-term unemployment.

Regarding subjective assessments of social status and social integration, I find that experiencing unemployment

<sup>1</sup> I consider transitions from employment to unemployment regardless of the reason. Therefore, the term "job loss" refers to both voluntary and involuntary termination of employment and is used interchangeably with "job termination" and "becoming unemployed". In a sensitivity analysis, however, I focus exclusively on involuntary job termination.

<sup>2</sup> In Germany, unemployed individuals typically receive insurance-based unemployment benefits equivalent to 60% (67% for claimants with children) of their previous net salary for a period of 12 months. After the expiration of insurance-based benefits, needy individuals receive means-tested benefits, which can lead to a considerable reduction in payments.

<sup>3</sup> Nonetheless, a few studies in this field are questioning the scarring hypothesis (such as Rauf 2021 or Zhou et al. 2019).

significantly reduces individuals' perceived social status and their sense of belonging to society. While the impact on social status and social integration diminishes over time, these effects persist even four years after becoming unemployed. Notably, during this four-year period, a substantial proportion of individuals finds a job again. However, despite an increasing probability of reemployment over time, the results indicate that unemployment leaves lasting scars.

When examining effect heterogeneity by categorizing individuals based on their prospects for reemployment and their resources to cope with unemployment, I show that the long-lasting impacts of job loss are amplified for individuals who face challenging labor market conditions, have more experience with unemployment periods, and have lower levels of educational attainment. In summary, this paper underscores the importance of adopting a nuanced perspective on social exclusion, one that takes into account the multifaceted nature of the experience and its enduring consequences.

The rest of the paper is structured as follows. Section 2 presents theoretical considerations regarding the concept of social exclusion and the consequences of unemployment. Section 3 describes the data and the measurement of the outcome variables. Section 4 presents the empirical identification strategy. Section 5 describes the sample, and shows model diagnostics. Section 6 presents the results of the empirical analysis. Section 7 concludes.

## 2 Theoretical considerations

The concepts of social inclusion and its counterpart, social exclusion, are not uniformly defined (Room 1995; Kronauer 1998; Bartelheimer 2004; European Commission 2010; Bartelheimer et al. 2020). Definitions employed in welfare research and within political contexts may display some notable distinctions, yet they also share certain core elements. Grounded in the notion of opportunity realization, the measurement of integration opportunities is based on an individual's capacity to pursue a personally desired and socially accepted way of life (Bartelheimer 2004). Realized social inclusion depends on both an individual's capability to act and an individual's actual actions (Sen 1985), necessitating individuals, within the context of personal and societal constraints, to actively shape their lives in a self-determined manner.

Social exclusion is a complex, multidimensional process that unfolds across various dimensions of society, including education, employment, healthcare, social services, political institutions, and interpersonal relationships. Within this framework, interrelated forms of participation, encompassing material, social, cultural, and legal-institutional dimensions can be discerned. This paper predominantly concentrates on material and social

integration, which manifest particularly in access to financial resources, standards of living, and engagement in social interactions with others.

In modern working societies, the chance of social integration is to a large extent determined by integration into working life (Promberger 2008). Gainful employment not only grants access to material resources, a vital prerequisite for participation in social and cultural life, but it also fulfills fundamental psychosocial needs (Jahoda 1981). These include maintaining a regular daily routine, social contacts beyond one's immediate family, engaging in meaningful activities aligned with collective objectives, and obtaining socially recognized status. Through its multifaceted functions, gainful employment significantly shapes individuals' perceptions of their ability to manage their lives.

Given that job loss results in the forfeiture of functions that facilitate participation and may not always be adequately compensated in other life domains, unemployment is regarded as a major risk factor for social exclusion. Job loss and the resulting loss of earned income directly affect a household's available financial resources. However, this loss can be mitigated by alternative sources of income, such as unemployment benefits or social security benefits. In addition, other household members might compensate the income loss by taking up a job or increasing working hours, or savings are touched so that becoming unemployed does not immediately translate into a reduction in the standard of living or an increase in deprivation. The extent and manner in which the standard of living is affected depends on various factors, including the degree of financial constraints and the duration of unemployment.

Integration into social relationships and organizations, often fostered by gainful employment, holds a pivotal role in facilitating social participation. Work environments frequently serve as the breeding ground for social connections and networks, which may extend to personal acquaintances and friendships. Additionally, those in employment are generally better positioned than the unemployed to sustain social relationships and engage in clubs or organizations. This advantage stems from a combination of having more financial resources for social activities and the positive impact that gainful employment can have on self-esteem and self-efficacy expectations (Tisch and Wolff 2015).

Furthermore, in working societies, individual's employment status largely defines their social status (Jahoda 1981; Paul and Batinic 2010). Gainful employment represents a widely recognized social norm for people of working age. In the absence of socially acknowledged alternative roles, such as child-rearing or caregiving responsibilities, economic inactivity is

generally considered less prestigious than employment. Consequently, the violation of the norm can be perceived as a personal setback by the unemployed themselves and by those around them, potentially leading to psychological distress and feelings of social exclusion. This shows that perceived social status encompasses more than just objective aspects such as earnings and occupational prestige. For example, adherence to social norms, contribution to collective goals and the use of individual skills can also play an influential role.

Thus, the long-term consequences of job loss on social exclusion largely hinge on the prospects of reemployment. Long-term unemployment, in particular, can exacerbate shortcomings in social participation alongside material constraints, as a sustained decrease in living standards also inhibits engagement in social and cultural activities. This situation can further deteriorate due to the negative impact on self-esteem and effects on mental and physical health.

This paper provides a comprehensive examination of the long-term consequences of unemployment on social exclusion, employing a range of relevant indicators. I examine how job loss affects individuals' financial resources and living standards, as well as their social participation. In addition to objective metrics, this study also explores how individuals self-evaluate their societal integration and social status after becoming unemployed.

### 3 Data and measurement of outcomes

#### 3.1 Data source and sample selection

The PASS-ADIAB links the Panel Labor Market and Social Security (PASS) survey with administrative personal information from the Integrated Employment Biographies (IEB) of the German Federal Employment Agency.<sup>4</sup> In the PASS survey, which has been running since 2006, individuals living in Germany and their households are repeatedly surveyed at annual intervals about their economic and social living conditions, whereby households receiving welfare benefits are oversampled (Trappmann et al. 2019). Poverty, benefit receipt, and transitions into and out of unemployment are the main focus of the survey.

In addition to objective indicators used to delineate living conditions, the PASS survey also incorporates information on how respondents subjectively evaluate their material and social circumstances, as well as their overall well-being. The PASS survey is particularly suited for the present analysis for several reasons. Firstly, the PASS data incorporates information on access to material resources, social engagement and a person's subjective perception

of social integration and social status, which serve as my outcome variables. Secondly, by consisting of equal parts drawing from long-term unemployed individuals and a stratified sample of the German population, the PASS is ideally suited to investigate the impact of unemployment on social exclusion, as I observe many transitions in and out of unemployment. Thirdly, the PASS can be linked to the administrative data of the German Federal Employment Agency.

Thereby, the data are enriched with daily information on individuals' employment histories, particularly with regard to the beginning and end of employment and unemployment episodes.<sup>5</sup> I use the administrative information to measure the employment state at the time of the interview and as determinants of the probability of becoming unemployed in the propensity score estimation. While survey information on wages and employment states might suffer from misreporting and selectivity issues (see, e.g., Pedace and Bates 2000), the administrative data source delivers detailed and complete high-quality data on individual employment histories, as well as previous job characteristics, including wages and firm-level characteristics. The PASS-ADIAB 7520 allows the analysis of 15 consecutive panel waves covering the period from 2007 to 2021.

This study focuses on individuals who participated in the PASS survey for at least two consecutive waves and whose survey data can be successfully linked to administrative IEB data. I only consider individuals who were 18 to 64 years old at the first observation point ( $t = 0$ ), were employed with non-zero wages according to the IEB and did not receive unemployment benefits at that time, and either transitioned to unemployment (treatment group) or remained employed (control group) by the second observation point ( $t = 1$ ). Treated individuals are excluded from the control group. The final estimation sample consists of 1,060 individuals in the treatment group and 29,375 individuals in the control group.

#### 3.2 Measurement of outcome variables

In the following, I describe how the outcome variables household income, deprivation, social engagement, social status and social integration are measured. The PASS questions underlying the outcome variables are presented in Appendix A.1, a description of their construction in Appendix Table A.1 and summary statistics in Appendix Table A.2.

I use two variables to measure access to material resources enabling a basic standard of living and social participation. First, I use the equivalent household

<sup>4</sup> This paper is based on the PASS-ADIAB version 7520 v1 (DOI: 10.5164/IAB.PASS-ADIAB7520.de.en.v1) and can be accessed via the Research Data Centre (FDZ) of the IAB.

<sup>5</sup> On average, over 80% of the respondents agreed to merging the two data sets in each wave (Berg et al. 2022).

income, which represents a need-weighted per capita monthly income. Second, I use (weighted) deprivation indexes. The typical operationalization of material deprivation implies that a person is only considered deprived when they cannot achieve a particular 'doing' or 'being' because they do not have the financial resources (Guio 2009). The PASS-deprivation scale was developed by the Institute for Employment Research referring to previous surveys (e.g., the EU-SILC, the British Household Panel, and the "Niedrigeinkommens-Panel") and empirical research (e.g., Andreß and Lipsmeier 1995; Nolan and Whelan 1996).

Specifically, the households are asked to indicate whether they possess a set of basic goods considered essential for an appropriate standard of living. For instance, these items include, among others, having an apartment with at least as many rooms as there are individuals living there, sufficient winter clothing, a computer with internet access or a car.

Moreover, household members are asked about their participation in activities that fulfill basic needs, such as buying new clothing, paying bills or saving a fixed amount of money. The questions also cover involvement in social activities like inviting friends over for dinner at home or going to the cinema once in a while. I split the index into the two dimensions, deprivation of goods and deprivation of activities, as in particular in the short-run, becoming unemployed might primarily increase non-participation in activities. The two deprivation indexes are based on a list of 11 goods and 12 activities, respectively.<sup>6</sup> Survey participants also indicated whether their households lacked these goods or abstained from certain activities due to financial constraints or for other reasons. In order to construct the deprivation indexes accurately, I only consider items that are missing for financial reasons. This approach ensures that deliberate choices, such as a household opting not to own a car or a television, are not misinterpreted as indicative of a diminished standard of living. Finally, items are weighted on the basis of the proportion of the population that considers a particular item to be indispensable.

I quantify social participation by using information on the activities individuals engage in as part of organizations or associations. The PASS survey includes a question on whether the respondent actively participates

in various groups, including unions, political parties, church communities, clubs, such as music, sport or culture clubs, or other organizations. Based on their responses, I construct a variable that ranges from 0 to 5, indicating how many activities the individual is involved in. Unfortunately, the PASS-ADIAB lacks precise data on an individual's social network. There is only information on the number of close friends (including family members) individuals have, which is unlikely to be affected by periods of unemployment (see Pohlen 2019 and Krug and Prechsl 2020 as well as the results presented in Figure B.4 in the Appendix). For this reason, this information is not considered further.

To measure social status, I use a question from the PASS survey where respondents are asked to rank themselves on a scale of 1 to 10. A ranking of 1 implies belonging to the bottom of society, while a ranking of 10 indicates being positioned at the top. A very similar question is included in the ISSP (International Social Survey Programme), a cross-sectional household survey of European countries, and has been analyzed in studies focusing on cross-country comparisons (see, e.g., Lindemann and Saar 2014; Poppitz 2016 and Saar et al. 2017).

To quantify social integration, I rely on the subjective perception of social belonging, which spans from 1 to 10. This scale represents a spectrum from feeling excluded (1) to experiencing a strong sense of belonging and integration within society (10). This measure of the overall subjective evaluation of social integration is based on the former IAB survey "Lebenssituation und Soziale Sicherung" 2005 (LSS 2005). Similar measures have been used, for instance, by Böhnke (2004) and Layte et al. (2010).

#### 4 Empirical identification

The aim of this paper is to determine the long-term effects of unemployment on different dimensions of social exclusion over time. The identification of causal effects relies on a comparison of the outcome levels of workers who become unemployed and those of otherwise identical individuals who remain employed.

The fundamental challenge of causal inference arises from the inability to simultaneously observe the outcomes of the same individuals both with and without job loss, making the direct observation of causal effects impossible (Imbens and Wooldridge 2009). To address this challenge, I employ a combination of inverse propensity score weighting (IPW) and an event study approach (Miller 2023). The basic idea behind the weighting approach is to make those workers who do not experience job loss comparable in their observed characteristics to those who do experience job loss. This is achieved by downweighting the outcome levels for individuals from

<sup>6</sup> The activities captured in the deprivation index also partly address deprivation in social participation. This relates to what is proposed in Suppa (2021b) as a measure of deprivation in social participation based on a set of social activities (such as attending cultural events and meeting friends) and the frequency with which they are performed. While this measure not only captures the financial dimension but also other mechanisms such as the denial of rights, stigmatization, or any combination thereof, I focus solely on the deprivation of activities, including social activities, due to financial constraints.

the control group who are overrepresented, while placing greater weight on the outcome variables of those who are underrepresented. These weights are determined based on the propensity score, or the probability of being unemployed in the subsequent period ( $T = 1$ ), given the observed covariates  $x$ :

$$p(x) = \mathbb{P}(T = 1|X = x). \quad (1)$$

I estimate the propensity score using a logistic regression model based on a large set of determinants of job loss (see Table B.2 in the Appendix).<sup>7</sup> This set includes information on prior outcome levels, sociodemographic characteristics, subjective indicators, individual health status and household situation. Moreover, I use information on individual employment histories and previous job characteristics, including firm-level characteristics and whether the position was permanent or not.<sup>8</sup> An individual's past labor market performance should be strongly related to unobserved factors, such as ability and motivation, which are in turn likely to influence individual employment prospects and my outcome variables. Hence, information on individual employment histories may help to identify the effects of becoming unemployed (Heckman et al. 1997).

These observed characteristics are measured at the first of two consecutive waves, ensuring that their levels remain unaffected by future unemployment. Subsequently, I use the fitted values of the propensity scores to calculate the weights.

In a second step, I estimate the following event study model to eliminate permanent, time-invariant differences between individuals that remain unobserved by the researcher, and examine the effects of unemployment over time:

$$y_{i,t} = \alpha_i + \sum_{\tau \neq -1} \beta_\tau I(t = \tau) + \sum_{\tau \neq -1} \gamma_\tau I(t = \tau) I(T_i = 1) + \delta_c + \varepsilon_{i,t}, \quad (2)$$

where  $y_{i,t}$  is the outcome level of individual  $i$  at time  $t$ ,  $\alpha_i$  represents individual fixed effects,  $T_i$  the treatment dummy taking the value 1 if the individual becomes unemployed at  $t = 1$  and 0 otherwise.  $\delta_c$  captures calendar year fixed effects and  $\varepsilon_{i,t}$  is the idiosyncratic error term.  $\tau$  spans from -2 to 4, covering a seven-year period, with point in time 1 indicating the start of the treatment. For a fixed point of time  $\tau$ ,  $\beta_\tau$  captures the average value of outcomes for the control group relative to the reference period (conditional on fixed effects), while  $\gamma_\tau$

represents the average difference between the treatment and the control group at that specific point in time. The regression is weighted by the inverse propensity score weights determined in the first step and formally given by  $\frac{\hat{p}(x_i)}{1 - \hat{p}(x_i)}$ , where  $\hat{p}(x_i)$  is the predicted probability of becoming unemployed conditional on observed characteristics  $x_i$ .

The IPW-event study approach identifies  $\gamma_\tau$  under the assumption that, in the absence of a job loss event, the average outcomes of both unemployed and still-employed workers follow a parallel trend. In essence, this approach assumes that both groups undergo similar changes over time, rather than having similar levels of outcome variables when job loss does not occur. The estimated coefficient can then be interpreted as the effect of unemployment at different points in time on the various dimensions of social exclusion of unemployed individuals (average treatment effect on the treated (ATT)).

## 5 Descriptive statistics and model diagnostics

Table 1 illustrates that the empirical procedure is necessary to render the treatment and control group comparable. It shows selected descriptive statistics of the characteristics used in the analysis, separately for both groups. Mean values of the control group are presented before (column (2)) and after weighting (column (3)). Additional descriptive statistics are reported in Table B.1 in the Appendix.

Without weighting, the treatment and control group differ significantly (column (1) vs. column (2)). For individuals transitioning from employment to unemployment between  $t = 0$  and  $t = 1$ , the outcome levels in  $t = 0$  are consistently lower than those of continuously employed individuals before applying any weighting. Accordingly, the deprivation indexes of basic goods and activities indicate a significantly higher level in the treatment group, indicating a lower standard of living. When examining sociodemographic characteristics, the table reveals that men, young employees, employees with a migration background and the low-skilled are more prone to experiencing unemployment. Additionally, the treatment group, on average, faces more severe health limitations. There are also significant differences regarding household characteristics, as those who become unemployed are less likely to be married and less likely to have children. Considering the characteristics of their previous jobs and employment history, individuals who become unemployed have, for instance, shorter job tenure, earn lower wages, and are more frequently affected by interruptions due to periods of unemployment or nonemployment compared to those who remain employed.

The empirical approach effectively balances group differences in observed characteristics. After weighting,

<sup>7</sup> For a detailed description of the covariates, see Pohlan (2019).

<sup>8</sup> The selection of these covariates aligns with the control variables used in other empirical studies on the non-pecuniary effects of job loss (see, e.g., Kassenboehmer and Haisken-DeNew 2009 and Marcus 2013).

**Table 1** Selected descriptive statistics

	Treated	Control Unweighted	Control Weighted	P-value	Standard. Diff.
	(1)	(2)	(3)	(1) – (3)	(1) – (3)
<b>Initial outcome levels</b>					
Household income [in €]	1383.157	1751.613	1375.832	0.757	0.009
Deprivation of basic goods [0-4.7]	0.183	0.076	0.181	0.886	0.005
Deprivation of activities [0-5.3]	0.522	0.282	0.536	0.612	– 0.019
Social engagement [0-5]	0.506	0.753	0.503	0.927	0.003
Social status [1-10]	5.770	6.264	5.772	0.974	– 0.001
Social integration [1-10]	7.337	7.891	7.304	0.684	0.016
<b>Sociodemographics &amp; household characteristics</b>					
Female	0.436	0.528	0.432	0.846	0.008
Age [in years]	41.052	44.461	40.968	0.850	0.007
Migrant	0.088	0.044	0.095	0.559	– 0.025
Married	0.383	0.548	0.377	0.755	0.012
Number of own children	1.179	1.426	1.204	0.632	– 0.020
Serious health restrictions	0.254	0.198	0.256	0.909	– 0.004
PQ: no vocational training	0.175	0.096	0.179	0.838	– 0.008
PQ: vocational training	0.615	0.621	0.612	0.872	0.006
PQ: advanced vocational training	0.059	0.095	0.059	0.954	0.002
PQ: academic degree	0.150	0.188	0.150	0.974	– 0.001
East Germany	0.313	0.278	0.312	0.930	0.003
<b>Previous job characteristics &amp; employment history</b>					
Permanent contract	0.655	0.895	0.647	0.646	0.017
Tenure [in months]	20.707	70.351	21.432	0.537	– 0.020
Daily wage [in €]	59.696	83.726	61.080	0.257	– 0.040
Number of employment periods with ssc	7.548	5.729	7.536	0.964	0.002
Employment duration with ssc [in months]	117.116	184.471	119.188	0.589	– 0.020
Number of unemployment periods	4.501	2.608	4.540	0.826	– 0.010
Unemployment duration [in months]	67.792	36.542	67.342	0.842	0.008
<b>Number of observations</b>	1060	29,375	29,375		

Notes: Standard. Diff.: Standardized Difference. PQ: Professional qualification. ssc: social security contributions. Scales of the variables are shown in squared brackets.

Source: PASS-ADIAB 7520, own computations

there are no longer statistically significant differences between the treatment and control group (column (1) vs. column (3) of Table 1). The last column reports standardized differences, denoted as  $\Delta_X$ , between treated and re-weighted control individuals, serving as a scale-free measure of balancing.<sup>9</sup> Given the absence of a universally agreed-upon criterion for determining what constitutes a sufficiently small standardized difference to achieve balance, I adopt the rule of thumb suggested by Austin

(2011):  $\Delta_X < |0.1|$ . The standardized differences reported in Table 1 point to no substantial differences between treatment and control group after applying IPW.

The large number of non-treated in comparison to treated individuals (a ratio of 1:28) increases the likelihood of finding a suitable control group. This is affirmed by the balancing test, which demonstrates the comparability of the treated and the weighted control group across a wide range of covariates. To assess the validity of the overlap assumption, I compare the distribution of the estimated propensity scores in the treatment and control group, respectively. As shown in Figure B.3 in the Appendix, there is substantial overlap in the sample. Additionally, I examine whether there are treated cases with

<sup>9</sup> The standardized difference is computed as  $\Delta_X = (\bar{X}_1 - \bar{X}_0) / ((S_1^2 + S_0^2)/2)^{0.5}$ , where  $\bar{X}_w$  represents the sample mean of treated ( $w = 1$ ) or control ( $w = 0$ ) individuals, and  $S_w^2$  represents the respective sample variances (Austin 2011; Guo and Mark 2015).  $\Delta_X$  offers an advantage over the conventional  $t$ -statistic in that it does not mechanically inflate with sample size, thus avoiding the exaggeration of minor imbalances that might still appear significant in a  $t$ -test.

propensity score values exceeding the maximum value among the non-treated individuals (Lechner and Strittmatter 2019). In this application, however, such cases do not exist.

The model diagnostics indicate that, given the available data, it is feasible to identify an appropriate control group for my empirical analysis. Appendix Figures B.1 and B.2 present the mean values of the outcome variables in levels three years before and four years after treatment start, separately for treated and control individuals before and after applying IPW. The plots already show that individuals who become unemployed experience a substantial and lasting deterioration in both the material and social dimensions of social exclusion. While the trajectories for some outcome variables are quite different between treatment and control group before weighting in the period before job loss, these differences disappear after weighting. This already hints at similar trends in outcomes prior to the onset of treatment, which is required by the event study approach. However, the event study plots presented in the results section below allow for a more systematic assessment of parallel trends in both groups.

In addition to the parallel trend assumption, the identification strategy requires that future job loss does not influence the outcome variables before the actual transition in unemployment. For instance, Wunder and Zeydanli (2021) document significant lead effects regarding perceived job insecurity and job satisfaction one year prior to a plant closure. Appendix Figures B.1 and B.2 indicate that the outcome levels in the treatment group are generally on an increasing trajectory, which is reversed by the event of job loss. Thus, there is no clear indication of anticipation. However, if the outcome levels one year prior to job loss are nevertheless negatively influenced by future unemployment, the real costs of unemployment would even be higher.

## 6 Empirical findings

### 6.1 Baseline results

This section presents the baseline IPW-event study analyses for the effect of unemployment on the material and social dimensions of social exclusion, as defined in Sect. 3.

*Material dimension.* Figure 1 shows the estimated effects of unemployment on household income (panel A), deprivation of basic goods (panel B) and deprivation of activities (panel C). Panel A illustrates that experiencing unemployment results in a decline in disposable income and a deterioration in living standards. For individuals who have become unemployed, the average equivalent monthly household income decreases by approximately 270 euros one year after job termination compared to the control group, representing a reduction of 20 percent.

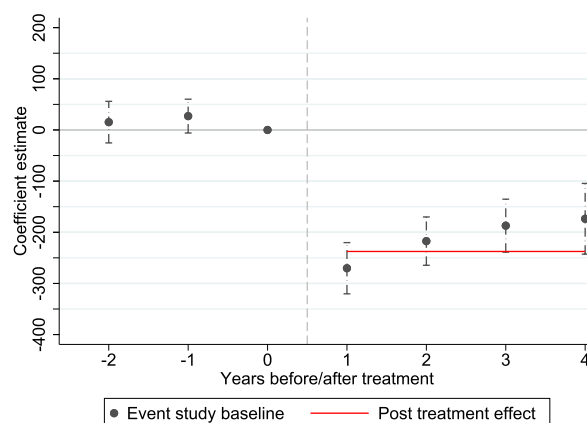
The effect diminishes over time but amounts still to 174 euros after four years.

Job loss also leads to a significant increase in deprivation of basic goods (by 0.052 scale points) and activities (by 0.200 scale points), reflecting constraints on the standard of living individuals were accustomed to. These findings indicate that individuals are more likely to limit their activities following unemployment rather than cutting back on basic goods. Notably, the effect sizes are substantial. The weighted deprivation index for basic goods and activities is around 0.18 and 0.53, respectively, at time  $t = 0$  in both the treatment and the weighted control group. These values correspond to about half the size observed in the unweighted control group (see Table 1).

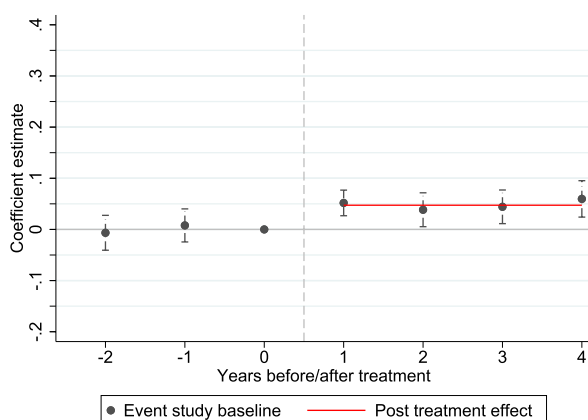
Interestingly, these effects are already noticeable one year after becoming unemployed and remain relatively stable over time. This finding speaks against a delayed impact of unemployment, which one would expect regarding durable consumer goods. A more detailed analysis of the individual components of the deprivation index, not presented here, supports this assumption.<sup>10</sup> In the case of job loss, affected individuals predominantly cut back on activities like vacation trips, dining out, attending cinema, theater, or concerts. Moreover, they are less inclined to purchase new clothes or furniture, and saving becomes more challenging. They also face increasing difficulties in handling unexpected expenses. In contrast, unemployment does not directly affect the possession of items like a washing machine or a television set in the home. Financial restrictions concerning basic goods are most commonly observed in relation to owning a car or the size of the apartment.

*Social dimension.* Figure 2 shows the effects of unemployment on social engagement (panel A), social status (panel B) and social integration (panel C). With regard to social participation, the results are inconclusive. I find that individuals who have lost their jobs do not significantly reduce their social engagement including involvement in clubs, trade unions, political parties, church congregations or other organizations (see panel A of Fig. 2). Additionally, there is no noticeable effect on the number of close friends (see Figure B.4 in the Appendix). Several explanations can be considered for this. Firstly, as described earlier, unemployment can make it more challenging to maintain social contacts, but this aspect may not be adequately captured by the measures considered. Furthermore, existing social networks can offer emotional support during crisis situations, which would argue against a decline in friendship relationships. Moreover, lost contacts might be replaced by new acquaintances and friendships. Finally, although the findings do

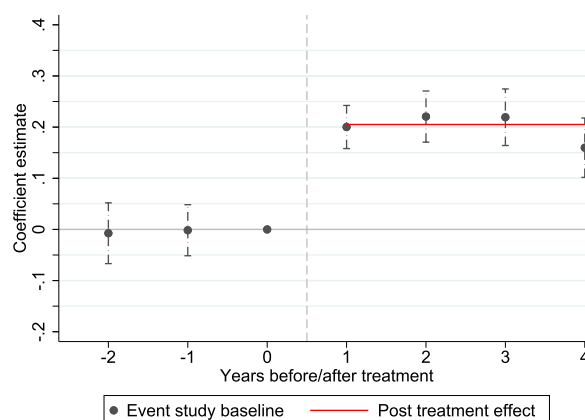
<sup>10</sup> The results are available on request.



A: Household income



B: Deprivation of basic goods



C: Deprivation of activities

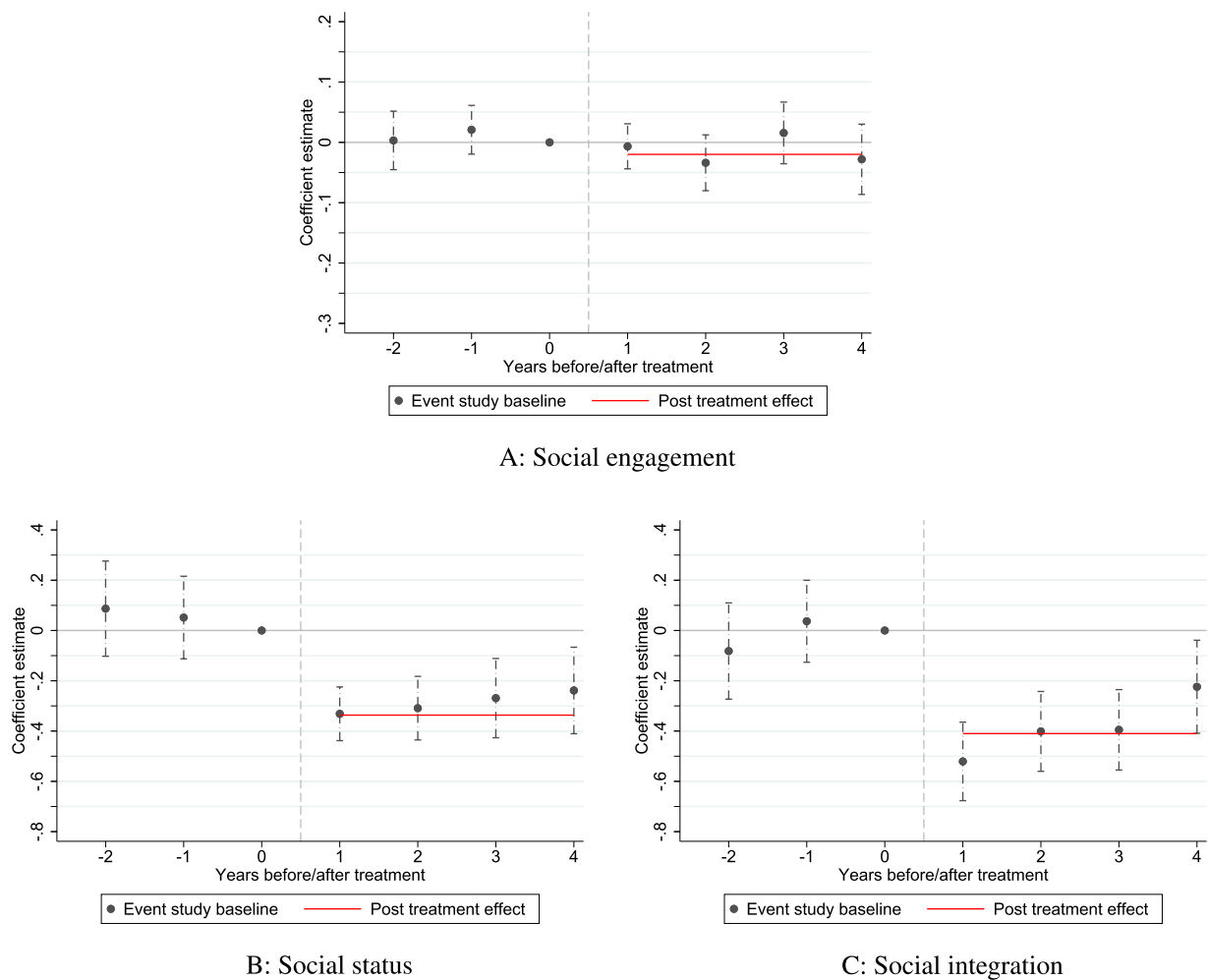
**Fig. 1** The effect of unemployment on the material dimension. *Notes:* The figure shows the effect of becoming unemployed at time  $t=0$  on the material dimension of social exclusion in  $t=\tau$ ,  $\tau=-2$  to 4. The black point estimates are based on equation (2). The regression is weighted by the inverse propensity score. Propensity score estimation is based on a logit model (see Table B.2 in the Appendix). The red bar gives the effect on the average change in outcomes between the pre-period  $= -2$  to 0 and the post-period 1 to 4. The number of observations are shown in Appendix Table B.3. Standard errors are clustered at the individual level. 95% CIs around point estimates. *Source:* PASS-ADIAB 7520, own computations

not indicate a decrease in social participation, the more in-depth analysis of the deprivation index provides evidence that social activities such as going to the cinema, the theater, or restaurants, as well as inviting friends over for dinner are reduced for financial reasons. Apparently, people do restrict their social life in relatively cost-intensive areas following a job loss.

The perception that unemployment represents a social decline is also supported by empirical evidence. Panel B of Fig. 2 demonstrates a significant decrease in perceived social status by 0.331 scale points one year after job loss. This effect diminishes slightly from the second year onward. By year four, the effect amounts to  $-0.239$  scale points.

In summary, the analyses reveal that experiencing unemployment is associated with limitations in both material and social dimensions. This also seems to be reflected in the subjectively perceived sense of belonging to society, which is assessed in PASS using a 10-point scale. For individuals who have become unemployed, the sense of belonging decreases significantly by 0.521 scale points (panel C of Fig. 2). However, this effect diminishes over time, reaching  $-0.224$  scale points after four years.

Since the outcome variables are measured on different scales, the comparability of effect sizes is somewhat limited. To address this issue, Table B.4 in the Appendix presents the standardized effects of unemployment. One year after job loss, the most pronounced effect of 0.399



**Fig. 2** The effect of unemployment on the social dimension. *Notes:* The figure shows the effect of becoming unemployed at time  $t=0$  on the social dimension of social exclusion in  $t=\tau$ ,  $\tau=-2$  to 4. The black point estimates are based on equation (2). The regression is weighted by the inverse propensity score. Propensity score estimation is based on a logit model (see Table B.2 in the Appendix). The red bar gives the effect on the average change in outcomes between the pre-period  $-2$  to  $0$  and the post-period  $1$  to  $4$ . The number of observations are shown in Appendix Table B.3. Standard errors are clustered at the individual level. 95% confidence intervals around point estimates. *Source:* PASS-ADIA 7520, own computations

standard deviations is observed in terms of deprivation of activities. The effects on household income, deprivation of basic goods, social status, and social integration fall within the range of  $-0.2$  to  $-0.3$  standard deviations. After four years, the adverse effects of unemployment persist notably in terms of material deprivation and social status, while the negative impact tends to decrease with respect to household income and perceived social integration.

## 6.2 Sensitivity analysis

In this subsection, I perform a series of sensitivity checks to assess the robustness of my findings. Due to the relatively large number of coefficients in the estimations, it is possible that some coefficients are statistically significant

by pure chance. Therefore, Table B.5 in the Appendix shows the p-values of the coefficients, indicating significance at conventional levels as well as significance at the 5% level after a Bonferroni correction. This correction is a conservative approach that utilizes  $0.05/m$  as the critical p-value, where  $m$  is the number of outcome variables (e.g., Shaffer 1995). In my case, the critical p-value is hence  $0.05/6 \approx 0.0083$ . With three exceptions (coefficients for deprivation of goods in  $t=2$  and  $t=3$ , as well as for social integration in  $t=4$ ), all coefficients remain significant even after the correction.

In a next step, I check the robustness of my results with respect to the empirical specification (see Tables B.6 to B.11 in the Appendix). Firstly, I exclude extreme inverse propensity score weights. Specifically, I trim the sample

by excluding the 1st and 99th percentiles of weights (see column (2)). Secondly, in column (3), I include the Big 5 personality traits in the propensity score estimation. Thirdly, I investigate the impact of the choice of the parametric model (probit vs. logit) on the propensity score estimation (see column (4)). Fourthly, I compare in columns (5) and (6) the baseline results with those obtained using alternative matching approaches, namely 5-nearest neighbor matching with replacement and entropy balancing. Entropy balancing optimizes weights to ensure that moments of selected covariates do not differ between the treatment and control groups after re-weighting (see, e.g., Hainmueller 2012). Specifically, I balance the first and second moment of all covariates. Overall, the estimates demonstrate that the findings are not sensitive to variations in the model specification, highlighting the robustness of the results.

As a final step, I present results for individuals who are laid off, excluding those whose contracts expired or who voluntarily left their jobs (Table B.12 in the Appendix).<sup>11</sup> In my sample, 56% of all workers, for whom this information is available, experience unemployment as a result of employer-initiated dismissals. This figure aligns with Kassenboehmer and Haisken-DeNew (2009), who similarly report a 56% share of involuntary job losses among all new entries into unemployment. In line with the results in Pohlman (2019) for earlier waves, the findings here suggest slightly larger effects on social status and social integration one year after being laid off. In the long-run, the effects are quite comparable to the baseline results.

### 6.3 Mechanisms

As the previous analyses illustrate, job loss can pose financial, social, and psychological challenges. However, not all individuals who become unemployed experience these challenges in the same way or with the same intensity. The severity and persistence of the effects of unemployment - both objectively and in subjective perception - are likely related to the prospects of reemployment and the resources that affected individuals can rely on to cope with or overcome their situation.

Figure 3 presents the effects of experiencing unemployment in  $t = 1$  on the probability of being employed (panel A) and the probability of receiving unemployment benefit II (panel B) in period  $t$ .<sup>12</sup> In panel A, we observe

that two years after losing their jobs, individuals are 45 percentage points less likely to be employed compared to those who remain employed in  $t = 1$ . However, this gap narrows to 26 percentage points after four years, indicating that the majority of individuals find a job again over the long term. With regard to the receipt of unemployment benefit II, the results in panel B reveal that for individuals who become unemployed in  $t = 1$ , the probability of receiving unemployment benefit II increases by 17 percentage points compared to the control group. This effect remains relatively stable over the four-year period, suggesting that a substantial portion of individuals rely on government support for an extended period following their job loss. These findings underscore the long-lasting economic (and social) consequences of unemployment and the importance of social safety nets in supporting affected individuals.

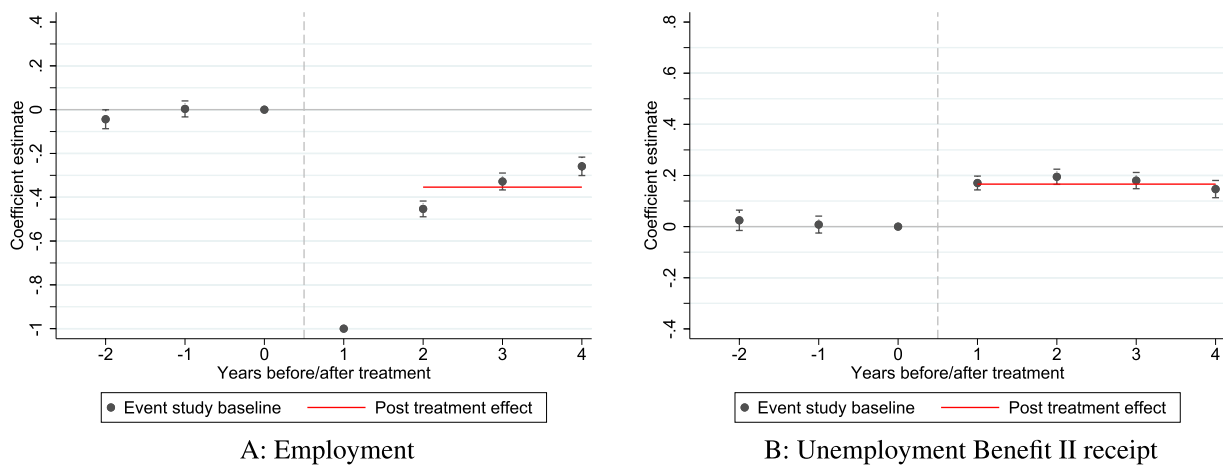
To provide some empirical evidence on how the effects on the material and social dimensions of social exclusion differ by future employment status, I distinguish between treated individuals who are reemployed and those who remain unemployed. These results should be interpreted with caution as selection out of unemployment is a non-random process (e.g., Suppa 2021a). In general, individuals with good labor market prospects have a higher likelihood to find a job again more quickly. However, it could also be the case that individuals who suffer particularly from unemployment search harder for a job. The empirical evidence on this latter aspect is mixed: Studies for Germany show that unhappy unemployed individuals increase their search effort but do not find a job more quickly (see, e.g., Gielen and Van Ours 2014 and Krug et al. 2019), while Mavridis (2015) documents a higher probability for returning to employment for the UK. Including person fixed effects in the event-study equation can only partly capture this selectivity.

Figure B.5 in the Appendix suggests that staying unemployed in  $t = 2$  is associated with higher income losses and material deprivation. Regarding the social dimension (Appendix Figure B.6), the impact on perceived social status and integration remains large and negative. Reemployed individuals, in contrast, experience a recovery. The estimated coefficients become smaller and insignificant over time, but remain negative in terms of household income, social status and social integration. Regarding the deprivation of activities, the coefficient is significantly positive over the entire period.

These descriptive results again provide evidence of the long-lasting effects of unemployment on social exclusion: Individuals who remain unemployed do not seem to adapt to their situation in terms of improving the outcome variables. Unemployment also seems to leave some

<sup>11</sup> Unfortunately, the available administrative and survey data do not provide any additional information regarding the specific reasons for job termination, such as health-related issues, misconduct, or plant closures.

<sup>12</sup> Unemployment benefit II is a means-tested benefit to provide basic financial support to individuals and families in financial need due to unemployment or low income.



**Fig. 3** The effect of unemployment on labor market states. *Notes:* The figure shows the effect of becoming unemployed at time  $t=0$  on labor market states in  $t=\tau$ ,  $\tau=-2$  to 4. The black point estimates are based on equation (2). The regression is weighted by the inverse propensity score. Propensity score estimation is based on a logit model (see Table B.2 in the Appendix). The red bar gives the effect on the average change in outcomes between the pre-period  $-2$  to 0 and the post-period 2 to 4 for panel A and the post-period 1 to 4 for panel B. The number of observations are shown in Appendix Table B.3. Standard errors are clustered at the individual level. 95% confidence intervals around point estimates. *Source:* PASS-ADIAB 7520, own computations

scars on those who are reemployed, which weaken over time.

To get to a more causal interpretation of differences in the effects, I conduct, in a next step, effect heterogeneity analyses by categorizing individuals based on their reemployment prospects and their resources to cope with an event like job loss. Therefore, I estimate condensed difference-in-differences models where the treatment effect is captured by a single coefficient that compares the differential change in outcome variables between the treatment and control group in the three years before and four years after job loss. Table 2 shows the effects for individuals facing different labor market conditions at the time that they become unemployed, with different levels of unemployment experience and varying skill levels.

Worse labor market conditions could lead to stronger and more persistent unemployment effects on social exclusion, because it becomes more challenging to regain stable employment relationships. In contrast, in regions with weaker economic prospects, there might be less pronounced effects, given the higher prevalence of unemployment and the relatively lower societal pressure associated with job loss compared to more prosperous regions. Columns (1) and (2) display the effects for individuals residing in regions with a local unemployment rate below 9.77% in  $t = 0$ , corresponding to the 75th percentile, and those in regions with rates above this threshold. There is a tendency towards somewhat stronger negative effects for regions with higher unemployment rates, in particular with respect to the subjective indicator of social status.

Inspired by the well-being literature, which indicates that periods of unemployment seem to leave profound and enduring scars on an individual's life, with effects that persist for years and even decades after reemployment (see, e.g., Clark et al. 2001; Lucas et al. 2004; Eberl et al. 2023), I investigate whether individuals with repeated episodes of unemployment experience more profound consequences in terms of the material and social dimensions of social exclusion. In particular, I differentiate between individuals with minimal or no unemployment experience (column (3)) and individuals with extensive experience (column (4)). Individuals with more experience (those with more than two previous periods of unemployment) exhibit stronger effects, particularly regarding deprivation of activities and the subjective indicator of social integration. In contrast, the effect on household income is more pronounced for individuals with no or little unemployment experience.

One factor that plays a decisive role in dealing with unemployment is the level of education. People with higher education often find it easier than those with lower education to cope emotionally with crisis situations such as job loss (Paul and Moser 2009). They also typically have higher incomes and are therefore better able to draw on financial reserves in the phase of unemployment. Moreover, their prospects in the labor market, and consequently their chances of reemployment are higher (Riddell and Song 2011).

Columns (5) and (6) present qualification-specific analyses, where professional qualification levels (as shown in Table 1) are grouped into two categories: the

**Table 2** Effect heterogeneity: effect of unemployment on social exclusion

	(1) Low/medium Unempl. rate	(2) High Unempl. rate	(3) No/little Experience	(4) Extensive Experience	(5) Low/medium Skilled	(6) High Skilled
<b>Material dimension</b>						
Household income	− 245.304*** (22.184)	− 216.741*** (52.697)	− <b>287.924***</b> (34.557)	− <b>208.262***</b> (25.995)	− 239.251*** (22.637)	− 225.640*** (55.303)
Deprivation of basic goods	0.035** (0.014)	0.084*** (0.024)	0.049** (0.025)	0.053*** (0.014)	0.051*** (0.014)	0.026 (0.022)
Deprivation of activities	0.193*** (0.022)	0.229*** (0.040)	<b>0.145***</b> (0.035)	<b>0.226***</b> (0.023)	<b>0.218***</b> (0.022)	<b>0.128***</b> (0.036)
<b>Social dimension</b>						
Social engagement	− 0.011 (0.018)	− 0.047 (0.036)	<b>0.021</b> (0.029)	− <b>0.040**</b> (0.019)	− 0.014 (0.018)	− 0.041 (0.039)
Social status	− <b>0.270***</b> (0.047)	− <b>0.450***</b> (0.089)	− 0.228*** (0.069)	− 0.372*** (0.070)	− <b>0.358***</b> (0.062)	− <b>0.154**</b> (0.077)
Social integration	− 0.331*** (0.067)	− 0.515*** (0.142)	− <b>0.188**</b> (0.087)	− <b>0.489***</b> (0.094)	− 0.446*** (0.082)	− 0.232* (0.125)
N <sub>control</sub>	24,157	5218	17,253	12,122	21,076	8299
N <sub>treated</sub>	790	265	341	714	835	220

Notes: The table shows the before-after-effect of becoming unemployed at time  $t=0$  on the material and social dimensions of social exclusion for different subgroups, where the pre-period covers  $t=\tau$ ,  $\tau=2$  to 0 and the post-period  $t=\tau$ ,  $\tau=1$  to 4. Columns (1) and (2) show the effects for individuals living in regions with a local unemployment rate below 9.77% (75%-ile) and above. Columns (3) and (4) show the effects for individuals with no/little and extensive unemployment experience (below or above 25%-ile which equals 2 unemployment periods). Columns (5) and (6) show the effects for low/medium-skilled (no vocational qualification and vocational training) and high-skilled individuals (higher vocational training and academic qualifications). The coefficient estimates are based on equation (2). The regression is weighted by the inverse propensity score. Propensity score estimation is based on a logit model (see Table B.2 in the Appendix). Standard errors are clustered at the individual level and shown in parentheses. Coefficients are statistically significant at the \* 10%, \*\* 5% and \*\*\* 1% level. Differences in the effects of unemployment between subgroups that are significantly different from zero at the 10% level are indicated by bold numbers

Source: PASS-ADIAB 7520, own computations

first category includes individuals with low to medium qualifications (those lacking a vocational qualification or with vocational training), and the second category comprises those with higher vocational training and academic qualifications. The results suggest that the adverse effects of unemployment on various indicators are more pronounced for individuals with low to medium qualifications than for those with higher qualifications. Individuals with low to medium qualifications tend to perceive a greater decline in their social status after job loss compared to their high-skilled counterparts. A similar pattern emerges concerning their subjective sense of social belonging. This pattern also applies to indicators of material resources, which appear to develop less negatively for individuals with higher qualifications following a job loss, in contrast to those with low to medium qualifications.

In summary, these analyses indicate that the enduring impacts of job loss are amplified for individuals who confront challenging labor market conditions, possess more experience with unemployment periods, and have lower levels of educational attainment. When examining the event study estimates for each specific time point, it

becomes evident that these effects are also more persistent for these particular groups of individuals.<sup>13</sup>

#### 6.4 Caveats

There are some important aspects to consider when interpreting the results. My identification strategy hinges on the assumption that the changes in outcome variables are solely attributable to the unemployment shock and that the treatment and control groups would experience similar changes in the absence of such an event. While the event study results lend support to this assumption, I cannot entirely rule out the possibility that becoming unemployed coincides with other unobservable individual shocks, such as health-related issues, misconduct within the workplace, or a deterioration in working conditions. As information on the outcome levels is only available on a yearly basis, these factors might lower the outcome levels and, consequently, an individual's job performance. If this were the case, there is a potential for overestimating the negative impact of unemployment.

<sup>13</sup> The effects on social status and social integration based on equation (2) are shown in Figures B.7 and B.8 in the Appendix.

In addition, panel attrition and the non-random selection out of unemployment challenges the results. It should also be kept in mind that the PASS oversamples low-income households. On the one hand, this oversampling is advantageous because low-income households often face a higher risk of job loss, making it easier to identify a suitable control group. On the other hand, this study may have limited generalizability since individuals with medium and high incomes are underrepresented in the dataset. Studying the effects separately for low-/medium-skilled and high-skilled individuals hints at how the findings are affected by the sample composition. In particular, I observe larger negative effects for low-/medium-skilled individuals, suggesting that the estimated coefficients likely represent an upper bound on the impact of unemployment on social exclusion. However, with a focus on individuals with relatively poor labor market prospects and low incomes, I examine the effects precisely for those groups for whom the study of social exclusion risks is particularly relevant from a scientific and political perspective.

## 7 Conclusion

Unemployment is considered a main risk factor for social exclusion, primarily because the opportunities for participating in social life are closely related to participating in working life, especially for people of working age.

Numerous studies have examined various facets of social exclusion (see, e.g., Gundert and Hohendanner 2014; Kunze and Suppa 2017; Rözer et al. 2020), and they consistently highlight that the circumstances of the unemployed tend to be more precarious compared to those who are employed. These disparities manifest in areas such as living standards, social integration, and mental health. While multiple factors can contribute to this situation, this study once again emphasizes the central role that unemployment plays in this context.

This paper documents long-term adverse effects on different dimensions of social exclusion. In addition to experiencing a drop in disposable household income, primarily in the short term, individuals who become unemployed experience a persistent deterioration in their living standards. In this context a precautionary savings motive could play a role: Individuals are reducing their consumption due to uncertainty about future inflows, even if income recovers. This, in turn, also affects the opportunities to engage in social and cultural activities. As a consequence, individuals who experienced job loss permanently forgo relatively costly activities like going on vacation or going to the restaurant, cinema or theater, which can also have a lasting impact on their social networks. Interestingly, there are no observable changes in their memberships in social organizations, such as clubs,

over the course of the observation period. Additionally, I find that experiencing unemployment significantly reduces individuals' perceptions of social integration and social status. Although the impact on subjective assessments diminishes over time, these effects are still present four years after job loss.

Overall, my findings indicate a significant and lasting persistence of adverse effects following job loss. The greater the psychological strain resulting from unemployment, the higher the risk of prolonged unemployment and a further deterioration in material and social living conditions. My results show that a significant share of individuals end up receiving means-tested unemployment benefits. In particular, entrenched unemployment and prolonged dependence on social benefits can lead to a worsening of participation deficits (Christoph and Lietzmann 2016). Reintegration into the labor market as quickly and sustainably as possible therefore appears to be important. This study also shows that a substantial proportion of individuals find work again over time. Nevertheless, the empirical results indicate that the negative consequences of unemployment on material and social well-being recover slowly. The reasons for this could lie in the quality of working and employment conditions of the new job and a high risk of becoming unemployed again and should be examined more closely in future research.

In this context, this study provides evidence that the enduring impacts of unemployment are more pronounced among individuals facing difficult labor market conditions, possessing greater experience with periods of unemployment, and holding lower levels of educational attainment. This is particularly the case regarding their subjective evaluations of societal belonging and social status.

The findings of this study may also have implications for policy-making. As unemployment can have profound and long-lasting effects on an individual's sense of social belonging, measures to prevent unemployment could be important to strengthen or at least stabilize social cohesion in society. During the COVID-19 pandemic in Germany, for instance, measures such as short-time work schemes ("Kurzarbeitergeld") prevented layoffs during the economic downturn. For individuals who are already unemployed, and especially for those who have been unemployed for a long time and are dependent on social benefits, employment promotion measures can foster well-being and social integration (see, e.g., Ivanov et al. 2020; Kasy and Lehner 2023). With this in mind, the "Participation in the Labor Market" initiative (Section 16i of the Participation Opportunities Act) was introduced in 2019 in Germany to promote the participation and

quality of life of individuals facing significant labor market detachment (Achatz et al. 2024).

Overall, unemployment-preventing and participation-promoting policy measures can potentially counteract the exclusion experienced by those in precarious circumstances and thereby contribute to strengthening social cohesion. These non-monetary benefits should also be considered when designing such measures.

## Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12651-024-00369-8>.

Supplementary Material 1.

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## Author contributions

The author is solely responsible for this article. The author read and approved the final manuscript.

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## Availability of data and materials

This paper uses survey and administrative data from the Research Data Center (FDZ) at the Institute for Employment Research (IAB). Since data access is restricted by the laws of the German Social Code, the data is not freely available to the research community. Members of the research community can apply for and access data products at the FDZ. Access can take place, e.g., via on-site use or via remote data access. More detailed information can be found here: <https://fdz.iab.de/en/data-access/>. The reproduction codes for the analysis are available from the author upon request.

## Declarations

### Ethics approval and consent to participate

Not applicable.

### Consent for publication

Not applicable.

### Competing interests

The author declares that she has no competing interests.

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