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Abstract

This article examines the impact of unemployment on social participation for Germany using the German Socio-Economic Panel. We find significant negative, robust and, for some activities, lasting effects of unemployment on social participation. Causality is established by focussing on plant closures as exogenous entries into unemployment. Social norms, labor market prospects and the perception of individual failure are shown to be relevant for explaining these findings. Furthermore, our results not only (i) provide novel insights into the determinants of the unemployed's unhappiness but also (ii) highlight an hitherto unexplored channel through which unemployment influences economic outcomes, namely by altering the long-run level of social capital, and (iii) point to an alternative explanation of unemployment hysteresis based on access to information.

JEL Classification: J64, I31

Keywords: Unemployment; social participation; plant closure; fixed effects; well-being

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1 Introduction

Experimental sociologists and psychologists have provided ample evidence that unemployment not only causes material hardship due to the associated loss in income, but also enforces the deprivation of social, psychological and non-pecuniary benefits provided by employment.[1] Jahoda (1981, 1982) for example suggests that unemployment implies a loss of five latent or unintended functions of employment: (i) time structure; (ii) social contacts; (iii) the experience of social purpose; (iv) status and identity; and (v) regular activities.

Subsequent empirical work has sought to determine the role of unemployment in determining health outcomes or health satisfaction (e.g. Salm (2009), Schmitz (2011) and Marcus (2013)) or, more generally, individuals' subjective well-being (e.g. Winkelmann & Winkelmann (1998) and Kassenböhmer & Haisken-DeNew (2009)).[2] While the relationship between unemployment and health remains inconclusive in general, however, there exists a well established negative impact of unemployment on individuals' life satisfaction even after controlling for a large number of other influences, most importantly income.[3] Attempts to quantify the non-pecuniary costs of unemployment implied by a lower level of well-being reveal that these costs are much larger than the effect from the associated loss of income (e.g., Winkelmann & Winkelmann, 1998). Yet, the question why unemployment is so harmful remains largely unanswered.

More recent empirical studies therefore focus on the time use of employed and unemployed individuals (Krueger & Mueller, 2012a,b). The findings of these studies suggest that unemployed individuals indeed spend considerably more time on home production and leisure activities (as e.g. tv watching and socializing) than the employed. However, despite differing opportunities of time use (due to a larger amount of available leisure

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[1]See e.g. Warr (1987) and Warr (2007) for a survey of the psychological literature.

[2]See Frey & Stutzer (2002), Clark (2006) and Frey & Stutzer (2012) for recent surveys.

[3]See, for example, Clark & Oswald (1994), Blanchflower & Oswald (2004) and Frijters *et al.* (2004) for income, and Deaton (2008) and Boeckerman & Ilmakunnas (2009) for health.

time for the unemployed), Knabe *et al.* (2010) show that both groups, employed and unemployed, experience similar levels of overall positive and negative emotions throughout the day.

Another strand of literature focuses on changes in subjective well-being due to status and identity effects caused by the event of unemployment. Indirect evidence on this channel is provided by Clark (2003), who considers the effect of changes in social work norms on subjective well-being. He finds that the well-being differential between the employed and the unemployed men in Britain decreases with the level of regional unemployment. Similarly, Stutzer & Lalive (2004) analyze the outcome of a Swiss referendum on the level of unemployment benefits and find that the well-being gap between the employed and the unemployed is decreasing with strength of the local work ethic. More recently, Hetschko *et al.* (2013) find strong positive identity effects by analyzing changes in employed and unemployed individuals' subjective well-being due to entry into retirement.

While these studies shed light on how unemployment affects individuals' time structure and identity, and thereby provide possible explanations of why unemployment would make people unhappy even if they were fully compensated for the income loss, the impact of unemployment on social contacts and activities has mostly been neglected so far. In fact, there is only little evidence from sociologists on how unemployment affects social interactions. In a classical study, for example, Jahoda *et al.* (1974) observed a weary community life resulting from a plant closure in Marienthal in the 1930s. However, their results are mainly based on participant observation and occasional data collection.[4] The scarcity of empirical ev-

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[4]In an independent work, Sonnenberg (2014) provides a survey of the sociological literature. While most of these studies are largely cross-sectional quantitative, longitudinal with only few observations or longitudinal but not controlling for individual fixed effects, Sonnenberg (2014)'s approach is based on binary response models using panel data from the SOEP and focussing on unemployment due to plant closure as in the present paper. She finds a negative effect of unemployment on attending cultural events whereas there is no effect on volunteering but positive effects for socializing with friend, family and neighbors. By contrast, our focus is on ordered fixed effects models which allows us to overcome some limitations of alternative estimation techniques (see also the discussion in Section 4.2). Hence, we are not only able to exploit more variation in the dependent variables but also to document a much broader and more complete picture of the rela-

idence is surprising as many studies have conjectured that a large part of the non-pecuniary costs of unemployment consist of a loss of social contacts (e.g., Winkelmann & Winkelmann, 1998). Furthermore, recent studies have documented differing time use patterns among employed and unemployed people regarding social activities (Krueger & Mueller, 2012a,b). Yet, a thorough empirical analysis on the effect of unemployment on social participation is missing so far. To close this gap in the literature is the aim of the present paper.

The importance of social interactions for economic outcomes has recently been emphasized in the literature on social capital (see e.g. Putnam (2001) and Helliwell & Putnam (2004)). More precisely, social capital, in general, has been found to provide market and non-market returns not only on the individual level, e.g. through higher wages, better employment prospects, higher quality of social relationships, better health (Glaeser *et al.* , 2002), but also on the aggregate or community level. In particular, due to the existence of strong multiplier effects, the stock of social capital may increase growth, judicial efficiency and decrease governmental corruption (Durlauf & Fafchamps, 2005). While social capital is generally defined as a stock concept including e.g friendship or trust, however, social interaction is part of the process which creates social capital (Glaeser *et al.* , 2002). More specifically, social interactions measure the frequency of participation in associational activities such as attending cultural and religious events, volunteering or visiting friends and family. Alesina & La Ferrara (2000), for example, find that income inequality and racial and ethnic heterogeneity reduce the propensity to participate in a variety of social activities. They conclude that social capital is lower in more unequal and heterogenous communities. More recently, Saffer & Lamiraud (2012) study the effect of hours of work and human capital on social participation using an exogenous decline in hours of work in France due to a new employment law. Their results indicate that human capital is important while there is no effect form the additional hours of leisure

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tionship between unemployment and social participation.

time on social participation.[5] Our paper complements this literature by studying the role of unemployment in shaping social participation and thus, ultimately, social capital.

We find a significant negative and, for some activities, lasting impact of unemployment on social participation. Using data from the German Socio-Economic Panel (SOEP) from 1991 to 2011, social participation is measured by seven distinct indicators: The frequency of attending cultural events; cinema, pop concerts and the like; social gatherings; participating actively in sports; helping out friends; performing volunteer work; and attending religious events. In a first step, we document a significant negative effect of unemployment on social participation by relying on fixed-effects methods. In a second step, however, in order to explicitly address issues of selection and causality, we focus on plant closures as exogenous entries into unemployment. Similar strategies have been used to establish a causal effect of unemployment on subjective well-being (Kassenböhmer & Haisken-DeNew, 2009) and health (Marcus, 2013). For the group of exogenously unemployed, we find that unemployment indeed lowers social participation by deteriorating the attendance of cultural events, cinema and concerts as well as the frequency of performing voluntary work and church attendance. Finally, we investigate whether the unemployed adjust their level of social participation over time (see Clark *et al.* (2008) for a related analysis on adaptation of subjective well-being). In general, we find large short-run effects (in particular after the first year of entry into unemployment), which however disappear for some activities such as volunteering, helping friends and socializing. By contrast, there is little evidence that unemployed quickly adjust their level of social interaction for other activities such as attending cultural events or cinema and participating actively in sports. Rather, unemployment turns out to have a severe and lasting effect for these activities.

The negative conditional effect of unemployment on social participa-

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[5]See also Costa & Kahn (2003) who examine the effects of demographics and heterogeneity on memberships and visiting and Alesina & Giuliano (2011) who establish an inverse relationship between family ties and political participation.

tion may be explained by the violation of social norms related to the receipt of unemployment benefits (e.g. Lindbeck *et al.* (1999)), by an increased focus on one's own situation or a general discouragement due to the deterioration of future job prospects, which in turn implies neglecting other aspects of one's life (Clark *et al.* , 2010, Shah *et al.* , 2012), or by the perception of individual failure (as measured by the extent of reference group unemployment (Clark, 2003)). Tests of these explanations reveal that each of them has some explanatory power, but also that there is room for additional mechanisms which could not be tested due to data limitations, the most likely candidates of which being a lack of time structure and a precautionary savings motive.

Our study complements the existing literature in important ways: First, it provides novel insights into the determinants of the unemployed's unhappiness. Previous studies have not only conjectured that reduced social activity may account for the negative impact of unemployment on social well-being, e.g. Winkelmann & Winkelmann (1998), but have also shown that reduced social participation lowers subjective well-being, e.g. Winkelmann (2009).[6] A natural precondition, however, is that unemployment indeed reduces social interactions and participation. The present paper provides systematic and causal evidence on such a link.

Second, as social interactions constitute an integral part in generating the beneficial effects of social capital (e.g. through investments in networks), the finding that unemployed systematically reduces social interaction is instrumentally highly relevant from a policy perspective: High levels of unemployment may have a detrimental effect on the stock of social capital—irrespective contemporaneous influences on life satisfaction. Consequently, our findings highlight an hitherto unexplored channel through which unemployment influences economic outcomes and public policies, namely by altering the (long-run) level of social capital.

Third, our results point to an alternative explanation of unemployment

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[6]Specifically, Winkelmann (2009) documents a positive relationship between social participation and life satisfaction but also shows that social participation does not moderate the negative effect of unemployment. See also Bartolini *et al.* (2013).

hysteresis (Blanchard & Summers, 1986). While existing explanations focus mainly on the evolution of social norms (see e.g. Lindbeck *et al.* (1999)), our results lend support to the relevance of having access to information and strong contacts. More precisely, if unemployment lowers social participation and thus interactions with peers and friends, unemployed individuals will find it more difficult to reenter the labor market due to a lack of available information. Indeed, it is well documented that people strongly rely on networks to find a job and that personal contacts and family, friends or acquaintances play an important role in individuals' job search (Montgomery, 1991, Cingano & Rosolia, 2012).[7]

Finally, the analysis of determinants of social participation is important by its very self, since it is commonly viewed as one of the constitutive elements of human well-being (Sen, 1992, 2000). Recently, Stiglitz *et al.* (2010) have assigned a key role for human well-being to both social participation and (un-)employment. Hence, from this perspective, our study explores the interrelations among two important domains of human well-being.

Our overall findings question the effectiveness of simple benefit cuts as individuals do not adjust their patterns of social participation in general. Rather, an adequate response to unemployment consists of active labor market policies supporting the unemployed in retaining their social networks, in their job search process and, importantly, in providing them with crucial information. Similar conclusions have recently been reached from a behavioral economics perspective (Babcock *et al.*, 2012). However, if our results are driven by a lack of time structure, measures like workfare and obligatory educational measures may be appropriate instruments. By contrast, if lower social participation is due to undermined morale and the perception of decreased meaningfulness, success or failure of any labor market policy critically depends on concrete characteristics of a workfare activity. In this case voluntary work may not only represent a useful

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[7]For example, as noted by Ioannides & Loury (2004) and Granovetter (2005), more than half of all unemployed workers rely on their contacts to search for a job and a large part of new jobs is found through them.

temporary substitute to increase individuals' self-respect, but also to provide access to relevant information and networks, thereby preventing the depreciation of human capital.

The remainder is structured as follows. Section 2 describes the data and Section 3 our econometric strategy. Section 4 presents our main results and provides several robustness checks. Section 5 discusses the main results, explores possible explanations and provides further complementary evidence in favor of our main findings. Section 6 concludes.

2 Data

Our empirical analysis uses data from the German Socio-Economic Panel (SOEP), which is a representative longitudinal study of private households in Germany. Starting in 1984, the SOEP is one of the largest and longest running household panel surveys in the world with annually about 20,000 participating individuals. It is designed to be representative of the entire population in Germany and consists of several subsamples (e.g. for east and west Germany, high income households or immigrants); see, e.g., Wagner *et al.* (2007) for more technical information on the SOEP.[8]

There are several features of the SOEP which make it particularly attractive for our analysis. First, the longitudinal nature of the data ensures that we can observe social participation activities before, after and during an unemployment spell. Second, the large sample size allows us to incorporate relatively rare events like plant closures or other shocks such as marriage, divorce or death of a partner into our analysis. Finally, the SOEP data include detailed information on a wide range of topics at both the individual and the household level, including e.g. details about earnings, employment and, most importantly, participation in various social activi-

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[8]The data used in this paper was extracted using the Add-On package PanelWhiz for Stata. PanelWhiz (http://www.PanelWhiz.eu) was written by Dr. John P. Haisken-DeNew (john@PanelWhiz.eu). See Hahn & Haisken-DeNew (2013) and Haisken-DeNew & Hahn (2010) for details. The PanelWhiz generated DO file to retrieve the data used here is available from me upon request. Any data or computational errors in this paper are my own.

ties. This enables us to include a large number of conditioning variables that have been found to affect social participation in related studies.

In the present study, the analysis includes individuals aged 21 to 64 who are living in Germany. Particularly relevant to this study are the information on the current labor force status and the reasons for a job termination (including for example own resignation, dismissal, plant closure, and end of a temporary job). As the question on job termination is not asked consistently before 1991 and we rely on this question later in the econometric analysis, we essentially use data from 1991 to 2011 (unless noted otherwise). The main sample consists of up to 168,891 valid person-year observations, resulting from 34,595 individuals.

The SOEP questionnaires also include information regarding the frequencies of participating in social and other activities. We use these information to define seven dependent variables: The frequency of attending cultural events; attending cinema, pop concerts and the like; participating actively in sports; attending social gatherings; helping out friends; performing volunteer work; and attending religious events.[9] These activities represent both constitutive elements of social participation and investments in social capital (e.g., Alesina & La Ferrara, 2000).[10] Table 6 shows all the activities used in our empirical analysis, together with the corresponding variable names and the waves in which information on the respective activities have been gathered. While information on the attendance of cultural events, cinema, pop concerts and the like and participation actively in sports is available in 18 waves, the frequency of church attendance is asked in 15 waves whereas information on attending social gatherings, and helping out friends are collected in 14 waves. We thus

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[9]Note that there are also three visiting variables measuring the frequency of visiting family members and relatives, neighbors and attending sport events. As these variables are only asked in five years, however, we cannot use them in our empirical analysis due to the small number of observations available. Similarly, the question on the number of close friends is only asked in three waves.

[10]Hence, even though our motivating evidence refers to the loss of social contacts at the workplace, the definition of our dependent variables allow us to consider a much more general framework as each of the social activities under consideration may not only be undertaken with co-workers but also with friends, family or peers.

restrict the sample to the available number of waves for each dependent variable. Moreover, responses to these questions are mostly recorded on a 4-point-scale (ranging from 'weekly' and 'monthly' to 'less frequently' and 'never'), but in some instances and years on a 5-point scale (with an additional category 'daily'). We recode all dependent variables to the 4-point-scale even though this implies discarding some information for reasons of time consistency.

Figure 1 illustrates the distributions of our dependent variables. While some activities are carried out frequently and distributions are thus right-skewed (e.g., attending social gatherings), others are skewed to the left (e.g. church attendance). Yet other activities are exercised either very often or not at all (e.g. sports) whereas some exhibit a mode of seldom (e.g., cinema).

The set of explanatory variables is selected following the screening of explanatory variables in other studies that analyze the determinants of social participation (see e.g. Alesina & La Ferrara (2000), or Saffer & Lamiraud (2012)). Specifically, social activities have been demonstrated to vary with age, health status and education. Moreover, the frequency of participation may depend on martial status, the availability of financial resources[11] and the amount of leisure time (i.e., non-working time). Finally, we account for several shocks, such as the death of a partner, a divorce or separation, the birth of a child or whether a care-needing person is living in the household. Summary statistics can be found in Table 2. Moreover, figure 2 reports descriptive statistics on the relationship between unemployment and social participation. Specifically, for each dependent variable, it presents the average level of participation by employment status and reason for unemployment (due to plant closure or other reasons).[12] The group of employed includes individuals working fulltime, part-time, doing an apprenticeship and those being marginally employed. By contrast, the out of labor force group includes all non-working individuals,

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[11]To allow for a decreasing marginal effect of income and to account for the household composition we include the log real net household equivalence income.

[12]Clearly, we interpret the ordinal variables as being cardinal. The descriptive statistics, however, are only used for illustrative purposes.

e.g. due to maternity leave or educational training but also those having a non-regular secondary job.[13] Three findings are noteworthy. First, despite having on average less leisure (i.e. non-working time), employed individuals report a higher level of social participation activities than the unemployed (except for the activity helping out friends where there is no clear pattern). Second, the unemployed due to plant closure do not differ significantly from the other unemployed with respect to their frequency of social participation. They slightly more often participate actively in sports and voluntary work and slightly less frequently attend church. Finally, individuals out of labour force tend to participate more than the unemployed (except for helping out friends). While these findings are generally supportive of our main hypothesis, they are only purely descriptive patterns which may originate from confounding factors, such as age, income, marital status or unobserved heterogeneity. The empirical strategy allowing us to address causality, however, is outlined in the next section.

3   Empirical strategy

In order to empirically investigate the link between unemployment and social participation, we assume that the frequency of participation in a specific activity (as described in the previous section) for individual i at date t, Y_{it}, can be modeled as:

$$Y_{it} = \gamma_1 UE_{it} + \gamma_2 OLF_{it} + \beta' x_{it} + \mu_i + \mu_t + \epsilon_{it} \tag{1}$$

where UE_{it} (OLF_{it}) is a dummy variable which equals one if individual i at date t is unemployed (out of labor force) and zero otherwise. In addition we add a set of standard socio-demographic and economic characteristics of individuals x_{it} (as described in the previous section) as well as person and time fixed effects μ_i, μ_t. Equation (1) is referred to as our baseline specification and serves to illustrate some general patterns regarding the

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[13]Note that the definition of these groups is identical to the definition provided by the SOEP group.

impact of unemployment on social participation.

In order to establish a causal relationship, however, we explicitly have to address issues of selection and endogeneity. For example, a low level of social participation may increase the duration of unemployment spells, as both job search activities of the unemployed and actually finding a new job in many cases critically depend on personal contacts and information gathered from more family, friends or acquaintances (see e.g. Montgomery (1991) and Granovetter (2005)). Consequently, longer unemployment spells may imply a lower average frequency of social interactions among the unemployed. Furthermore, as information on the level of social participation are only available at two points in time (e.g., before and after the day of the job loss), it may well be the case that an unobservable individual shock lowers social participation and thus individuals' performance on the job. Individuals may then lose their job due to a deterioration of social skills. Hence, identifying the causal effect of unemployment on social participation requires an exogenous reason for unemployment, especially one that is not related to the individual frequency of participating in various social activities. To identify such a causal effect, we follow Kassenböhmer & Haisken-DeNew (2009) and Marcus (2013) and divide the unemployed into two subgroups: Those who have recently lost their job due to plant closure and all other unemployed.[14] Hence, our second model to be estimated is

$$Y_{it} = \gamma_1 UEPC_{it} + \gamma_2 UEO_{it} + \gamma_3 OLF_{it} + \beta' x_{it} + \mu_i + \mu_t + \epsilon_{it} \qquad (2)$$

where $UEPC_{it}$ (UEO_{it}) is a dummy variable which equals one if individual i is unemployed in year t due to plant closure (other reasons) and zero otherwise. As unemployment due to plant closure can sensibly be considered to be beyond an individuals' reach, γ_1 identifies the causal impact of unemployment on participating in the respective activity.[15]

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[14]As the information on the reason for job termination are not collected in 1999 and 2000, we have to drop the observation in these years and are thus left with one wave less in comparison to the benchmark model.

[15]Note that γ_1 should be interpreted as an average effect of entry into unemployment

Finally, we investigate whether the duration of unemployment causes individuals to adjust their patterns of social participation.[16] To do so, we use the framework suggested by Clark *et al.* (2008) and partition the unemployed according to their 'exposure time'. Our third model can thus be written as

$$Y_{it} = \gamma_1 UE_{it} + \gamma_2 UE_{it-1} + \gamma_3 UE_{it-2} + \gamma_4 UE_{it-3} + \gamma_5 OLF_{it} + \beta' x_{it} + \mu_i + \mu_t + \epsilon_{it}$$
(3)

where UE_{it} is a dummy variable which is equal to one if individual i is unemployed in t, but was observed to be employed in $t-1$. Similarly, UE_{it-1} equals one if i is unemployed in both the current and the previous period but was employed in $t-2$. Finally, UE_{it-3} equals one if i is continuously observed unemployed for at least 4 years, but was observed to be employed before. This set-up allows us to carry out simple tests on how individuals adjust their patterns of social participation to unemployment. Specifically, if there is no adjustment, so that unemployment has a detrimental effect on individuals' morale, paralyzes or excludes individuals from society, then we would expect all of the values of γ_i ($i = 1,..4$) to take roughly the same negative value. However, according to Jahoda's latent functions of work and Lancaster's characteristics approach (see e.g. Jahoda (1981) and Lancaster (1966a,b)), many of our social activities under consideration are (at least partially) substitutes for conventional employment. Hence, if individuals wanted to improve their situation they could reasonably adjust and increase specific social activities, such as volunteering or helping out friends and neighbors. In this case, there is adjustment and later values of γ_i will be less negative or even insignificant. In con-

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observed from one survey period to the next. Moreover, the closing process itself may not be completely exogenous to an individual due to anticipation effects resulting in some gradual leaving process of the most able workers before the closing (see, however, the discussion in Kassenböhmer & Haisken-DeNew (2009, p.460)). Finally, the share of new jobs found through friends and relatives is almost the same (around 30%) among employed individuals and those who are unemployed due to plant closure, which lends further credibility to the exogeneity assumption.

[16]The importance of the length of an unemployment spell has been emphasized by many previous studies in different contexts (see e.g. Eisenberg & Lazarsfeld (1938), Jahoda (1979, 1982) and Clark (2006)).

trast to the previous models, to estimate equation (3), we use data from 1984-2011 and drop those individuals whose entry into unemployment is not observed throughout this time period.[17]

In our baseline specifications, we assume the error terms ϵ_{it} to be usual i.i.d. and estimate the model linearly, taking Y_{it} as a continuous variable. This allows us to control for unobserved individual fixed effects which is important in our framework, since personality traits (e.g., being an extrovert) may reasonably affect the participation in social activities. In robustness checks, however, we also estimate ordinal fixed effects models using the recently implemented BUC estimator (Baetschmann *et al.* , 2013). Consistent with the findings of Ferrer-i-Carbonell & Frijters (2004) for life satisfaction, we show that the results of both estimation methods are very similar (see Section 4.2).

4   Empirical results

4.1   Baseline

Table 4 provides the multivariate benchmark results for the linear fixed effects estimator. The first row in each table shows that the coefficient of unemployment is significant and negative for all social activities under consideration. This implies that, conditional on all other individual/household characteristics, most importantly household income and leisure time, unemployed individuals participate significantly less relative to the employed. A similar pattern can also be observed for individuals that are out of labor force (see the second row in table 4).

Although unemployment is the most interesting variable in our study, we briefly discuss the results of the other covariates. Most of them are broadly in line with previous findings (see e.g. Alesina & La Ferrara (2000), or Saffer & Lamiraud (2012)). Social participation is increasing

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[17]Effectively used in the estimation are only those years in which the dependent variables are collected. However, in constructing the UE_{it-j}, $(j = 1,..,4)$, we also exploit information from the years in between.

with individuals' health status and the amount of available leisure time, consistent with basic economic principles.[18] By contrast, the presence of a care-needing person in a household has a strong negative effect. Individual shocks such as child birth and death of a spouse reduce participation (though the loss of a spouse increases church attendance and helping out friends) whereas separation or divorce tend to increase participation. Finally, being married and having children decreases most of the social activities except church attendance and volunteering, while the impact of household income on participation is positive. The effect of age is generally ambiguous and mostly insignificant. Education tends to decrease participation though most of the coefficients are insignificant.

Table 5 reports the main set of results when the reason of being unemployed is explicitly taken into account. The table only shows the main regressors of equation (2), i.e. reporting the coefficients on exogenous unemployment due to plant closure, unemployment due to other reasons and the coefficient on being out of labor force. The findings from these estimations generally confirm the negative impact of unemployment on social participation. Moreover, the significant negative effects for attending cultural events, cinema, pop concerts and the like, performing volunteer work, and attending religious events can be given a causal interpretation. In contrast, all coefficients of unemployment due to all other reasons are still significantly negative. However, these results should be cautiously interpreted as potential reversed causality or selection cannot be completely ruled out.

Individuals that are unemployed due to company closing would have to be compensated by an average (over all activities) of 1.42 log points of household income. This compensation is highest for performing volunteering work ($0.1/0.0133 = 7.52$) and church attendance ($0.0443/0.00563 = 7.87$) while it is negative for attending social gatherings ($-0.00882/0.022 = -0.4$) and helping out friends ($0.0574/(-0.000773) = -7.43$). Moreover,

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[18]Note that the positive effect of leisure is robust to estimating the model using only employed individuals. Thus, the positive effect is not driven by the non-working (the unemployed or out of labor force).

the size of the negative effect of being unemployed is on average about two thirds of the negative effect resulting from birth of a child, which is probably one of the most dramatic and time consuming changes in a young adult's life. In case of volunteering, for example, the effect is even larger (equal to $0.1/0.0868 = 1.15$). Altogether, our findings imply dramatic non-pecuniary costs to unemployment in the first year after entry.

Finally, table 6 presents the results from our adjustment analysis which are further illustrated in figure 3. For most activities we find a strong negative short-run effect (participating in sports, socializing, volunteering and helping) which however becomes and remains insignificant after two years for the activities socializing and helping, whereas it becomes insignificant for volunteering after four years. Consequently, we cannot reject adjustment to unemployment for those activities which are possible substitutes to regular employment. However, when considering the attendance of cultural events, cinema and participation in sports, the negative effect of unemployment on social participation tends to become stronger with the duration of the unemployment spell. In these cases, there is little evidence of quick adjustment to unemployment. Rather, 'unemployment starts off bad and pretty much stays bad', consistent with recent findings in the literature on subjective well-being (see Clark (2006) and Clark *et al.* (2008)). Last, we do not find any significant effect for church attendance, even though later values of γ tend to be larger. Possible and plausible explanations for the finding that there is no adjustment for those activities which tend to be costly are the presence of a precautionary savings motive or complementarities between employment and these activities. Altogether, however, our findings suggest that unemployed individuals do not enjoy their leisure time, consistent with Jahoda (1981)'s hypotheses that unemployed have no leisure at all and that having a bad job would be better than having no job. Hence, the more general conclusion which emerges from our duration analysis is that unemployment is largely involuntarily.

4.2 Sensitivity checks

We consider several sensitivity checks in order to demonstrate that our findings are robust to assumptions and choices made.

Estimator. In a first step, we check the robustness with respect to the estimator. Specifically, accounting for the ordinal scale of the dependent variables, tables A.1-A.3 in Appendix A present results from the 'Blow-up and Cluster' (BUC) fixed effects ordered logit estimator suggested by Baetschmann *et al.* (2013) for each of the three models outlined in section 3.[19] Our main results are generally confirmed implying that, once individual effects are taken into account, using linear or ordered logit models does not make much difference, as indicated by Ferrer-i-Carbonell & Frijters (2004) in life satisfaction research.

Sample. We check for gender-specific effects by including interaction terms of gender and labor force status variables. As table A.4 shows, our baseline results do not change much. Specifically, a significant difference in social participation for men and women is only found for sports and socializing. The positive sign of the coefficients for the interaction term indicates that the decline in these two social activities due to unemployment is less severe for women. Similarly, we check whether our results are driven by regional difference between East and West Germany. We find (see table A.5) that unemployed individuals from West Germany have a significantly lower level of participation in sports and cinema. However,

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[19]Note, however, that the literature has proposed several different ordered logit estimation approaches (see Geishecker & Riedl (2012) for a recent overview). One common approach consists of recoding the ordinal dependent variable into a binary one using either a fixed or an individuum specific threshold and subsequently applying the conditional logit estimator by Chamberlain (1980) (see Ferrer-i-Carbonell & Frijters (2004)). While the use of a fixed threshold implies discarding potentially important variation in the original dependent variable, estimation of model with an individuum specific threshold is computationally very expensive. Moreover, Baetschmann *et al.* (2013) have shown that the estimation strategies by Ferrer-i-Carbonell & Frijters (2004) may produce inconsistent parameter estimates due to an endogeneity problem of the individual threshold. Subsequent comparative evidence on the alternative approaches based on Monte Carlo simulations by Geishecker & Riedl (2012) suggests that the BUC estimator outperforms alternative approaches in terms of consistency and efficiency, in particular for a small number of response categories (as in the present framework).

our main findings remain basically unaltered.

5 Discussion of results

5.1 Explanations

Our empirical analysis shows that unemployment has a significant negative and robust effect on social participation. This result is in line with evidence from sociologists and psychologists: Jahoda *et al.* (1974), for example, show that for most individuals unemployment has a paralyzing effect which in turn reduces their capacity to act.

But how can this negative unemployment effect be explained? In this section, we investigate three hypotheses. Firstly, as unemployed mostly receive social transfers, it might be explained by the violation of a social norm (Lindbeck *et al.*, 1999). Hence, individuals that do not comply with the norm 'not to live off state benefits' (Elster, 1989, p.121), may be ashamed to appear in public life and thus lower their level of social participation. Secondly, an individual's unemployment spell or, more generally, insecurity related to one's own position in the labor market, may deteriorate future job prospects, as already pointed out by Eisenberg & Lazarsfeld (1938) and, more recently, by Clark *et al.* (2010) in the context of life satisfaction research. The deterioration of future job prospects, in turn, may reduce social participation through either a general discouragement effect (Jahoda *et al.*, 1974) or, alternatively, through an increased focus on improving one's own situation (Shah *et al.*, 2012). In the first case, social participation may appear to be no longer worth its while as a gloomy employment outlook causes individuals to be more pessimistic about their life in general.[20] In the second case, the engagement in specific problems absorbs time and resources and, moreover, results in tunneling, juggling, as well as various efforts to fix problems or to improve the situation (Mani

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[20]In fact, Jahoda *et al.* (1974) use job prospects to classify unemployed individuals according to different categories. Her classification suggests that only 'the unbroken' have hope and plans for the future and are still 'active'—compared to 'the apathetic' or 'the in despair'.

et al. , 2013). While tunneling may be associated with a focus dividend, focussing itself, however, is found to come at the cost of neglecting other things, which fall outside the tunnel—as social participation in our case (Shah *et al.* , 2012). Thirdly, the negative effect of unemployment might be explained by individuals' perception of their own failure, which may or may not however coincide with receiving social benefits. Specifically, the degree of shame associated with being unemployed may depend on the extent of reference group unemployment (at the regional level). The important role of others unemployment is well documented in life satisfaction research (see e.g. Clark (2003)).

In order to test our first hypothesis, we augment the benchmark model (equation (1)) with a dummy variable $soctrans_{it}$ indicating whether an individual receives potentially stigmatizing social transfers. Specifically, $soctrans_{it}$ equals one if individual i lives in a households in which at least one individual receives one of the following as norm-related identified benefits in period t: Unemployment assistance, social assistance, housing assistance, basic protection for the elderly.[21] In case these social transfers are truly stigmatizing, we expect its coefficient to be significantly negative. Results from the linear fixed effects are reported in table 7. While the receipt of stigmatizing transfers is associated with significant lower participation for some activities (i.e. attendance of cultural events, cinema, pop concerts and the like and participation actively in sports), there is no effect for others. Importantly, however, the magnitude of the detrimental effect of unemployment on the levels of social participation remains largely unaffected.

In order to test our second hypothesis, we construct a dummy variable, $badpr_{it}$, which captures future labor market prospect of the employed and unemployed. As in Clark *et al.* (2010), we use the answers from the employed to the question about their job security ('How concerned are you about your job security?') and the answers from the unemployed and in-

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[21]Note that due to a reform unemployment assistance refers to 'Arbeitslosenhilfe' before 2005 and to 'ALG2' after 2005. Basic protection for the elderly was introduced with the reform in 2005. See Kassenboehmer & Haisken-DeNew (2009) and Chadi (2014) for more information on social security benefits and their effects on subjective well-being.

dividuals out of labor force to the question about their chances of reemployment ('If you were currently looking for a new job: Is it or would it be easy, difficult or almost impossible to find an appropriate position'). For the employed, the dummy variable equals one if individuals are at least somewhat concerned, while bad prospects for the unemployed correspond to the response 'difficult' and 'impossible'. We expect a significant negative effect resulting from bad prospects as a greater focus on job search activities or insecurity related to one's current job implies less available resources for alternative activities or as individuals might simply generally be discouraged or more pessimistic about their life. As can be inferred from table 8, there is some evidence in favor of such a negative effect (cinema and socializing) whereas bad prospects tend to increase church attendance and volunteering. Also, similar to the findings related to the first hypothesis, the size of the unemployment coefficients does not change much.

In order to test our third hypothesis, namely the effect of others' unemployment on own social participation, we follow the approach in Clark (2003) and thus augment the benchmark model (equation (1)) with both the regional unemployment rate and an interaction term with the individual unemployment indicator:

$$
\begin{aligned}
Y_{it} = {} & \gamma_1 UE_{it} + \gamma_2 OLF_{it} + \gamma_3 uerate_{st} + \gamma_4 UE_{it} \times uerate_{st} \\
& + \gamma_5 OLF_{it} \times uerate_{st} + \gamma_6 badpr_{it} + \beta' x_{it} + \mu_i + \mu_t + \epsilon_{it}
\end{aligned} \quad (4)
$$

where $uerate_{st}$ is the local unemployment rate of state s in period t. We use data from the German Bureau of Statistics (available at destatis.de/EN) on local unemployment rates of the 16 federal states. In addition, we also control for the respective local GDP per capita and individual labor market prospects. A higher local unemployment rate may cause the unemployed to be less ashamed and having more self-respect (i.e., a lower stigma effect)—in addition to living of benefits. Hence, if lower participation originates from being ashamed to appear in public, we expect the social participation differential between the unemployed and employed to

be quantitatively smaller for higher regional unemployment rates. Note that controlling for labor market prospects is important in this framework as a higher local unemployment rate may not only indicate a potential stigma effect but also mirror a decline in future labor market opportunities.

Estimation results for this model are shown in table 9. The standard errors in this regression are clustered by region and wave (two-way clustering), as regional unemployment and GDP per capita are aggregated at a higher level than is the dependent variable and clusters are non-nested (see e.g. Moulton (1990) and Cameron & Miller (2014)). Results from table 9 suggest that others' unemployment does seem to matter for the level of social participation of the unemployed. Indeed, there is a statistical significant positive interaction term for attending cinema, sports and volunteering. However, in order to obtain an offsetting effect, the unemployment rate must be at least 18 percentage points above its average level (which roughly equals ten percent). Consequently, even though we find statistically significant effects, their economic significance turns out to be rather weak. These findings are broadly in line with the observations from the Marienthal study (Jahoda *et al.*, 1974) which showed that individuals lowered their general level of activity, even though the whole village and additionally neighboring villages became unemployed.

Summarizing, each of the three complementary mechanisms outlined above turns out to be relevant for explaining the relationship between unemployment and social participation (at least for some of the activities). However, as the negative conditional effect cannot fully be explained, other channels, which could not be tested due to data limitation, may also contribute to account for our findings. Likely candidates are a lack of time structure or a precautionary savings motive (for those activities that are costly, i.e.attending cinema, cultural events or participating in sports).

5.2 Complementary evidence

The aim of this subsection is to provide some complementary evidence in favor of our main result in order to investigate their consistency.[22]

The composite effect of unemployment. According to our main findings, unemployment has a significant negative effect, whereas the amount of available leisure time and income have a significant positive effect on social participation. However, as unemployment is typically associated with both an increase in available leisure time and a decline in income (consistent with basic economic principles), what is the overall effect of unemployment on social participation?[23] Here, we consider the following two exemplary illustrations: First, we assume that (log net real household) income decreases by 0.2 points whereas the amount of leisure time increases by eight hours (scenario A). Second, in scenario B, the assumed changes are 0.1 points for income and four hours for leisure. We then calculate the average predicted change in each social activity induced by unemployment. As illustrated in figure 4, there are significant negative effects for attending cultural events and cinema in both scenarios, whereas the effects are significantly positive for socializing and helping in scenario A but insignificant in scenario B. Similarly, the effects are significantly negative for sports and volunteering in scenario B but insignificant in scenario A. Therefore, taking into account the composite effect of unemployment allows us to reconcile our findings, in particular with respect to socializing, to the descriptive patterns highlighted by Krueger & Mueller (2012b), who find that unemployed individuals engage more actively in socializing activities.

Home production and other activities. Given that unemployed individuals have on average more leisure time than the employed and that unemployed individuals spend less time on social participation activities, how do the unemployed use their available time? First evidence on this ques-

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[22]Summary statistics of the different samples used can be found in Appendix B.

[23]The decomposition of the overall effect is comparable to the one by Knabe *et al.* (2010) who distinguish between a saddening and a time-composition effect to describe the overall well-being effect of unemployment.

tion is provided by Krueger & Mueller (2012a) and Krueger & Mueller (2012b) who show that unemployed individuals spend more time on home production activities, caring for others and watching TV. The SOEP asks respondents about their numbers of hours spent on several activities, such as child care, housework, training and further education, running errands, and repairs or gardening, on a regular working day. We use the answers to these questions to estimate the effect of unemployment on the frequency of conducting any of these activities. Tables 10 and 11 provide estimation results from the linear fixed effects model including the same covariates as in our previous estimations. We provide both baseline results and those taking the reason of being unemployment into account. Two findings are noteworthy. First, unemployed individuals spend significantly less time on child care and training or further education but significantly more time on housework, running errands and repairs or gardening. These patterns do not depend on the reason of unemployment (due to plant closure or any other reason). Second, individuals that are out of the labor force spend significantly more time on child care and all other activities but less on repairs and gardening. Altogether, taking also the above compositional analysis into account, these findings are generally in line with those from Krueger & Mueller (2012b).[24] More importantly, however, they show that the unemployed do indeed spend more time on some activities other than social participation which in turn lends further credibility to our main results.

Worries. Are unemployed individuals indeed generally discouraged, more pessimistic or more focussed on their own situation? In the previous section, we have argued that bad labor market prospects may be one channel through which unemployment lowers social participation as it may imply either a general discouragement (Eisenberg & Lazarsfeld, 1938, Jahoda *et al.* , 1974) or being focussed on one specific aspect of one's life and thus neglecting others (Shah *et al.* , 2012). We now provide additional evidence in favor of such a channel. Specifically, respondents in the SOEP

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[24]A similar descriptive time use pattern has also been documented by Winkelmann (2009).

are asked about their worries concerning a broad number of alternative topics, including the general and one's own economic situation, one's own health, environmental protection, peace, and crime (possible answers are 'Very concerned', 'Somewhat concerned' and 'Not concerned at all').[25] If reduced social participation results from a general discouragement, we should observe increased worries across various domains for unemployed individuals. By contrast, if individuals are indeed more focussed on their own situation, we expect unemployment to have a significant positive impact on the degree of worrying about the economic situation. Results from tables 12 and 13 suggest that the latter is indeed true for both the general and one's own economic situation (and also independent of the reason of unemployment). Moreover, these positive effects are substantial and significantly larger for the unemployed due to plant closure. This finding points to a possible shock effect resulting from an unexpected job loss. Interestingly, there is no effect for other worries such as worries about the environment or peace (though unemployed are somewhat more concerned about crime) which rejects a general discouragement or pessimism effect. However, unemployed individuals due to plant closure report to be significantly less worried about their health relative to other unemployed, who are even more concerned than the employed. We attribute this effect to a possible crowding out of other worries as those about the (own) economic situation are particularly strong. In sum, this evidence lends further support to our hypotheses that individuals are pretty much focussed on their own economic situation which may in turn lead to a neglect of other aspects of life such as social participation.

Reemployment. If unemployment implies lower social participation, then reemployment, in turn, should have a positive effect. In order to test this, we include a dummy variable which takes on the value one if an individual was unemployed in the previous period and employed at the time of the interview. Results from the linear fixed effects model are presented

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[25]This direction of investigation is supported by the qualitative findings in Jahoda *et al.* (1974): 'During the summer we used to go to walks, and all those dances! Now I don't feel like going out anymore.', p. 36, and 'I used to read a lot, I knew most books in the library. Now I read less. God knows, we have other problems these days!', p. 39.

in table 14. Relative to the employed (the reference group), reemployment has in most cases no significant impact on social participation (except for culture and sports). The important point to note here, however, is that the reemployment coefficients are larger (less negative) than the ones for unemployment in all cases. Moreover, an F-test on the equality of both coefficients reveals that reemployed individuals do indeed participate more in all activities under consideration (except for socializing).

Out of labor force. Is the behavior of the unemployed individuals and those being out of the labor force behaviorally distinct? This is an old and controversial question, see e.g. Flinn & Heckman (1983) and the discussion therein. According to our main findings, being in both labor force states has a strong negative effect on social participation and thus both states seem to be similar. In the following, however, we try to gain further insights into this debate by adding an additional labor force state as a comparison group, namely the retired. Specifically, we consider all individuals aged between 21 and 90 years.[26] The group of retired includes all non-working individuals older than 65 years that do not have a regular second job.[27] It is important to note, however, that our sample also includes individuals that are either unemployed or out of the labor force even if individuals are older than 65. Results from table 15 suggest that the behavior of the retired is different from that of the unemployed and the out of labor force. In particular, for some activities there is no significant effect (e.g. attending cultural events), whereas if there is a significant effect, the size of these effects is significantly smaller relative to the unemployed (exceptions are volunteering and helping for which there is an even stronger reduction in social participation).[28] The non-significant effects for attending cultural events and socializing (and also the significantly less negative

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[26]Note that there are only very few observations older than 90. Also, beyond a certain age, it seems reasonable to assume that some individuals may no longer participate at all.

[27]Again, we follow the definition of the SOEP group.

[28]See also Laferrere (2014), who finds, using instrumental variable techniques, that retirement has a positive effect on volunteering, club and training activities but no effect on religious or community related activities. The different findings may be due to different samples. More specifically, Laferrere (2014) considers a selected population of age 50+, an age when in some countries unemployment is akin to preretirement.

effects relative to the unemployed) may be attributed to a lack of stigma associated with being retired as compared to being unemployed (see e.g. Hetschko *et al.* (2013)). By contrast, the strong negative effects for volunteering and helping are consistent with social resource theory which predicts a decline in volunteering as withdrawing from the labor force weakens social integration (Wilson, 2000).

6   Concluding Remarks

This paper provides systematic and causal evidence on the link between unemployment on social participation. Using data from the German Socio-Economic Panel, we find that unemployment has a significant negative and robust effect on social participation. We address causality by focussing on plant closures as exogenous reason for unemployment and establish a causal effect for several social activities, such as the attendance of cultural events, cinema and concerts as well as the frequency of performing voluntary work and church attendance. Moreover, we cannot rule out that individuals adjust their level of social participation to unemployment for some activities (volunteering, helping friends, socializing and church attendance), whereas unemployment has a severe negative and lasting effect on social participation for other activities (attending cultural events or cinema and participating actively in sports). Consistently, we also find an increase in several productive household activities.

Several non-rivaling explanations for these findings are possible, e.g. the violation of social norms related to 'not living of state benefits', a general discouragement effect or an increased focus on one's own situation due to the deterioration of future job prospects, or individuals' perception of own failure. Tests of these explanations demonstrate that each of these channels turns out to be important to some degree. However, there may be additional mechanisms that could not be tested due to data limitations, e.g. a lack of time structure. Furthermore, we cannot distinguish between a precautionary savings motive and possible complementarities for the amusement activities (i.e. attending cultural events and cinema).

We leave a further examination of these effects for future research.

Our analysis yields two important policy recommendations: First, as unemployed do not adjust to their situation in general, an adequate response consists of active labor market policies supporting the unemployed in retaining their social networks, in their search process and, importantly, in providing them with crucial information. Moreover, our results question the effectiveness of simple benefit cuts. Second, policies such as workfare and obligatory educational measures or supporting voluntary work may be appropriate instruments if unemployed face a lack of time structure or if lower social participation is due to undermined morale and the perception of decreased meaningfulness, respectively.

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Table 1: Activities, Variables, and Waves

Question	Variable
Gathered in 85, 86, 88, 90, 92, 94-99, 01, 03, 05, 07-09, 11 (18 waves)	
Going to the movies, pop music concerts, dancing, disco, sports events	Cinema
Going to cultural events (such as concerts, theater, lectures, etc.)	Culture
Doing sports yourself	Sports
Volunteer work in clubs or social services	Volunteer
Gathered in 90, 92, 94-99, 01, 03, 05, 07-09, 11 (15 waves)	
Attending church, religious events	Church
Gathered in 85, 86, 88, 90, 92, 94, 96, 97, 99, 01, 05, 07, 09, 11 (14 waves)	
Meeting with friends, relatives or neighbors	Socialize
Helping out friends, relatives or neighbors	Helping

Response categories available:
at least once a week, *at least once a month*, *less often*, *never*.

Figure 1: Relative Response Frequencies for Activities
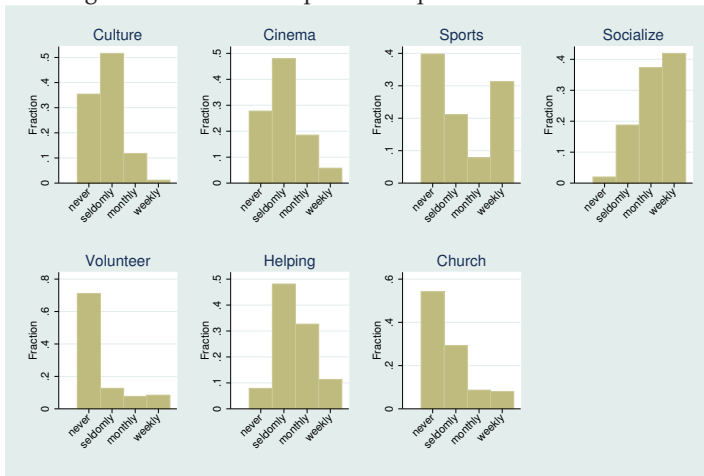
Notes: Data from SOEP 1991-2011.

Figure 2: Labor Force Status and Average Level of Social Activities
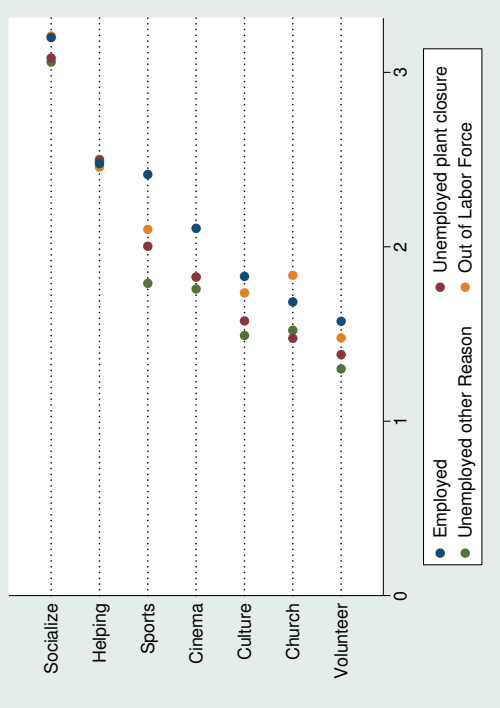
Notes: Data from SOEP 1991-2011. Average level of each activity corresponds to simple mean.

Table 2: Summary Statistics

	(1) Means	(2) Means	(3) Means	(4) Means	(5) Means	(6) Means	(7) Means
Culture	1.784						
Cinema		2.018					
Sports			2.296				
Socialize				3.191			
Volunteer					1.533		
Helping						2.475	
Church							1.703
Employed	0.712	0.712	0.713	0.713	0.712	0.714	0.712
Unemployed	0.073	0.073	0.073	0.072	0.073	0.072	0.073
Out of Labor Force (OLF)	0.215	0.215	0.214	0.214	0.215	0.214	0.215
Leisure (24 hours per day minus working hours)	18.446	18.446	18.445	18.436	18.445	18.436	18.447
Age (in years)	42.357	42.347	42.346	42.384	42.345	42.379	42.353
Log Net Real HH Eq. Income (in Euro)	7.362	7.362	7.362	7.360	7.362	7.360	7.362
Years of Education	12.028	12.027	12.029	12.015	12.028	12.015	12.027
Work Disability	0.090	0.090	0.090	0.091	0.090	0.091	0.090
Married	0.659	0.658	0.658	0.657	0.658	0.657	0.658
Number of Children	0.667	0.667	0.667	0.665	0.667	0.665	0.667
Shock: Spouse Died	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Shock: Child born	0.032	0.032	0.032	0.032	0.032	0.032	0.032
Shock: Divorce or Separated	0.021	0.021	0.021	0.021	0.021	0.021	0.021
West Germany	0.742	0.741	0.742	0.740	0.741	0.740	0.742
Care needing person in HH	0.027	0.027	0.027	0.027	0.027	0.027	0.027
N	168889	168768	168349	119914	168563	119845	168691
Individuals	34595	34597	34577	33701	34579	33690	34588
Waves	14	14	14	10	14	10	14

Notes: Data from SOEP 1991-2011. Each of the dependent variables implies a different sample. Therefore, the lower part reports means for the covariates for the different samples used.

Table 3: Summary Statistics (Causal Analysis)

	(1) Means	(2) Means	(3) Means	(4) Means	(5) Means	(6) Means	(7) Means
Culture	1.782						
Cinema		2.015					
Sports			2.308				
Socialize				3.193			
Volunteer					1.535		
Helping						2.478	
Church							1.702
Employed	0.713	0.714	0.714	0.715	0.714	0.715	0.713
Unemployed plant closure	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Unemployed other reason	0.069	0.069	0.069	0.068	0.069	0.068	0.069
Out of Labor Force (OLF)	0.214	0.214	0.213	0.213	0.214	0.213	0.214
Leisure (24 hours per day minus working hours)	18.439	18.438	18.437	18.424	18.438	18.424	18.440
Age (in years)	42.414	42.403	42.403	42.469	42.401	42.463	42.409
Log Net Real HH Eq. Income (in Euro)	7.366	7.365	7.366	7.365	7.365	7.365	7.365
Years of Education	12.050	12.050	12.052	12.047	12.051	12.047	12.049
Work Disability	0.091	0.091	0.091	0.092	0.091	0.092	0.091
Married	0.658	0.658	0.658	0.656	0.658	0.656	0.658
Number of Children	0.666	0.666	0.666	0.663	0.666	0.664	0.666
Shock: Spouse Died	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Shock: Child born	0.032	0.032	0.032	0.031	0.032	0.031	0.032
Shock: Divorce or Separated	0.021	0.021	0.021	0.021	0.021	0.021	0.021
West Germany	0.742	0.742	0.742	0.741	0.742	0.741	0.742
Care needing person in HH	0.027	0.027	0.027	0.027	0.027	0.027	0.027
N	158436	158325	157938	109462	158127	109400	158241
Individuals	34489	34492	34470	33323	34472	33310	34483
Waves	13	13	13	9	13	9	13

Notes: Data from SOEP 1991-2011. Information on the reason for job termination are not available in 1999 and 2000. Observations in these years are dropped. Each of the dependent variables implies a different sample. Therefore, the lower part reports means for the covariates for the different samples used.

Figure 3: Effects of Enduring Unemployment on Social Participation
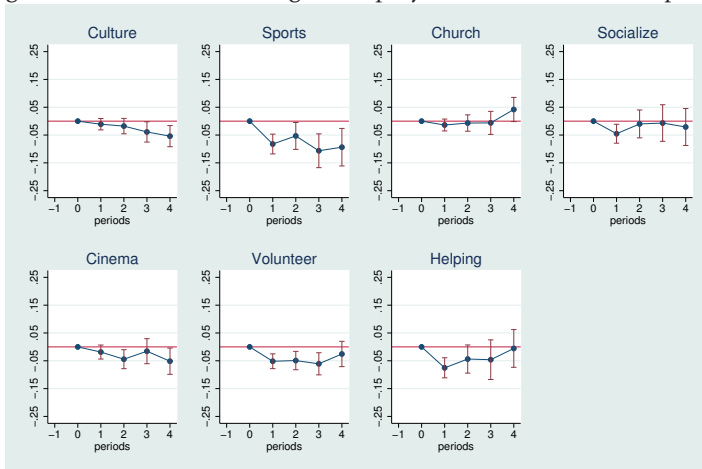
Notes: Data from SOEP 1984-2011. Number of years after the event of unemployment, 95% confidence intervalls. Underlying model (equation 3) is estimated using linear fixed effects. See table 6 for detailed results. Standard errors are clustered on individual level.

Table 4: Effects of Unemployment on Social Participation

	(1) Culture	(2) Cinema	(3) Sports	(4) Socialize	(5) Volunteer	(6) Helping	(7) Church
Unemployed	-0.0435***	-0.0718***	-0.109***	-0.0440***	-0.0897***	-0.0632***	-0.0367***
	(-4.54)	(-6.18)	(-6.12)	(-6.60)	(-3.84)	(-3.84)	(-3.49)
OLF	-0.0365***	-0.0828***	-0.118***	-0.0372***	-0.0804***	-0.0775***	-0.0298***
	(-4.38)	(-8.19)	(-7.41)	(-2.89)	(-6.27)	(-5.53)	(-3.14)
Leisure	0.00356***	0.00465***	0.0167***	0.0114***	0.0124***	0.0164***	0.00628***
	(3.53)	(3.81)	(8.79)	(7.26)	(8.08)	(9.87)	(5.76)
Log Net Real HH Eq. Income	0.0532***	0.0842***	0.0668***	0.0207**	0.0138*	-0.00996	0.00885
	(9.10)	(11.98)	(6.25)	(2.25)	(1.66)	(-1.04)	(1.38)
26≤Age≤30	0.00576	-0.177***	-0.00497	-0.00978	-0.00877	0.0249*	-0.0364***
	(0.66)	(-15.99)	(-0.32)	(-0.81)	(-0.76)	(1.81)	(-3.99)
31≤Age≤35	0.00232	-0.237***	-0.0400*	-0.0635***	-0.00379	0.0107	-0.0394***
	(0.19)	(-15.55)	(-1.80)	(-3.54)	(-0.23)	(0.55)	(-3.05)
36≤Age≤40	0.00797	-0.208***	0.00216	-0.0780***	0.0604***	0.00787	-0.0178
	(0.50)	(-10.99)	(0.08)	(-3.29)	(2.91)	(0.31)	(-1.09)
41≤Age≤45	0.0276	-0.159***	0.0503	-0.0976***	0.0856***	-0.0242	-0.0217
	(1.44)	(-7.03)	(1.49)	(-3.34)	(3.48)	(-0.77)	(-1.12)
46≤Age≤50	0.0146	-0.142***	0.0310	-0.105***	0.0629**	-0.0241	-0.0320
	(0.64)	(-5.33)	(0.79)	(-3.01)	(2.20)	(-0.64)	(-1.40)
51≤Age≤55	-0.0128	-0.115***	0.0323	-0.0984**	0.0202	-0.0298	-0.0456*
	(-0.49)	(-3.71)	(0.70)	(-2.41)	(0.61)	(-0.68)	(-1.72)
56≤Age≤60	-0.0233	-0.0673*	0.0305	-0.0557	-0.0182	-0.0179	-0.0656**
	(-0.77)	(-1.91)	(0.59)	(-1.19)	(-0.48)	(-0.35)	(-2.17)
61≤Age≤64	-0.00405	0.0121	0.0800	-0.0123	-0.0262	-0.0100	-0.0688**
	(-0.12)	(0.31)	(1.38)	(-0.23)	(-0.62)	(-0.18)	(-2.03)
Shock: Spouse Died	-0.114***	-0.145***	-0.0901*	0.0155	-0.0672**	0.0979	0.0921***
	(-3.76)	(-3.92)	(-1.83)	(0.25)	(-1.96)	(1.64)	(2.71)
Shock: Child born	-0.113***	-0.210***	-0.129***	-0.0302**	-0.0855***	-0.0908***	-0.0413***
	(-14.56)	(-22.73)	(-8.98)	(-2.42)	(-8.32)	(-6.86)	(-4.75)
Shock: Divorce or Separated	0.00726	0.0971***	0.0578***	0.0332**	-0.0309**	0.0360**	-0.00293
	(0.71)	(7.42)	(3.15)	(2.01)	(-2.46)	(2.20)	(-0.33)
Care needing person in HH	-0.0735***	-0.0760***	-0.0890***	-0.187***	-0.0404**	-0.205***	-0.0740***
	(-5.71)	(-4.93)	(-3.85)	(-8.15)	(-2.33)	(-8.96)	(-4.97)
Years of Education	-0.00911***	-0.0211***	-0.00209	0.00573	-0.00903**	0.00111	-0.00279
	(-3.39)	(-6.66)	(-0.41)	(1.60)	(-2.04)	(0.29)	(-0.91)
Work Disability	-0.0289***	-0.0286***	-0.0242	-0.00556	-0.0195	-0.0562***	-0.00971
	(-3.31)	(-2.66)	(-1.31)	(-0.38)	(-1.46)	(-3.56)	(-0.99)
Married	-0.0988***	-0.219***	-0.124***	-0.0522***	-0.0206*	-0.0297**	0.0271***
	(-13.46)	(-23.01)	(-8.81)	(-2.77)	(-1.96)	(-2.65)	(3.31)
Number of Children: 1	-0.0601***	-0.110***	-0.101***	-0.0708***	0.00779	-0.0306***	0.0418***
	(-10.57)	(-15.55)	(-9.17)	(-8.45)	(0.93)	(-3.50)	(6.86)
Number of Children: 2	-0.0807***	-0.125***	-0.0994***	-0.104***	0.0446***	-0.0555***	0.0840***
	(-10.68)	(-13.36)	(-6.56)	(-9.15)	(3.73)	(-4.77)	(9.40)
Number of Children: 3+	-0.0816***	-0.122***	-0.0586***	-0.129***	0.0989***	-0.0820***	0.108***
	(-6.87)	(-7.94)	(-2.62)	(-7.18)	(5.13)	(-4.37)	(7.42)
West Germany	-0.0263	-0.0677***	0.0784**	-0.0802**	-0.0138	-0.0457	0.0259
	(-1.23)	(-2.62)	(1.97)	(-2.55)	(-0.46)	(-1.55)	(1.41)
Constant	1.463***	1.891***	1.745***	3.054***	1.310***	2.329***	1.555***
	(23.28)	(25.30)	(15.23)	(34.12)	(14.34)	(24.81)	(22.82)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	168889	168768	168349	119914	168563	119845	168691
Individuals	34595	34597	34577	33701	34579	33690	34588
Waves	14	14	14	10	14	10	14

Notes: Data from SOEP 1991-2011. Indicated levels of significance are * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, t-statistics in parentheses. All models are estimated using linear fixed effects. Standard errors are clustered on individual level.

Table 5: Causal Effects of Unemployment on Social Participation

	(1) Culture	(2) Cinema	(3) Sports	(4) Socialize	(5) Volunteer	(6) Helping	(7) Church
Unemployed plant closure	-0.0412*	-0.0809***	-0.0382	0.00882	-0.100***	-0.0574	-0.0443*
	(-1.80)	(-2.97)	(-0.99)	(0.22)	(-3.25)	(-1.32)	(-1.82)
Unemployed other reason	-0.0407***	-0.0736***	-0.112***	-0.0467***	-0.0905***	-0.0587***	-0.0354***
	(-4.01)	(-6.04)	(-5.97)	(-2.72)	(-6.41)	(-3.32)	(-3.20)
OLF	-0.0330***	-0.0816***	-0.119***	-0.0339**	-0.0802***	-0.0750***	-0.0274***
	(-3.78)	(-7.76)	(-7.14)	(-2.46)	(-6.03)	(-5.04)	(-2.78)
Constant	1.472***	1.899***	1.768***	3.063***	1.311***	2.309***	1.594***
	(22.49)	(24.43)	(14.79)	(32.25)	(13.84)	(23.24)	(22.46)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	158436	158325	157938	109462	158127	109400	158241
Individuals	34489	34492	34470	33323	34472	33310	34483
Waves	13	13	13	9	13	9	13

Notes: Data from SOEP 1991-2011. Indicated levels of significance are * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, t-statistics in parentheses. All models are estimated using linear fixed effects and include the same controls as in table 4. Standard errors are clustered on individual level.

Table 6: Effects of Enduring Unemployment on Social Participation

	(1) Culture	(2) Cinema	(3) Sports	(4) Socialize	(5) Volunteer	(6) Helping	(7) Church
Entered Unemployed in t	-0.0110	-0.0185	-0.0823***	-0.0452***	-0.0516***	-0.0752***	-0.0138
	(-1.06)	(-1.44)	(-4.54)	(-2.61)	(-3.81)	(-4.09)	(-1.27)
Entered Unemployed in $t-1$	-0.0177	-0.0442**	-0.0531**	-0.00997	-0.0492***	-0.0436*	-0.00682
	(-1.26)	(-2.55)	(-2.15)	(-0.39)	(-2.91)	(-1.69)	(-0.45)
Entered Unemployed in $t-2$	-0.0388**	-0.0156	-0.106***	-0.00678	-0.0608***	-0.0460	-0.00617
	(-2.09)	(-0.68)	(-3.44)	(-0.20)	(-3.00)	(-1.27)	(-0.29)
Entered Unemployed in $t-3$	-0.0540***	-0.0514**	-0.0936***	-0.0210	-0.0255	-0.00558	0.0419*
	(-2.78)	(-2.14)	(-2.72)	(-0.62)	(-1.10)	(-0.16)	(1.89)
OLF	-0.0172***	-0.0499***	-0.0798***	-0.0202*	-0.0496***	-0.0709***	-0.0108
	(-2.62)	(-6.14)	(-6.43)	(-1.91)	(-5.18)	(-6.14)	(-1.38)
Constant	1.520***	1.916***	1.793***	3.172***	1.366***	2.386***	1.587***
	(25.09)	(26.53)	(16.28)	(29.84)	(15.61)	(21.19)	(23.43)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	184058	183947	183501	135131	183691	135028	168691
Individuals	38087	38078	38050	37202	38053	37182	34588
Waves	17	17	17	13	17	13	14

Notes: Data from SOEP 1984-2011. Indicated levels of significance are * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, t-statistics in parentheses. All models are estimated using linear fixed effects and include the same controls as in table 4. Standard errors are clustered on individual level.

Table 7: Social Transfers

	(1) Culture	(2) Cinema	(3) Sports	(4) Socialize	(5) Volunteer	(6) Helping	(7) Church
Unemployed	-0.0407***	-0.0695***	-0.105***	-0.0428***	-0.0898***	-0.0641***	-0.0368***
	(-4.23)	(-5.98)	(-5.92)	(-2.69)	(-6.59)	(-3.88)	(-3.50)
OLF	-0.0365***	-0.0829***	-0.119***	-0.0371***	-0.0805***	-0.0768***	-0.0299***
	(-4.39)	(-8.21)	(-7.42)	(-2.88)	(-6.28)	(-5.48)	(-3.15)
Receiving Social Transfers	-0.0278***	-0.0220**	-0.0378***	-0.00780	-0.00226	0.0176	0.00110
	(-3.90)	(-2.39)	(-2.83)	(-0.62)	(-0.24)	(1.38)	(0.14)
Constant	1.387***	1.845***	1.909***	3.016***	1.356***	2.326***	1.489***
	(16.07)	(18.37)	(12.25)	(24.91)	(10.85)	(18.59)	(16.39)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	168889	168768	168349	119914	168563	119845	168691
Individuals	34595	34597	34577	33701	34579	33690	34588
Waves	14	14	14	10	14	10	14

Notes: Data from SOEP 1991-2011. Indicated levels of significance are * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, t-statistics in parentheses. All models are estimated using linear fixed effects and include the same controls as in table 4. Standard errors are clustered on individual level.

Table 8: Employment Prospects

	(1) Culture	(2) Cinema	(3) Sports	(4) Socialize	(5) Volunteer	(6) Helping	(7) Church
Unemployed	-0.0443***	-0.0700***	-0.125***	-0.0365**	-0.100***	-0.0742***	-0.0380***
	(-4.16)	(-5.42)	(-6.45)	(-2.12)	(-6.69)	(-4.14)	(-3.30)
OLF	-0.0444***	-0.103***	-0.141***	-0.0404***	-0.0959***	-0.0795***	-0.0411***
	(-4.68)	(-8.97)	(-7.82)	(-2.80)	(-6.68)	(-5.03)	(-3.78)
Bad Prospects	-0.000384	-0.00854*	-0.00741	-0.0353***	0.0120**	0.00185	0.00772*
	(-0.10)	(-1.79)	(-1.01)	(-6.01)	(2.15)	(0.29)	(1.85)
Constant	1.480***	1.960***	1.729***	3.135***	1.311***	2.351***	1.534***
	(21.78)	(24.19)	(13.98)	(32.79)	(13.17)	(23.31)	(20.93)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	148298	148208	147852	105569	148058	105525	148134
Individuals	31862	31866	31847	30893	31852	30884	31853
Waves	14	14	14	10	14	10	14

Notes: Data from SOEP 1991-2011. Indicated levels of significance are $* p < 0.1$, $** p < 0.05$, $*** p < 0.01$, t-statistics in parentheses. All models are estimated using linear fixed effects and include the same controls as in table 4. Standard errors are clustered on individual level.

Table 9: Others' Unemployment

	(1) Culture	(2) Cinema	(3) Sports	(4) Socialize	(5) Volunteer	(6) Helping	(7) Church
Unemployed	-0.0439***	-0.0741***	-0.138***	-0.0385*	-0.0981***	-0.0693***	-0.0335***
	(-6.20)	(-6.00)	(-5.87)	(-1.91)	(-5.39)	(-4.74)	(-3.53)
OLF	-0.0441***	-0.102***	-0.140***	-0.0405**	-0.0962***	-0.0780***	-0.0413***
	(-4.75)	(-14.47)	(-7.74)	(-2.78)	(-5.85)	(-7.85)	(-2.72)
Bad Prospects	0.000202	-0.00792**	-0.00609	-0.0343***	0.0121***	0.00267	0.00731
	(0.22)	(-2.41)	(-0.63)	(-7.86)	(3.00)	(0.39)	(1.37)
Employed X Unemployment rate	0.000290	0.00554	0.00824	-0.000249	0.00781***	0.000887	0.00253
	(0.06)	(1.40)	(1.01)	(-0.05)	(1.99)	(0.27)	(0.53)
Unemployed X Unemployment rate	0.00167	0.00870**	0.0158**	0.00134	0.00678***	0.00204	0.000456
	(0.32)	(2.09)	(2.09)	(0.23)	(2.07)	(0.56)	(0.11)
OLF X Unemployment rate	0.00301	0.00810*	0.0122	0.000725	0.00852*	0.00757***	0.00270
	(0.61)	(1.70)	(1.48)	(0.14)	(1.66)	(2.84)	(0.56)
GDP per capita	0.101***	0.0616*	0.162**	0.114***	0.0540	0.0996***	-0.0279
	(2.93)	(1.77)	(2.02)	(2.78)	(1.36)	(2.86)	(-0.79)
Constant	1.123***	1.769***	1.484***	2.769***	1.193***	2.151***	1.521***
	(11.71)	(14.95)	(5.59)	(13.94)	(8.41)	(12.03)	(13.93)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	148298	148208	147852	105569	148058	105525	148134
Individuals	31862	31866	31847	30893	31852	30884	31853
Waves	14	14	14	10	14	10	14

Notes: Data from SOEP 1991-2011. Indicated levels of significance are $* p < 0.1$, $** p < 0.05$, $*** p < 0.01$, t-statistics in parentheses. Standard errors are clustered by state and year (two-way clustering). All models are estimated using linear fixed effects and include the same controls as in table 4. Local unemployment rates (centered) on state level.

Table 10: Effects of Unemployment on Home Production

	(1) Child care	(2) Housework	(3) Educational training	(4) Running errands	(5) Repairs & gardening
Unemployed	-0.103**	0.357***	-0.329***	0.190***	0.130***
	(-1.97)	(17.33)	(-11.42)	(15.42)	(8.63)
OLF	0.985***	0.362***	0.236***	0.0473***	-0.0316***
	(18.77)	(20.07)	(9.57)	(5.06)	(-2.92)
Constant	-3.811***	-1.091***	5.007***	0.201***	-0.399***
	(-12.49)	(-9.70)	(23.19)	(3.01)	(-4.64)
Year Dummies	Yes	Yes	Yes	Yes	Yes
N	233929	244075	229973	244342	237735
Individuals	37246	37661	37129	37705	37478
Waves	20	20	20	20	20

Notes: Data from SOEP 1991-2011. Indicated levels of significance are $* p < 0.1$, $** p < 0.05$, $*** p < 0.01$, t-statistics in parentheses. All models are estimated using linear fixed effects and include the same controls as in table 4. Standard errors are clustered on individual level.

Figure 4: The composite effect of unemployment on social participation

95%–CI, assumed changes scenariao A (B): leisure 8 (4)h; income (log real equiv hh net) −.2 (−.1)

Notes: Data from SOEP 1991-2011. Calculations based on the results in table 4.

Table 11: Causal Effects of Unemployment on Home Production

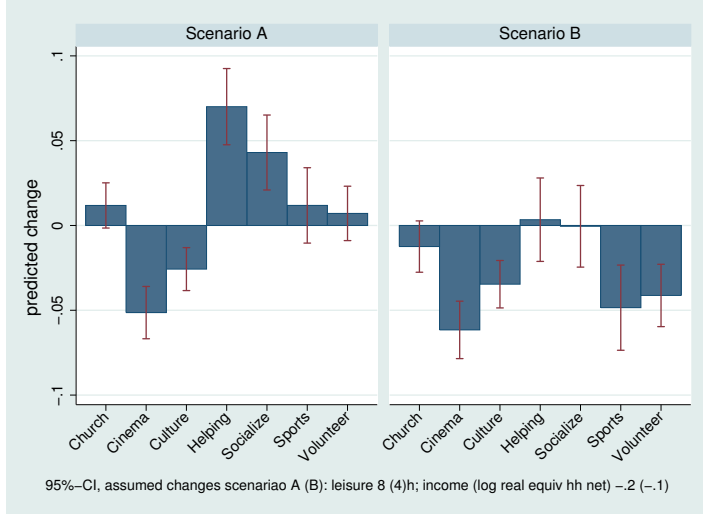|	(1) Child care	(2) Housework	(3) Educational training	(4) Running errands	(5) Repairs & gardening
Unemployed plant closure	-0.314***	0.354***	-0.252***	0.257***	0.213***
	(-2.95)	(6.27)	(-3.13)	(6.86)	(4.07)
Unemployed other reason	-0.0925*	0.357***	-0.333***	0.187***	0.125***
	(-1.75)	(17.28)	(-11.51)	(14.94)	(8.29)
OLF	0.986***	0.362***	0.235***	0.0472***	-0.0317***
	(18.77)	(20.07)	(9.56)	(5.05)	(-2.94)
Constant	-3.820***	-1.091***	5.011***	0.204***	-0.395***
	(-12.52)	(-9.70)	(23.21)	(3.05)	(-4.61)
Controls	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes
N	233929	244075	229973	244342	237735
Individuals	37246	37661	37129	37705	37478
Waves	20	20	20	20	20

Notes: Data from SOEP 1991-2011. Indicated levels of significance are * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, t-statistics in parentheses. All models are estimated using linear fixed effects and include the same controls as in table 4. Standard errors are clustered on individual level.

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Table 12: Effects of Unemployment on Worries

	(1) Economy	(2) Own economic situation	(3) Health	(4) Environment	(5) Peace	(6) Crime
Unemployed	0.0612***	0.152***	0.0417***	-0.00807	-0.00139	0.0151*
	(7.50)	(17.26)	(4.12)	(-1.01)	(-0.16)	(1.74)
OLF	0.00910	-0.0154**	0.0120	-0.00277	-0.00112	0.00472
	(1.33)	(-2.08)	(1.43)	(-0.41)	(-0.15)	(0.64)
Constant	2.823***	3.320***	1.949***	2.218***	2.639***	2.492***
	(54.31)	(58.09)	(30.57)	(44.26)	(48.06)	(45.83)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	250116	250080	182643	249998	249949	233037
Individuals	37823	37825	32714	37833	37838	36168
Waves	20	20	13	20	20	18

Notes: Data from SOEP 1991-2011. Indicated levels of significance are * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, t-statistics in parentheses. All models are estimated using linear fixed effects and include the same controls as in table 4. Standard errors are clustered on individual level.

Table 13: Causal Effects of Unemployment on Worries

	(1) Economy	(2) Own economic situation	(3) Health	(4) Environment	(5) Peace	(6) Crime
Unemployed plant closure	0.119***	0.228***	-0.0330	-0.0332	0.00995	0.0384*
	(5.70)	(10.43)	(-1.14)	(-1.62)	(0.44)	(1.75)
Unemployed other reason	0.0595***	0.150***	0.0532***	-0.00608	-0.00262	0.0158*
	(7.08)	(16.58)	(5.02)	(-0.74)	(-0.29)	(1.76)
OLF	0.00913	-0.0165**	0.0171**	-0.00251	0.000241	0.00606
	(1.30)	(-2.17)	(1.98)	(-0.36)	(0.03)	(0.81)
Constant	2.813***	3.329***	1.986***	2.235***	2.661***	2.502***
	(52.41)	(57.14)	(28.02)	(43.15)	(46.96)	(44.52)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	239649	239628	172183	239549	239489	222582
Individuals	37767	37770	31728	37777	37781	36111
Waves	19	19	12	19	19	17

Notes: Data from SOEP 1991-2011. Indicated levels of significance are * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, t-statistics in parentheses. All models are estimated using linear fixed effects and include the same controls as in table 4. Standard errors are clustered on individual level.

Table 14: Reemployment

	(1) Culture	(2) Cinema	(3) Sports	(4) Socialize	(5) Volunteer	(6) Helping	(7) Church
Unemployed	-0.0473***	-0.0728***	-0.118***	-0.0458***	-0.0896***	-0.0635***	-0.0361***
	(-4.86)	(-6.15)	(-6.55)	(-2.85)	(-6.47)	(-3.82)	(-3.36)
OLF	-0.0381***	-0.0832***	-0.123***	-0.0381***	-0.0804***	-0.0777***	-0.0295***
	(-4.56)	(-8.20)	(-7.64)	(-2.95)	(-6.24)	(-5.53)	(-3.09)
Reemployed	-0.0260***	-0.00736	-0.0668***	-0.0143	0.0000342	-0.00242	0.00428
	(-2.63)	(-0.62)	(-3.84)	(-0.88)	(0.00)	(-0.14)	(0.46)
Constant	1.466***	1.892***	1.754***	3.056***	1.310***	2.330***	1.555***
	(23.34)	(25.31)	(15.30)	(34.15)	(14.35)	(24.81)	(22.81)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	168889	168768	168349	119914	168563	119845	168691
Individuals	34595	34597	34577	33701	34579	33690	34588
Waves	14	14	14	10	14	10	14
p-value[a]	0.0912	0.0000123	0.0210	0.135	5.42e-08	0.00487	0.00138

Notes: Data from SOEP 1991-2011. Indicated levels of significance are * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, t-statistics in parentheses.
[a] Underlying $H_0 : \hat{\beta}_{UE} = \hat{\beta}_{Reemp}$. All models are estimated using linear fixed effects and include the same controls as in table 4. Standard errors are clustered on individual level.

Table 15: Retired versus OLF

	(1) Culture	(2) Cinema	(3) Sports	(4) Socialize	(5) Volunteer	(6) Helping	(7) Church
Unemployed	-0.0476***	-0.0734***	-0.103***	-0.0424***	-0.0903***	-0.0661***	-0.0324***
	(-5.06)	(-6.57)	(-5.89)	(-2.75)	(-6.77)	(-4.10)	(-3.13)
OLF	-0.0340***	-0.0750***	-0.101***	-0.0377***	-0.0733***	-0.0628***	-0.0231**
	(-4.21)	(-7.83)	(-6.47)	(-3.05)	(-5.89)	(-4.63)	(-2.52)
Retired	-0.00296	-0.0555***	-0.0601**	-0.0331	-0.103***	-0.120***	-0.00624
	(-0.21)	(-3.63)	(-2.37)	(-1.50)	(-5.00)	(-4.66)	(-0.38)
Constant	1.366***	1.768***	1.521***	2.948***	1.211***	2.162***	1.600***
	(22.76)	(25.46)	(13.96)	(34.08)	(14.03)	(23.82)	(24.19)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	209882	209638	209117	149424	209388	149283	209607
Individuals	40840	40846	40818	40016	40825	40000	40834
Waves	14	14	14	10	14	10	14
p-value[a]	0.0138	0.129	0.0522	0.815	0.0839	0.0124	0.229

Notes: Data from SOEP 1991-2011. Indicated levels of significance are * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, t-statistics in parentheses.
[a] Underlying $H_0 : \hat{\beta}_{OLF} = \hat{\beta}_{Ret}$. All models are estimated using linear fixed effects and include the same controls as in table 4. Standard errors are clustered on individual level.

Appendix A

Table A.1: Effects of Unemployment on Social Participation

	(1) Culture	(2) Cinema	(3) Sports	(4) Socialize	(5) Volunteer	(6) Helping	(7) Church
Unemployed	-0.229***	-0.299***	-0.309***	-0.165***	-0.392***	-0.223***	-0.203***
	(-4.52)	(-6.13)	(-6.01)	(-2.92)	(-5.88)	(-4.20)	(-3.31)
OLF	-0.197***	-0.356***	-0.327***	-0.133***	-0.324***	-0.265***	-0.167***
	(-4.65)	(-8.44)	(-7.37)	(-2.71)	(-5.95)	(-5.74)	(-3.32)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	155363	191588	259201	122153	164010	135374	132782
Individuals	17317	18249	16985	15984	12218	17145	13037
Waves	14	14	14	10	14	10	14

Notes: Data from SOEP 1991-2011. Indicated levels of significance are * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, t-statistics in parentheses. All models are estimated using the BUC estimator and include the same controls as in table 4. Standard errors are clustered on individual level.

Table A.2: Causal Effects of Unemployment on Social Participation

	(1) Culture	(2) Cinema	(3) Sports	(4) Socialize	(5) Volunteer	(6) Helping	(7) Church
Unemployed plant closure	-0.215*	-0.349***	-0.116	0.0230	-0.448***	-0.195	-0.268*
	(-1.68)	(-3.00)	(-1.00)	(0.16)	(-2.62)	(-1.33)	(-1.65)
Unemployed other reason	-0.210***	-0.302***	-0.316***	-0.172***	-0.391***	-0.208***	-0.194***
	(-3.92)	(-5.90)	(-5.86)	(-2.83)	(-5.64)	(-3.68)	(-3.02)
OLF	-0.179***	-0.349***	-0.328***	-0.118**	-0.320***	-0.256***	-0.153***
	(-4.04)	(-7.97)	(-7.13)	(-2.24)	(-5.70)	(-5.23)	(-2.93)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	141578	174514	237484	105341	149791	116921	120870
Individuals	16954	17877	16672	15307	11898	16506	12740
Waves	13	13	13	9	13	9	13

Notes: Data from SOEP 1991-2011. Indicated levels of significance are * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, t-statistics in parentheses. All models are estimated using the BUC estimator and include the same controls as in table 4. Standard errors are clustered on individual level.

Table A.3: Effects of Enduring Unemployment on Social Participation

	(1) Culture	(2) Cinema	(3) Sports	(4) Socialize	(5) Volunteer	(6) Helping	(7) Church
Entered Unemployed in t	-0.0616	-0.0743	-0.250***	-0.152**	-0.256***	-0.228***	-0.0728
	(-1.12)	(-1.43)	(-4.65)	(-2.57)	(-3.44)	(-4.00)	(-1.06)
Entered Unemployed in $t-1$	-0.118	-0.192***	-0.163**	-0.0359	-0.245**	-0.145*	-0.0266
	(-1.49)	(-2.58)	(-2.04)	(-0.42)	(-2.30)	(-1.85)	(-0.27)
Entered Unemployed in $t-2$	-0.238**	-0.0728	-0.327***	-0.0242	-0.314**	-0.144	-0.0208
	(-2.17)	(-0.72)	(-3.06)	(-0.22)	(-2.41)	(-1.29)	(-0.15)
Entered Unemployed in $t-3$	-0.335***	-0.225**	-0.263**	-0.0646	-0.0428	-0.0156	0.289**
	(-2.94)	(-2.06)	(-2.08)	(-0.58)	(-0.27)	(-0.15)	(2.13)
OLF	-0.103***	-0.218***	-0.227***	-0.0604	-0.227***	-0.220***	-0.0651
	(-3.03)	(-6.44)	(-6.38)	(-1.63)	(-5.05)	(-6.23)	(-1.51)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	173198	216522	288176	144621	184993	162269	132782
Individuals	18571	19661	18054	17657	13107	18926	13037
Waves	17	17	17	13	17	13	14

Notes: Data from SOEP 1984-2011. Indicated levels of significance are * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, t-statistics in parentheses. All models are estimated using the BUC estimator and include the same controls as in table 4. Standard errors are clustered on individual level.

Table A.4: Gender-specific Results

	(1) Culture	(2) Cinema	(3) Sports	(4) Socialize	(5) Volunteer	(6) Helping	(7) Church
Unemployed	-0.0356***	-0.0612***	-0.133***	-0.0900***	-0.0958***	-0.0737***	-0.0297**
	(-2.88)	(-3.93)	(-5.89)	(-4.26)	(-5.51)	(-3.47)	(-2.26)
Unemployed X Female	-0.00332	-0.00388	0.0473**	0.0663***	0.00621	0.0135	-0.00976
	(-0.26)	(-0.25)	(2.07)	(2.93)	(0.38)	(0.59)	(-0.71)
OLF	-0.00270	-0.0362**	-0.105***	-0.0869***	-0.0954***	-0.0937***	-0.0212*
	(-0.22)	(-2.45)	(-4.78)	(-4.64)	(-5.33)	(-4.67)	(-1.71)
OLF X Female	-0.0434***	-0.0599***	-0.0194	0.0609***	0.0191	0.0201	-0.0106
	(-3.85)	(-4.41)	(-0.93)	(3.50)	(1.17)	(1.06)	(-0.89)
	(-1.19)	(-2.57)	(1.99)	(-2.57)	(-0.47)	(-1.56)	(1.41)
Constant	1.470***	1.901***	1.742***	3.035***	1.307***	2.324***	1.558***
	(23.38)	(25.42)	(15.19)	(33.83)	(14.30)	(24.76)	(22.86)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	168889	168768	168349	119914	168563	119845	168691
Individuals	34595	34597	34577	33701	34579	33690	34588
Waves	14	14	14	10	14	10	14

Notes: Data from SOEP 1991-2011. Indicated levels of significance are * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, t-statistics in parentheses. All models are estimated using linear fixed effects and include the same controls as in table 4. Standard errors are clustered on individual level.

Table A.5: Region-specific Results (East versus West)

	(1) Culture	(2) Cinema	(3) Sports	(4) Socialize	(5) Volunteer	(6) Helping	(7) Church
Unemployed	-0.0310**	-0.0508***	-0.0568***	-0.0268	-0.0847***	-0.0540***	-0.0489***
	(-2.46)	(-3.40)	(-2.58)	(-1.29)	(-5.14)	(-2.61)	(-4.45)
Unemployed X West Germany	-0.0115	-0.0278*	-0.0699***	-0.0247	-0.00833	-0.00821	0.0171
	(-0.88)	(-1.76)	(-3.08)	(-1.09)	(-0.52)	(-0.36)	(1.35)
OLF	0.00136	-0.0517***	-0.0456*	-0.0187	-0.0795***	-0.0502**	-0.0442***
	(0.11)	(-3.40)	(-1.89)	(-0.94)	(-4.39)	(-2.38)	(-3.84)
OLF X West Germany	-0.0461***	-0.0377***	-0.0879***	-0.0223	-0.000968	-0.0332*	0.0174*
	(-3.94)	(-2.68)	(-3.86)	(-1.22)	(-0.06)	(-1.69)	(1.65)
Constant	1.469***	1.897***	1.759***	3.059***	1.311***	2.335***	1.552***
	(23.35)	(25.37)	(15.34)	(34.13)	(14.35)	(24.85)	(22.75)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	168889	168768	168349	119914	168563	119845	168691
Individuals	34595	34597	34577	33701	34579	33690	34588
Waves	14	14	14	10	14	10	14

Notes: Data from SOEP 1991-2011. Indicated levels of significance are * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, t-statistics in parentheses. All models are estimated using linear fixed effects and include the same controls as in table 4. Standard errors are clustered on individual level.

Appendix B

Table B.1: Summary Statistics - Worries

	(1) Means	(2) Means	(3) Means	(4) Means	(5) Means	(6) Means
Economy	2.286					
Own economic situation		1.992				
Health			1.806			
Environment				2.207		
Peace					2.251	
Crime						2.330
Employed	0.723	0.723	0.738	0.723	0.723	0.725
Unemployed plant closure	0.003	0.003	0.002	0.003	0.003	0.003
Unemployed other reason	0.066	0.066	0.062	0.066	0.066	0.067
OLF	0.208	0.208	0.197	0.208	0.208	0.205
Leisure	18.439	18.439	18.365	18.439	18.439	18.432
Age	42.590	42.590	43.593	42.591	42.592	42.878
Log Net Real HH Eq. Income	7.385	7.385	7.428	7.385	7.385	7.392
Years of Education	12.078	12.078	12.412	12.079	12.079	12.192
Work Disability	0.091	0.091	0.094	0.091	0.091	0.091
Married	0.659	0.659	0.639	0.659	0.659	0.652
Number of Children	0.661	0.661	0.619	0.661	0.661	0.649
Shock: Spouse Died	0.002	0.002	0.002	0.002	0.002	0.002
Shock: Child born	0.031	0.031	0.028	0.031	0.031	0.030
Shock: Divorce or Separated	0.021	0.021	0.022	0.021	0.021	0.022
West Germany	0.753	0.753	0.759	0.753	0.753	0.750
Care needing person in HH	0.026	0.026	0.026	0.026	0.026	0.026
N	239356	239334	158972	239253	239197	211316
Individuals	36516	36520	29660	36525	36524	34788
Waves	19	19	11	19	19	16

Notes: Data from SOEP 1991-2011. Information on the reason for job termination are not available in 1999 and 2000. Observations in these years are dropped. Each of the dependent variables implies a different sample. Therefore, the lower part reports means for the covariates for the different samples used.

Table B.2: Summary Statistics - Home Production

	(1) Means	(2) Means	(3) Means	(4) Means	(5) Means
Child care	1.603				
Housework		1.760			
Educational training			0.479		
Running errands				1.061	
Repairs & gardening					0.766
Employment	0.715	0.714	0.715	0.714	0.715
Unemployment plant closure	0.003	0.003	0.003	0.004	0.003
Unemployment other reason	0.068	0.068	0.068	0.068	0.068
OLF	0.214	0.215	0.213	0.214	0.213
Leisure	18.462	18.482	18.446	18.473	18.453
Age	42.465	42.594	42.540	42.604	42.690
Log Net Real HH Eq. Income	7.382	7.385	7.387	7.384	7.386
Years of Education	12.113	12.109	12.129	12.108	12.108
Work Disability	0.089	0.091	0.090	0.091	0.091
Married	0.660	0.654	0.654	0.655	0.659
Number of Children	0.688	0.658	0.659	0.658	0.661
Shock: Spouse Died	0.002	0.002	0.002	0.002	0.002
Shock: Child born	0.033	0.031	0.031	0.031	0.031
Shock: Divorce or Separated	0.021	0.021	0.021	0.021	0.021
West Germany	0.754	0.754	0.754	0.753	0.753
Care needing person in HH	0.026	0.026	0.026	0.026	0.027
N	207933	216881	204265	217077	211143
Individuals	35595	36015	35495	36040	35810
Waves	18	18	18	18	18

Notes: Data from SOEP 1991-2011. Information on the reason for job termination are not available in 1999 and 2000. Observations in these years are dropped. Each of the dependent variables implies a different sample. Therefore, the lower part reports means for the covariates for the different samples used.