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**Changing Identity:  
Retiring from Unemployment**

Clemens Hetschko, Andreas Knabe, Ronnie Schöb

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# Changing Identity: Retiring from Unemployment

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## **Abstract**

Using data from the German Socio-Economic Panel from 1984-2009, we follow persons from their working life into their retirement years and find that, on average, employed people maintain their life satisfaction upon retirement, while long-term unemployed people report a substantial increase in their life satisfaction when they retire. These results are robust to controlling for changes in other life circumstances and suggest that retiring is associated with a switch in the relevant social norms that causes an increase in identity utility for the formerly unemployed. This is supportive of the idea that, by including identity in the utility function, results from the empirical life satisfaction literature can be reconciled with the economic theory of individual utility.

JEL Classification Codes: I31, J26

Keywords: life satisfaction, retirement, unemployment, identity, social norm

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## 1. Introduction

People are able to adapt to most changes in their life circumstances. Their subjective well-being tends to return to its initial level after both good and bad events (Clark et al. 2008b). When hit by a negative life event, adaptation may come as a relief as people adapt, at least partially, to calamities such as certain types of diseases and handicaps or losing one's spouse (see e.g. Oswald and Powdthavee 2008, Diener, Lucas und Scollon 2006). For positive events, adaptation appears less desirable because it catches people in a hedonic treadmill. For example, most of the effort that is spent on achieving higher income levels is rewarded by higher levels of happiness for a short time only (Clark et al. 2008a).

Adaptation to new life circumstances may occur in two distinct dimensions. First, there is hedonic adaptation, which affects a person's emotional experiences during specific situations in life (affective well-being). It involves desensitization (a constant stimulus is subjectively perceived as less intense over time) as well as changes in the attention given to troubling thoughts and in the time spent in unpleasurable activities (Frederick and Loewenstein 1999). Second, there may be aspiration adaptation. Aspirations affect people's cognitive well-being, which is typically measured by using a question of how satisfied people are with their lives (Kahneman and Krueger 2006). When assessing their life satisfaction, respondents have to create a reference framework of what constitutes a satisfied life (Diener et al. 1985) and compare their own life circumstances to the ideal identity they aspire to for themselves. What people consider to be "satisfactory" changes over time, depending on social norms, social comparisons or comparisons with one's own past achievements (Dolan and Kahneman 2008).

Unemployment is typically seen as one of the most harmful factors for subjective well-being (see the survey by Frey 2008). Nevertheless, people appear to be able to adapt hedonically to long-term unemployment. Knabe et al. (2010) find that during the course of the day long-term unemployed people experience, on average, similar levels of positive and negative emotions as employed people. Although the unemployed feel sadder than employed people when engaged in similar activities, adaptation occurs because unemployed people substitute the less enjoyable working time by more enjoyable leisure time activities. In this case, at least, hedonic adaptation is well covered by the standard economic utility function according to which unemployed people lose consumption opportunities, which makes them worse off, but are – at least partially – compensated by an increase in leisure time.

In contrast to affective well-being, cognitive well-being (e.g. life satisfaction) does not seem to adapt to long-term unemployment. In the study by Knabe et al. (2010), the same long-

term unemployed people who show hedonic adaptation to unemployment also report substantially lower life satisfaction than the employed. This is in line with the literature on the effects of unemployment on life satisfaction that consistently finds that people suffer when they become unemployed, and that they continue to suffer when they stay unemployed (Lucas et al. 2004, Clark 2006). This literature also shows that the loss of well-being from unemployment exceeds that which can be explained by the associated income loss. This challenges the standard economic view on unemployment, which implies that if income was held constant, becoming unemployed would lead to higher utility because of the gain in additional leisure time.

Economic theory may cope with this challenge by incorporating the concept of identity into an individual's utility function. Akerlof and Kranton (2000) suggest that utility functions consist of an individualistic part and an identity part. The individualistic part depends only on the amount of goods and services consumed (including leisure). This part reflects the standard economic approach to utility. The identity part represents the utility derived from adhering to the social norms and ideals relevant for one's own social category.

As a stylized example, assume that there is a social category "working age", to which all able-bodied persons of working age belong. A part of the normative system requires that everybody in this category should have a job. The employed fulfill this expectation and thus experience a high level of identity utility. The unemployed, however, do not comply with the social norm. As long as they belong to the social category "working age", they permanently deviate from their ideal identity and thus experience a persistent loss of identity utility. The persistent deviation from the social norm may thus explain the inability of the unemployed to adapt to the loss of their jobs.

This extension of the standard economic model may help explain several findings that show that subjective well-being varies with variables that are not directly linked to the utility of individuals and are thus not incorporated in their utility functions. It may explain situations in which the strength of the social work norm within a given social category changes while individual circumstances, and hence a person's assignment to a social category, remain unchanged. This route is implicitly taken by the literature on the social norm of unemployment which suggests that the suffering of the unemployed can be relieved if the social norm of being employed is weakened. Clark (2003) approximates the strength of the social work norm by the regional unemployment rate and shows that the well-being gap between the employed and unemployed in Britain narrows when regional unemployment increases. Similar results have been found for the United Kingdom (Shields and Wheatley

Price 2005), Australia (Shields et al. 2009), South Africa (Powdthavee 2007), and Germany (Clark et al. 2010). Stutzer and Lalive (2004) apply an alternative method for inferring the social work norm. They interpret regional support for a referendum on cuts in unemployment benefits as an indicator of a stronger work ethic, and show that a weaker work ethic causes a smaller well-being gap between the employed and unemployed.

These studies describe the impact of gradual changes in the strength of social norms within a given social category on the cognitive measure of well-being. This paper, by contrast, analyzes a situation where people experience a change in their point of reference, i.e. they move from one social category to another. A unique life event that is associated with such a category switch is the transition to retirement. In our stylized example, this implies that, upon retirement, people switch into the social category “retirement age” in which they are no longer expected to have a job. Independently of their pre-retirement employment status, former employed and unemployed persons then comply with the same social category’s norm after retirement and thus should not differ in their identity utility.

The retirement process of formerly unemployed persons comes close to a natural experiment. Daily routines do not change, disposable income hardly changes, and most other life circumstances as well as personality factors are relatively invariant in the short time interval right before and after retirement. The only relevant change is the switch of the individual’s social category from “working age” to “retirement age”. When somebody makes a general judgment of his life satisfaction, he assesses “how well one’s life measures up to aspirations and goals” (Kahneman and Krueger 2006, p. 9). Since people typically give up the aspiration of having a job when entering retirement, identity theory would predict that the change in the relevant social norm causes the life satisfaction of an unemployed person to rise upon retirement. For an employed person, however, the conformity of one’s life with the ideal identity should not change much upon retirement because the social norm changes simultaneously with the change in life circumstances.

Using data from the German Socio-Economic Panel from 1984-2009, we follow the same persons from their working life into their retirement years and find that, on average, employed people maintain their life satisfaction upon retirement. Long-term unemployed people, however, report a substantial increase in their life satisfaction when they retire. These results are robust to controlling for changes in other life circumstances and suggest that retiring is associated with a switch in social categories and an increase in identity utility for the formerly unemployed. This is supportive of the idea that, by including identity in the economic utility

function, results from the empirical life satisfaction literature can be reconciled with the economic theory of individual utility.

One finding concerning the happiness of the unemployed is that unemployment has long-lasting negative effects on well-being even after an unemployed person has re-entered employment (Clark et al. 2001). Identity utility thus may not only be affected by contemporaneous factors but may also depend on retrospective assessments of one's past achievements. The two different factors can be distinguished by asking whether the convergence of well-being of former employed and unemployed retirees is complete or not. Complete convergence should occur if the normative requirements of the "retirement age" category were only concerned with contemporary and future events and achievements. Convergence might only be partial if past achievements remained part of the social category's ideal. For example, it could be the case that the ideal-typical retiree is expected to be able to look back on a successful working life. People who concluded their working life being unemployed would then deviate from the social norm even after retirement and thus continue to suffer from a loss in identity utility and life satisfaction because their identity depends on retrospective elements. Our results indicate that the experience of a long unemployment spell directly before retiring does not cause a reduction in life satisfaction after retirement which suggests that the scarring effect is not caused by retrospective elements in identity utility.

We proceed as follows: In section 2, we review previous economic and psychological research on the connections between retirement and happiness in general and then shift the focus to the transition from unemployment into retirement. We derive our hypotheses and review the findings concerning the happiness of former unemployed retirees. After introducing our data in section 3, we present our test strategies and results in sections 4 and 5. Section 6 provides a discussion of our findings.

## **2. Previous employment status, retirement and happiness**

We focus on the question of the extent to which the employment status before retirement affects the life satisfaction of retirees by comparing changes in life satisfaction when retiring for those who were employed and those who were unemployed directly before retirement. We expect that, *ceteris paribus*, there will be significant differences in the change in well-being as the identity model by Akerlof and Kranton (2000) would predict. According to this model, people in a society assign themselves and others into social categories, which define their identity. Each social category is shaped by certain prescriptions that indicate what is

appropriate for its members and constitute the ideals and social norms each person strives to conform to.

Individual utility functions thus consist of two parts. The individualistic part depends on people's own choices about goods, services and leisure. This individualistic part is unrelated to phenomena such as social norms and ideals which are included in an additional identity part. People derive "identity utility" from the status of the social categories to which they belong, the extent to which they conform to the norms of these social categories, and suffer a loss of identity utility if they deviate from these norms.

The identity model can be applied to the well-being of the unemployed. Assume, for the sake of the argument, that identity utility  $I$  is separable from utility derived from the consumption of goods, services and leisure. Identity utility depends on

- i. the assigned social category which, in our analysis, is either "working age" or "retirement age",
- ii. the social norm or prescription which is attributed to the social category, which in our case is "be in employment" and "does not have to work",
- iii. the personal characteristics of being "employed" or "not employed".

Identity utility may depend on the social status of the social category and on the extent to which an individual meets the social norm of her social category. Identity utility  $I = I(SC, PC)$  reaches a maximum where an individual's personal characteristics  $PC$  correspond to the prescriptions of her social category  $SC$ . Within the social category "working age", we observe

$$(1) \quad I(\textit{working age}, \textit{employed}) > I(\textit{working age}, \textit{not employed}).$$

As has been emphasized by social psychology, one of the most important psychological functions of employment is that it "defines aspects of personal status and identity" (Jahoda 1981, p. 188). Thus, being unemployed implies that one does not meet one's aspiration, which causes a loss in identity utility. Condition (1) reflects the empirical findings (e.g. Lucas et al. 2004, Clark 2006) that people continue to suffer as long as they are unemployed. Their current life circumstances do not comply with the social norm of the social category they belong to and their identity utility is thus lowered.

As long as one meets the social norm of one's social category, one does not lose any identity utility derived from belonging to a particular social category (assuming that both carry the same status), i.e.

$$(2) \quad I(\textit{working age}, \textit{employed}) = I(\textit{retirement age}, \textit{not employed}).$$



People who retire out of employment face both a change in their life circumstances and a change in the social category to which they belong. The individualistic part of the utility function is affected in two ways. The fall in income may reduce utility while the gain in leisure time may increase utility and the total effect is *a priori* ambiguous. While employed, people fulfilled the social norm of their social category “working age”. When they decide to retire they switch to the social category “retirement age”, for which the social norm does not refer to one’s employment status. Since identity utility depends on the extent to which one fulfills the social norms of the social category to which one assigns oneself, retiring out of employment does not change identity utility. We formulate this as a first hypothesis.

**Hypothesis 1:** On average, the transition to retirement does not affect the life satisfaction of people who have been employed before retirement.

This hypothesis builds on the literature on how retirement changes life satisfaction of those employed people who accept their retirement. Although the empirical results show a lot of heterogeneity in how people cope with the process of retirement, the studies on the well-being effect of retiring have found that, on average, life satisfaction does not change when employed people retire voluntarily (e.g. Kim and Moen 2002, Warr et al. 2004; Clark and Fawaz 2009; Nordenmark and Stattin 2009, Bonsang and Klein 2010).

Retiring out of unemployment, by contrast, is a life event from which we might observe a change of a social category without a simultaneous change in both individual characteristics and the parameters that affect the individualistic part of the utility function. For those retiring out of unemployment, we expect

$$(3) \quad I(\textit{retirement age, not employed}) > I(\textit{working age, not employed}).$$

When unemployed persons retire, their available leisure time remains unchanged and their disposable income typically does not change by much. Changes in life satisfaction can thus be attributed to changes in the point of reference with which they compare themselves, i.e. their social category. As long as the unemployed belonged to the social category “working age”, they did not meet the social norm of “being employed” and suffered from an identity loss. When their social category becomes “retirement age”, their personal situation corresponds to the social norm of not having to work. If identity shapes life satisfaction and the ideal identity of unemployed people is given by the social norm of “being in employment”, unemployed persons should gain identity utility when the social category to which they belong changes. This is the same as saying that their aspirations adapt as their social category changes. Thus, our second hypothesis is:

**Hypothesis 2:** On average, the transition to retirement increases the life satisfaction of people who have been long-term unemployed before retirement.

In general, it is difficult to distinguish empirically between aspiration adaptation and hedonic adaptation. Fundamental changes of life circumstances are normally open to multiple interpretations because they affect both the cognitive and emotional components of well-being simultaneously (see Kahneman et al. 2004, 429f). The identity approach allows us to theoretically distinguish between aspiration adaptation, affecting identity utility, and hedonic adaptation affecting the individualistic part of the utility function. The transition to retirement out of unemployment provides an empirical identification strategy to detect what kind of adaptation occurs.

There are only very few studies that deal with the change from unemployment into retirement. Frese and Mohr (1987) asked 46 unemployed blue-collar workers about their hope for control, financial problems and depressions. Their results show that depressions and financial worries of those who were still unemployed two years later (or re-unemployed) had increased while their hope for control had decreased. Both the employed and the retirees were less likely to suffer from depression, financial problems and – though not significantly – displayed higher levels of hope for control. These results lend some support to our hypotheses but they are based on only a small number of observations, do not focus on life satisfaction and do not control for confounding factors. Belgrave and Haug (1995) find that formerly unemployed persons are more likely to describe “their” retirement with positive feelings compared to other retirees. These results might not be explained by a shift of the social category but may be caused by stress due to job search before retirement, changes of income or health through retirement, (changes of) marital status etc. Moreover, their measures of happiness capture hedonic adaptation rather than aspiration adaptation.

Pinquart and Schindler (2007) analyze life satisfaction around the transition to retirement by using the German Socio Economic Panel (SOEP). Their latent class analysis (latent growth mixture modeling) can be interpreted as a statistical method to group persons depending on their characteristics to different curve shapes of an observed outcome (in this case: life satisfaction at various points in time around the transition to retirement). The probability of being a member of the class that shows an increase in life satisfaction is 2.21 times higher for people who were unemployed before retirement than for people who were not unemployed. This result is highly significant and thus provides at least some indirect evidence for our first hypothesis.

Data on people's well-being when entering retirement also allow us to have a close look at the determinants of identity. Clark et al. (2001) have shown that the experience of unemployment in the past causes a loss in subjective well-being even after a person has found a new job. One possible explanation for this "scarring" effect is that past unemployment constitutes a constant deviation from the social norm that people are expected to have an uninterrupted work history. In this case, identity utility would depend on retrospective components and past unemployment would be genuinely scarring. Knabe and Rätzel (2011), however, show that the persistent loss in subjective well-being from past unemployment episodes occurs because past unemployment leads to an increased fear of becoming unemployed again in the future. Once a person's fear about the future is held constant, there is no evidence for a genuine scarring effect of unemployment. This suggests that retrospective components might not play a significant role for identity utility.

We make use of the transition to retirement as a novel way of identifying genuine scarring. By definition, retired persons do not have to worry about their future employment chances. Hence, any difference in subjective well-being caused by unemployment experienced in the past is suggestive of a retrospective component of identity. Comparing unemployed to employed people before and after retirement allows us to analyze a potential scarring effect in isolation since the perceived future employment risk fades away: retirees do not worry about their future labor market chances anymore. If past unemployment causes retirees to be less satisfied with life than retirees who have worked until retirement, this may be ascribed to a retrospective component of identity utility. In this case, our model would predict

$$(4) \quad I(\textit{retirement age}, \textit{retired without former unemployment experience}) > I(\textit{retirement age}, \textit{retired with former unemployment experience}).$$

If identity utility depends only on contemporaneous characteristics, we would have

$$(5) \quad I(\textit{retirement age}, \textit{retired without former unemployment experience}) = I(\textit{retirement age}, \textit{retired with former unemployment experience}).$$

According to condition (5), we formulate our third hypothesis:

**Hypothesis 3:** Being unemployed before retirement does not reduce life satisfaction after retirement in the long run.

### 3. Data

Our analysis is based on 26 waves (1984-2009) of the German Socio Economic Panel (SOEP), a representative survey of the population in Germany (Wagner et al. 2007). Each year, about 20,000 individuals from 11,000 households are interviewed and provide information on their income, employment status, education, health etc. The great advantage of the SOEP lies in its panel structure, which allows us to follow the same individual over a long time period and thus gives us the opportunity to analyse the life circumstances and subjective well-being of the same person before and after retirement.

The SOEP provides self-reported information about the employment status including being retired. We define the year of retirement as the year in which a person reports “to be retired” for the first time and continues to give this answer without returning to any other status. We focus on those retirees who have accepted their retirement and can thus be expected to have changed their social category. Following Bonsang and Klein (2010), we identify those retirees by their reported intent not to return to employment in the future. We consider only transitions to retirement of people who are at least 50 years old. We treat people who were already retired but temporarily returned to employment after the age of 75 as continuously retired (that concerns 2% of retirees). Furthermore, we ignore persons who enter retirement for the first time after the age of 75 (7 retirees).

During the time period used for our study (1984-2009), people in Germany could receive retirement benefits when they reached the mandatory retirement age of 65 years and fulfilled some additional conditions (most importantly, a minimum number of years of contributions to the public pension system). Early retirement was possible at the age of 63 and - if the person was female or unemployed - even at the age of 60, provided certain conditions were fulfilled. In these cases, monthly pensions were reduced by 0.3% for every month a person retired before reaching the mandatory retirement age. Those who retired “because of unemployment” (*Altersrente wegen Arbeitslosigkeit*; § 237 SGB VI) were eligible for pensions at the age of 60 years if they had been unemployed for at least 52 weeks since the age of 58.5 and had been insured for at least 15 years in the public pensions system (*Mindestversicherungszeit*). As of 1992, they additionally need to have contributed for eight of the last ten years before retirement (*Pflichtbeitragszeit*). Furthermore, the early retirement age of 60 for the unemployed is gradually increased for persons born after 1941 and converges to that of employed persons (Lühning 2006).

Unemployed people who receive means-tested social benefits (*Arbeitslosenhilfe*, *Sozialhilfe*, *Arbeitslosengeld II*) have to retire as soon as they become eligible for public pensions (currently defined by §9 SGB II).<sup>2</sup> Thus, for many unemployed persons in our panel, the opportunity to retire early “because of unemployment” is not only an option, but also obligatory. This is also the case for those unemployed receiving unemployment benefits (*Arbeitslosengeld*, *Arbeitslosengeld I*) or social benefits (*Arbeitslosenhilfe*, *Arbeitslosengeld II*) “under eased conditions”<sup>3</sup>. People in our panel who obtain unemployment benefits (not means tested), except for those “under eased conditions”, are allowed to stay unemployed despite being eligible for pensions as long as they obtain unemployment benefits. We suspect that most of the long-term unemployed in our panel are affected by these legal provisions because 57% of them report to be retired for the first time when they are 61 or 62 years old.

Becoming unemployed shortly before retiring might feel very different from other unemployment experiences. If the time period between employment and retirement is very short, the unemployed could regard this experience as a kind of early retirement. In our analysis, we want to exclude this rather exceptional group of unemployed people and focus on those who were unemployed for a sufficiently long time before retiring. For this reason, we restrict our analysis to long-term unemployed people and exclude persons who reported being unemployed only in the last year before retirement. Furthermore, we do not include people who were out of the workforce due to other reasons or took part in workfare schemes directly before entering retirement.

Given these restrictions, we obtain an unbalanced panel of 3,000 retirees. Among these, 744 people were registered as unemployed in at least the last two years before retirement and are thus considered as having made the transition to retirement from long-term unemployment. We identify 2,256 people who were employed in the last year before retirement. As mentioned above, we focus on people who reported that they do not intend to return to employment. Thus, our panel shrinks to 2,804 people of whom 696 were long-term unemployed and 2,108 were employed before retirement. Among the latter group, 1,417 persons were employed fulltime, 438 were part-time employed, and 253 were self-employed directly before retirement.

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<sup>2</sup> This rule applies for the whole period of our dataset. Since 2008, however, unemployed welfare recipients do not have to retire before turning 63 (§12a SGB II).

<sup>3</sup> This is a special arrangement for all unemployed persons who had been at least 58 years old. It applied between 1986 and 2008. They were allowed to receive unemployment benefits or social benefits without attending standard duties such as accepting any job offer (Niesel and Brand 2010).

To measure subjective well-being, we make use of people’s self-assessment of how satisfied they are with their lives in general. In the SOEP, respondents are asked every year to answer the following question:

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

Subjective well-being is affected by many factors besides a person’s employment status. To account for these influences, we include a range of relevant control variables in our analysis, e.g. people’s satisfaction with health (measured by a subjective assessment on a scale from 0, completely dissatisfied, to 10, completely satisfied). Data about disposable household income is provided by a self-report of the household head. We calculate equivalence incomes for each person by dividing their real household income (at 2006 prices) by the weighted sum of household members using the modified OECD scale (1 for the first adult, 0.5 for every additional person who is at least 14 years old, 0.3 for every person younger than 14 years). We also control for the presence of children in the household, whether there are household members in need of care, as well as for age, sex, education<sup>4</sup>, and marital status. We also use data about job search activities of the unemployed (“Have you actively been looking for work within the last four weeks?”) to control for the stress associated with these activities before retirement. We use the information on home ownership as a proxy for household wealth. A person’s previous unemployment experience before retiring (or, in case, of the people retiring out of unemployment, before the last unemployment episode before retiring) is obtained from self-reported information while in the survey or from retrospective life course information collected when respondents had taken part in the survey for the first time.

## **4. Well-being and retirement**

### **4.1. Descriptive statistics**

Table 1 presents some descriptive statistics of the characteristics of people who entered retirement in some year ( $t = 0$ ) and had been either employed (for at least one year) or long-term unemployed (for at least two years) in the preceding year ( $t = -1$ ). The average life

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<sup>4</sup> A person’s level of education is classified in three categories using the ISCED 97-scale (“International Standard Classification of Education”): primary (ISCED-level 1 and 2), secondary (ISCED-level 3 and 4) and tertiary education (ISCED-level 5 and 6).

satisfaction of formerly employed persons does not change at all during the transition to retirement and stays at a value of around 7.2. While 37.6% report the same life satisfaction in both years, 31.2% report an increase in life satisfaction and 31.3% report a decline in life satisfaction. Compared to retirees from employment, people who were long-term unemployed before retirement are also less satisfied with their lives afterwards. However, their average well-being increases significantly from 6.1 to 6.5 upon retirement. 42.6% of those persons show improvements in life satisfaction, 30.1% remain at the former level and only 27.3% report a lower life satisfaction after retirement. The life satisfaction of 21.8% increases by more than one point. These people reported an average life satisfaction level of 4.3 before retirement, so that people with comparatively low initial satisfaction levels benefit the most.

*Table 1: Descriptive statistics for recently retired persons*

	Immediately before retirement:			
	employed		long-term unemployed	
	before retirement ( $t = -1$ )	after retirement ( $t = 0$ )	before retirement ( $t = -1$ )	after retirement ( $t = 0$ )
Number of persons	2,115	2,115	696	696
Means				
life satisfaction	7.17 (1.80)	7.16 (1.82)	6.12 (2.03)	6.47 (1.86)
net equivalence income (in 2006 Euros)	1,944.05 (2,226.02)	1,880.36 (1909.99)	1,208.36 (1298.77)	1,282.70 (619.73)
satisfaction with health	6.01 (2.35)	6.15 (2.32)	5.27 (2.36)	5.46 (2.24)
age	60.31 (3.76)	61.31 (3.76)	59.74 (0.11)	60.74 (0.11)
number of persons in the household	2.29 (0.95)	2.23 (0.92)	2.29 (1.00)	2.20 (0.86)
Shares				
female	39.14 %		43.39 %	
primary education	20.51 %		25.25 %	
secondary education	46.45 %		55.15 %	
tertiary education	33.05 %		19.59 %	
unemployment experience of at least one year except the last unemployment spell directly before retirement	6.55 %		37.93 %	
cohabiting	82.50 %	81.90 %	82.90 %	82.47 %
someone in need of care lives in the household	3.47 %	4.23 %	5.32 %	5.75 %
children younger than 14 years live in the household	3.18 %	2.85 %	3.59 %	2.87 %
home ownership	60.26 %	61.14 %	47.77 %	49.64 %

*Source: SOEP 1984-2009.*

*Note: standard deviation in parentheses. Time-invariant statistics are reported only once for both years.*

People retiring from unemployment have substantially smaller incomes than those retiring from employment. While it seems reasonable that this is the case at  $t = -1$  when the former group is employed while the latter is unemployed, an income gap also remains after entering retirement. When retiring, the former employed report, on average, a decrease in equivalence income of 3.3% in the first year and 2.3% in the second year after retirement. The loss of earnings is mainly compensated by different kinds of pensions (public pension, private pension schemes, company pensions etc.) and the incomes of other household members. The average income position of the long-term unemployed improves by 6.2%. The lower equivalence income after retirement of formerly long-term unemployed people reflects the lower qualification levels of this group as well as the larger incidence of unemployment episodes in their entire lifetime. While 37.9% of people who are long-term unemployed immediately before retiring also experienced unemployment of at least one year earlier in their life, this is the case for only 6.5% of people retiring from employment. Retirees from unemployment are younger when they retire, a larger share is female, they have to take care of a household member more often, and a smaller share of them owns their home compared to people who retire from employment. While the long-term unemployed are less satisfied with their health than the employed both before and after retirement, both groups report an increase in their health satisfaction between  $t = -1$  and  $t = 0$ .

Figure 1 shows the time path of average reported life satisfaction of long-term unemployed people and employed people around the transition to retirement. Employed people start at a relatively high level of life satisfaction (7.2) that remains fairly stable in retirement. This is supportive of our Hypothesis 1. Even though a lot changes in the life of the employed upon retirement, they conform to the prescriptions of their social category both before and after retirement with respect to their employment status (or the irrelevance of the same). Hence, their well-being remains unchanged.<sup>5</sup>

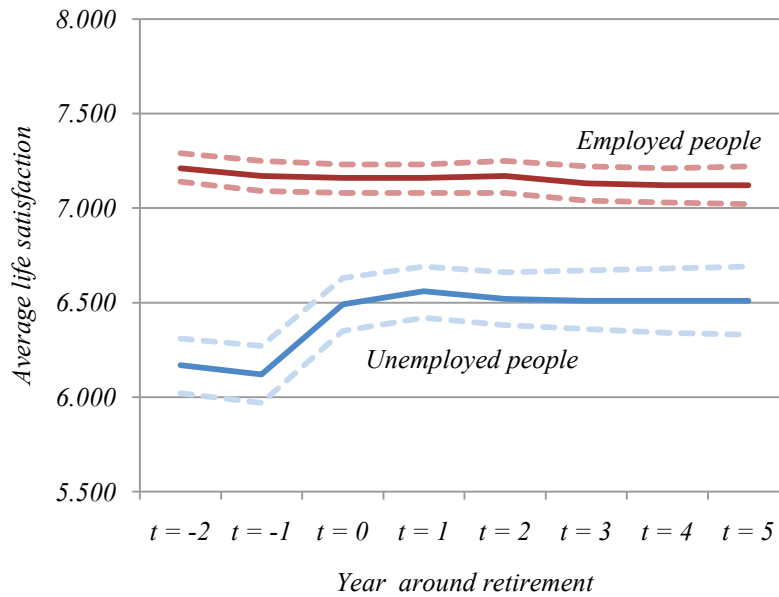
By contrast, average reported life satisfaction of the long-term unemployed rises sharply by approximately 0.4 points directly after retirement and stays relatively constant afterwards. This suggests that, even though little changes in the specific life circumstances of unemployed people upon retirement, the return to norm conformity might have a positive effect on subjective well-being. This is first evidence in support of Hypothesis 2.

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<sup>5</sup> Since the employed conform to their social category's ideals both before and after retirement and also their income changes only little when retiring, one might expect that the additional leisure time should raise their life satisfaction. However, Rätzel (2011) shows that working hours have an inverse U-shaped impact on life satisfaction such that they reduce life satisfaction at the margin, but not necessarily in total. Hence, the substantial gain in leisure when retiring does not have to cause an increase in life satisfaction.



Figure 1: Life satisfaction around the transition to retirement, unbalanced panel



Note: red line = average life satisfaction of the employed; blue line = average life satisfaction of the long-term unemployed; dashed lines = 95% confidence intervals, retirement takes place between  $t=-1$  and  $t=0$ .

Source: SOEP (1984-2009)

Our third hypothesis states that a person’s employment status before retirement is irrelevant for well-being once this person is retired. Figure 1, however, shows that the life satisfaction of the two groups differs substantially even after retirement. In  $t = 0$ , the life satisfaction gap is still about 0.7 points and maintains that size in the following years.

Of course, Figure 1 can only provide a first glance at what the descriptive statistics are able to tell us. Table 1 shows that the two groups of former employed and unemployed retirees differ substantially with respect to many personal characteristics such as income, education, or health. The following analysis takes such differences into account and determines the separate effect of retiring while controlling for other differences.

#### 4.2. Regression analysis

To separate the effect of retirement on life satisfaction from that of other changes in life circumstances that take place at the same time, we conduct a multiple regression analysis. We explain the change in life satisfaction ( $\Delta LS_i$ ) of individual  $i$  when entering retirement by her employment status directly before retirement (long-term unemployment  $LTUE_i$ ).  $LTUE_i$  takes on the value 1 if person  $i$  has been unemployed for at least one year directly before retirement, and 0 if the person was employed right before retiring. Since lifetime

unemployment experiences typically differ between people retiring from employment and unemployment, we also include a dummy variable  $UE\_EXP_i$  that indicates whether a person had a cumulative unemployment experience of at least one year in her entire lifetime (except for the last spell in case of those retiring out of unemployment). An interaction term between  $LTUE_i$  and  $UE\_EXP_i$  accounts for the possibility that the difference in the well-being effect of retiring between employed and unemployed people might vary depending on their past unemployment experiences. We add additional control variables that we suspect to be potential predictors of life satisfaction changes, such as health, income, relationship status, educational level, and three dummy variables for children and people in need of care living in the household as well as for home ownership as a proxy for wealth (all measured at  $t = 0$ ). We also include a dummy variable indicating job search before retirement (measured at  $t = -1$ ).

Some of these variables might affect the change in life satisfaction in the year of retirement through both their level and their change. For example, people with higher income may dispose of more opportunities to enjoy their newly gained leisure time, so the income level matters for the change in well-being. At the same time, the change in income when retiring may also affect how life satisfaction changes during the transition phase. To account for such effects, we include both the level ( $X$ ) and the change ( $\Delta X$ ) of certain controls in our regression.

$$(6) \quad \Delta LS_i = \alpha + \beta_1 LTUE_i + \beta_2 UE_{EXP_i} + \beta_3 (LTUE_i * UE_{EXP_i}) \\ + \theta' X_i + \varphi' (\Delta X_i) + u_i$$

with

$$(7) \quad \Delta LS_i = Life\ Satisfaction_{i,t=0} - Life\ Satisfaction_{i,t=-1}.$$

Table 2 presents the results of our OLS regression. We ran the regression for both sexes jointly (column 1) and for men and women separately (columns 2 and 3). The constants ( $\alpha$ ) in our regressions suggest that retiring from employment would not affect life satisfaction if all control variables were held constant. Prior unemployment experiences do not seem to matter for the change of well-being either. Men who were long-term unemployed immediately before retirement, however, benefit substantially from retiring. Long-term unemployed men without prior unemployment spells report, on average, a statistically significant ( $p < 0.01$ ) increase in their life satisfaction by 0.41 points upon retirement compared to observationally identical persons retiring from employment. For long-term unemployed men with some prior unemployment experience earlier in their life, the well-being gain from retiring (compared to

former employed people with no prior unemployment experience) appears to be 0.34, which is also highly statistically significant ( $p < 0.01$ ). The difference between long-term unemployed with and without former unemployment experiences is not statistically significant. Concerning retiring men, it does not matter whether a person has experienced unemployment before retirement (or the last unemployment spell before retirement, respectively) or not.

Table 2: Change in life satisfaction upon retirement

Dependent variable	(1)	(2)	(3)
	Both sexes	Men	Women
	Change in life satisfaction		
being long-term unemployed before retirement (LTUE)	0.245** (0.112)	0.409*** (0.145)	0.032 (0.180)
former unemployment experience ( $\geq 1$ year) (UE_EXP)	-0.026 (0.150)	0.037 (0.209)	-0.106 (0.222)
LTUE * UE_EXP	0.123 (0.198)	-0.108 (0.270)	0.436 (0.300)
satisfaction with health	-0.006 (0.016)	-0.004 (0.021)	-0.012 (0.027)
net equivalence income (in Euro at 2006 prices)	0.004 (0.019)	0.005 (0.033)	0.011 (0.024)
Single	-0.106 (0.091)	-0.159 (0.138)	-0.039 (0.127)
jobsearch before retirement	0.433* (0.243)	0.434 (0.334)	0.492 (0.365)
Changes in ...			
... satisfaction with health	0.200*** (0.018)	0.200*** (0.023)	0.204*** (0.029)
... net equivalence income	-0.000* (0.000)	-0.000* (0.000)	-0.000 (0.000)
... single	-0.404** (0.183)	-0.479* (0.256)	-0.288 (0.267)
Additional personal controls and year dummies	Yes	Yes	Yes
Constant $\alpha$	-0.015 (0.084)	-0.063 (0.106)	0.016 (0.144)
R <sup>2</sup>	0.08	0.09	0.10
Observations	2,630	1,566	1,064

Source: SOEP 1984-2009.

Note: Standard errors in parentheses, \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . The dependent variable is the change in life satisfaction between the last interview before retirement and the first interview after retirement. The constant represents a person who is a "0" in all dummy and change variables, reports average health satisfaction and income levels, is 65 years old, and has secondary schooling. The year dummies are estimated such that their average, i.e. the effect in the reference year, is zero. The coefficients for the additional controls are presented in the Appendix (Table A1).

Most of our control variables do not have a significant effect on the change in life satisfaction when retiring (see Appendix, Table A1). The only significant level effects suggest that people

who have children younger than 14 years living in the same household report a larger gain in life satisfaction when retiring. Among the change variables, an improvement in health increases life satisfaction, whereas becoming single reduces it (at least for men). If a household member becomes dependent on care, this reduces the life satisfaction of women, but not of men.

Table 3 summarizes the change in life satisfaction when retiring for former employed and long-term unemployed persons with and without prior unemployment experiences. Employed men and women do not experience a change in their life satisfaction when they retire (holding all controls constant). This provides supportive evidence for our first hypothesis. The former employed fulfill the norms of their social category both before and after retiring. Hence, their identity utility (and thus their life satisfaction) does not change. Unemployed men and women, in particular those with prior unemployment experiences, benefit substantially when they can leave unemployment and become retirees. This supports our second hypothesis. The unemployed deviate from the social norm while they belong to the social category “working age” and thus suffer a loss of life satisfaction. When they retire, they switch their social category, restore their norm conformity, and improve their life satisfaction.

*Table 3: Life satisfaction change when retiring, by former employment status*

	Both sexes	Men	Women
<i>Employed in <math>t = -1</math></i>			
... without former unemployment experience ( $\alpha$ )	-0.01 (0.08)	-0.07 (0.11)	0.02 (0.14)
... with former unemployment experience ( $\alpha+\beta_2$ )	-0.04 (0.16)	-0.00 (0.20)	-0.09 (0.25)
<i>Unemployed in <math>t = -1</math></i>			
... without former unemployment experience ( $\alpha+\beta_1$ )	0.23* (0.12)	0.35** (0.16)	0.05 (0.21)
... with former unemployment experience ( $\alpha+\beta_1+\beta_2+\beta_3$ )	0.33*** (0.11)	0.28** (0.14)	0.36** (0.18)
...difference ( $\beta_2+\beta_3$ )	0.10 (0.13)	-0.07 (0.17)	0.33 (0.20)

*Source: SOEP 1984-2009*

*Note: Standard errors in parentheses; \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$*

## **5. Does unemployment scar even after retirement?**

Past unemployment experiences lead to a long-lasting reduction in subjective well-being that persists even after a person has become employed again (Clark et al. 2001). If unemployment leaves a genuine “scar” in the form of permanently reduced subjective well-being, identity utility would depend on retrospective elements. In this case, we should observe that people retiring from unemployment continue to report lower well-being scores than people retiring

from employment. An alternative explanation holds that people's past unemployment spells have a negative impact on their perceived future labor market prospects and thus reduce current well-being (Knabe and Rätzel 2011). In this case, the reduction in current life satisfaction need not be explained by a negative retrospective assessment of one's life, so that we should not observe any differences in the well-being of former employed and unemployed people once they have retired.

Figure 1 indicates that the average life satisfaction of people retiring from long-term unemployment remains at a lower level than that of formerly employed people even years after retirement. Instead of being attributable to a genuine scar on one's employment history, this well-being gap may also be due to differences in other personal characteristics.

To detect the potential causes for the remaining gap in life satisfaction resulting from the last unemployment spell, we restrict our analysis to those who had been unemployed two years before retirement but had been employed before that and compare them to those who retire out of employment. Furthermore, we now focus on people who took part in the survey for at least three years before and two years after retirement. With this modification, we obtain observations of 1,704 persons who were employed in both of the last two years before retirement ("retirees from employment") and of 258 retirees from long-term unemployment who were employed in the third year before retirement. Apart from the different composition of the panel, our life satisfaction measure and control variables are generated from the SOEP in the same way as described in Section 4. Table 4 reports the main descriptive statistics of the modified panel.

Table 4 shows that a life satisfaction gap already existed before the last unemployment spell. In  $t = -3$  (the year before the last unemployment spell), average life satisfaction is at 6.31 for unemployed compared to 7.29 for the employed. The unemployed report an increase in their life satisfaction upon retirement, which reaches an average level of 6.61 in the two years after retirement. The life satisfaction of the employed only slightly declines on average (from 7.29 to 7.14). This suggests that the persistent well-being gap after retirement might not be attributable to the last unemployment spell, but to differences in pre-existing individual characteristics.

To distinguish the well-being effect of the last unemployment episode from that of other characteristics, we run regressions with the modified panel that explain the level of life satisfaction of person  $i$  at time  $t$  by her personal characteristics (education, family status, income etc.) and her current employment status. We estimate the well-being of retirees separately for those who retire from employment and for those who retire from

unemployment. We further distinguish the two groups according to whether the retirees had experienced unemployment for at least one year at any time in their working life (in case of persons retiring from employment) or at any time before the last unemployment spell (for those retiring from unemployment).

*Table 4: Descriptive statistics, modified panel*

	retirees from employment		retirees from long-term unemployment		
	$t = -2, -1$ : employed	$t = 0, 1$ : retired	$t = -3$ : employed	$t = -2, -1$ : unempl.	$t = 0, 1$ : retired
number of observations	1,704		258		
<u>Means</u>					
life satisfaction	7.20 (1.52)	7.14 (1.58)	6.31 (2.11)	6.25 (2.08)	6.61 (2.03)
net equivalence income (in Euro, at 2006 prices)	1,904.96 (1,904.88)	1,846.46 (1460.62)	1,428.61 (707.18)	1,354.72 (1176.12)	1,425.69 (1180.24)
Age	59.78 (3.69)	61.78 (3.69)	58.00 (2.69)	59.50 (2.69)	61.50 (2.69)
satisfaction with health	6.06 (1.99)	6.09 (2.03)	5.55 (2.25)	5.41 (2.06)	5.65 (1.85)
number of persons in the household	2.33 (0.99)	2.21 (0.90)	2.31 (0.82)	2.26 (0.80)	2.17 (0.72)
<u>Shares</u>					
female	38.73 %		40.31 %		
primary education	20.76 %		21.26 %		
secondary education	46.44 %		53.54 %		
tertiary education	32.80 %		25.20 %		
unemployment experience of at least one year (except for the last unemployment spell directly before retirement)	7.16 %		26.24 %		
cohabiting	82.54 %	81.84 %	83.33 %	84.50 %	84.50 %
someone in need of care lives in the household	3.52 %	4.16 %	4.26 %	4.46 %	5.63 %
children younger than 14 years live in the household	3.49 %	2.83 %	3.10 %	2.91 %	2.33 %
home ownership	59.47 %	60.81 %	53.73 %	53.70 %	55.66 %

*Source: SOEP 1984-2009*

*Note: Standard errors in parentheses. Time-invariant statistics are reported only once for all periods. The coefficients for the additional controls are presented in the Appendix (Table A2).*

This distinction facilitates the estimation of a potential scarring effect of the last unemployment experience. We compare retirees who differ in their employment status before retirement (long-term unemployed / employed) while controlling for their previous unemployment experiences. We also include the same controls that we already used in the two-year panel regressions (Table 2) and drop the observations of respondents younger than 50. We first run pooled OLS regressions, separately for men and women. Since the people in both groups might not only differ in their observable characteristics, we additionally run

regressions with individual fixed effects that take the effects of time-invariant personal characteristics into account. Table 5 presents the results of these regressions.

*Table 5: Life satisfaction regression (modified panel)*

	Pooled OLS		Fixed effects OLS	
	(1) men	(2) women	(3) men	(4) women
Retired from employment since...				
... one year or less, no unemployment experience	0.194*** (0.061)	-0.075 (0.077)	0.131** (0.054)	-0.172*** (0.067)
... at least one year, no unemployment experience	0.100** (0.049)	-0.014 (0.059)	0.109** (0.046)	-0.102* (0.055)
... one year or less, with unemployment experience	0.129 (0.185)	-0.435** (0.206)	0.340** (0.162)	0.017 (0.183)
... at least one year, with unemployment experience	-0.010 (0.083)	-0.202** (0.099)	0.329*** (0.096)	0.033 (0.113)
Retired from unemployment since...				
... one year or less, no unemployment experience	-0.003 (0.144)	-0.619*** (0.183)	0.291** (0.127)	-0.433*** (0.161)
... at least one year, no unemployment experience	-0.105 (0.071)	-0.284*** (0.087)	0.211*** (0.077)	-0.032 (0.098)
... one year or less, with unemployment experience	-0.319 (0.231)	-0.184 (0.278)	0.153 (0.202)	0.073 (0.246)
... at least one year, with unemployment experience	-0.259** (0.110)	-0.198 (0.122)	0.272** (0.116)	0.231 (0.146)
being unemployed (last spell immediately before retirement)	-0.605*** (0.085)	-0.495*** (0.109)	-0.288*** (0.080)	-0.248** (0.103)
being unemployed (other spells)	-0.788*** (0.080)	-0.400*** (0.106)	-0.636*** (0.073)	-0.156 (0.097)
net equivalence income (at 2006 prices)	0.090*** (0.008)	0.182*** (0.013)	0.038*** (0.011)	0.065*** (0.016)
Personal and year dummy controls	Yes	Yes	Yes	Yes
Constant	6.552*** (0.061)	6.494*** (0.076)	6.644*** (0.065)	6.566*** (0.080)
Observations	17,610	11,237	17,718	11,367
Number of persons	1,198	765	1,198	765
R-squared	0.324	0.284	0.149	0.121

*Source: SOEP 1984-2009.*

*Note: Standard errors in parentheses, \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . The dependent variable is life satisfaction. The constant represents a person who is has a "0" in all dummy variables, reports average health satisfaction and income levels, is between 60 and 65 years old, and has secondary schooling.*

Columns (1) and (2) of Table 5 report the results from the pooled OLS regression. In Table 6, we summarize the results relevant to our purpose by focusing on the difference between retirement from long-term unemployment and retirement from employment. In the cross-section, we would detect a scarring effect of unemployment if, for two retirees who otherwise have identical characteristics, the former unemployed person reports a persistently lower well-being than the employed person. Since persons who are long-term unemployed directly before retirement have typically been unemployed more often at some other point in their life as

well, we compare employed and unemployed people who either have some prior unemployment experience or who have never been unemployed in their life.

*Table 6: Scarring effects of the last unemployment spell*

		Men		Women	
Life satisfaction difference between retirees from long-term unemployment and employment after...		Pooled OLS	FE OLS	Pooled OLS	FE OLS
... without former unemployment experience	0–1 year	-0.20 (0.14)	0.16 (0.13)	-0.54*** (0.19)	-0.26 (0.16)
	more than 1 year	-0.21*** (0.06)	0.10 (0.07)	-0.27*** (0.07)	0.07 (0.09)
... with former unemployment experience	0–1 year	-0.45 (0.29)	-0.19 (0.25)	0.25 (0.34)	0.06 (0.30)
	more than 1 year	-0.25* (0.12)	-0.06 (0.14)	0.00 (0.14)	0.20 (0.17)

*Source: SOEP 1984-2009*

*Note: standard errors in parentheses; \*\*\* $p < 0.01$ ; \*\* $p < 0.05$ ; \* $p < 0.1$*

We find cross-sectional differences in the life satisfaction between former employed and unemployed retirees even after retirement in the pooled OLS regression. After one year of retirement, the life satisfaction difference for women without any previous unemployment experience is, on average, larger than 0.5 points and significant at the one percent level. For men, the difference is statistically insignificant. For people with former unemployment experience, this difference is only slightly statistically significant for men after more than one year of retirement. Women's life satisfaction does not differ between those who retire from employment or unemployment if they experienced unemployment earlier in their lives. Apart from the last result, the results of the pooled OLS regression suggest that an unemployment episode immediately before retirement might have a scarring effect even after the person has retired.

One has to be careful when drawing conclusions about the determinants of subjective well-being from cross-section regressions because a large share of the variation in life satisfaction between individuals is caused by time-invariant personal characteristics like personality traits or dispositions (Lykken and Tellegen 1996). In this case, a major drawback of cross-section regressions is that they cannot control for reverse causality: a person with lower baseline happiness due to personality traits has lower employment prospects and is thus more likely to retire from unemployment. To overcome this problem, we include individual



fixed effects that capture time-invariant individual differences in life satisfaction (i.e. the baseline happiness). The estimated coefficients thus show how a change in the explanatory variables affect the life satisfaction of the same person over time, instead of making comparisons between different persons as in the cross-section regression.

In Table 5, columns (3) and (4) report the results from our fixed effects OLS regression. They show that both former employed and unemployed women report life satisfaction levels after retirement that correspond to the levels they reported while they were still employed. For men, regardless of whether they retired from employment or unemployment, life satisfaction seems to be significantly higher compared to times in which they were employed.

In Table 6, we also report life satisfaction differences between retirees from long-term unemployment and employment for our fixed-effects regressions. We do not find any significant differences anymore. Our fixed-effect regressions thus support our third hypothesis that there is no scarring effect resulting from the last unemployment spell: the unemployment episode immediately before retirement does not cause a permanently lower life satisfaction after retirement, compared to a person's individual pre-unemployment and pre-retirement satisfaction level. This is true for both men and women. Hence, we do not find evidence that identity utility depends on a retrospective assessment of how far one has complied with one's former social category, at least with respect to one's employment status immediately before retiring. This does not preclude the possibility, however, that the larger extent of lifetime unemployment among those who retired out of unemployment had already reduced these people's life satisfaction earlier in their lives, and that this reduction appears to reflect a lower baseline happiness. Nevertheless, we do not find evidence that an unemployment spell right before retirement aggravates any potentially pre-existing scars.

## **6. Discussion**

According to standard economic reasoning, people suffer from unemployment because they lose income, but they are also compensated by a gain in leisure time. This logic has been challenged by research on the life satisfaction of unemployed persons that finds overwhelming evidence that unemployment would make people unhappy even if they were fully compensated for the income loss. Identity theory provides an explanation for this apparent contradiction. A person's utility does not only depend on individualistic consumption of material goods and leisure but is also influenced by how well a person conforms to the norms and ideals of the social category she belongs to. Applying identity theory to the relationship between unemployment and life satisfaction implies that unemployed people are not only dissatisfied with their life because they have lower incomes,

but also because they deviate from the norms of their social category under which they are expected to work. This explains the inability of the long-term unemployed to adapt to unemployment: they do not give up regarding employment as part of the social norm they strive to fulfill. Since they continuously deviate from this norm, the long-term unemployed get low recognition from others, often become negatively stereotyped, and experience social isolation and stigmatization which can also be interpreted as sanctions to fulfill the norm to work.

In this paper, we have examined the transition to retirement of employed and unemployed people to put this reasoning to the test. Upon retirement, people change their social category and face a set of social norms for which working does not play a role. Neither do others expect them to work nor do they any longer aspire to be employed. Hence, an implication of identity theory is that unemployed people return to norm conformity when they are allowed to retire and should thus experience an increase in their life satisfaction. Our results support this hypothesis. In contrast to the employed, the life satisfaction of the long-term unemployed strongly improves upon retirement: the gap between aspirations and achievements diminishes.

Our results also suggest that the experience of unemployment directly before retirement does not cause lower subjective well-being once one has retired. This casts doubts on the existence of a genuine “scarring” effect of unemployment. However, it is compatible with the interpretation that unemployment has long-lasting effects on well-being because it is associated with permanently worsened future labor market prospects while participating in the labor market. Since such prospects become irrelevant upon retirement, people are able to, figuratively, wipe off the scars from past unemployment.

Summarizing our results, we identify the inability of unemployed persons to fulfill the social norm to work as solely responsible for the long-lasting well-being loss from unemployment. Other explanations, such as missing time structure, activation or social contacts do not seem to matter much in the long run because the life satisfaction of long-term unemployed persons fully recovers upon retirement even though none of the aforementioned factors change.

Finally, these results also shed light on the reason for the perplexing finding that people are better able to adapt to severe life events, such as widowhood, than to unemployment (e.g. Diener et al. 2006). While these other life events are irreversible, the unemployed are potentially able to return to the workforce and to fulfill the social norms of their social category. They do not adapt their aspiration to work until they eventually change their social

category when retiring. Rather ironically, it is hope that keeps them unhappy while unemployed, and it is only when hope fades that they will recover.

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## Appendix

Table A1: Change in life satisfaction upon retirement

Dependent variable	(1)	(2)	(3)
	Both sexes	Men	Women
	Change in life satisfaction		
being long-term unemployed before retirement (LTUE)	0.245** (0.112)	0.409*** (0.145)	0.032 (0.180)
former unemployment experience ( $\geq 1$ year) (UE_EXP)	-0.026 (0.150)	0.037 (0.209)	-0.106 (0.222)
LTUE * UE_EXP	0.123 (0.198)	-0.108 (0.270)	0.436 (0.300)
satisfaction with health	-0.006 (0.016)	-0.004 (0.021)	-0.012 (0.027)
net equivalence income (in Euro at 2006 prices)	0.004 (0.019)	0.005 (0.033)	0.011 (0.024)
single	-0.106 (0.091)	-0.159 (0.138)	-0.039 (0.127)
primary educational level	0.040 (0.085)	0.052 (0.117)	0.068 (0.127)
tertiary educational level	0.067 (0.076)	0.091 (0.097)	0.004 (0.128)
jobsearch before retirement	0.433* (0.243)	0.434 (0.334)	0.492 (0.365)
children below 14 years living in the household	0.484** (0.202)	0.421* (0.241)	0.650* (0.384)
people in need of care living in the household	-0.077 (0.174)	0.099 (0.228)	-0.297 (0.275)
age	-0.002 (0.010)	-0.011 (0.012)	0.015 (0.017)
home ownership	-0.052 (0.068)	-0.008 (0.090)	-0.109 (0.106)
Changes in ...			
... satisfaction with health	0.200*** (0.018)	0.200*** (0.023)	0.204*** (0.029)
... net equivalence income	-0.000* (0.000)	-0.000* (0.000)	-0.000 (0.000)
... single	-0.404** (0.183)	-0.479* (0.256)	-0.288 (0.267)
... children below 14 years living in the household	-0.052 (0.458)	0.000 (0.674)	-0.134 (0.657)
... people in need of care living in the household	-0.425* (0.234)	-0.043 (0.306)	-1.023*** (0.371)
... home ownership	0.212 (0.227)	0.449 (0.311)	-0.090 (0.340)
Year dummy controls	Yes	Yes	Yes
Constant $\alpha$	-0.015 (0.084)	-0.063 (0.106)	0.016 (0.144)
R <sup>2</sup>	0.08	0.09	0.10
Observations	2,630	1,566	1,064

Source: SOEP 1984-2009.

Note: Standard errors in parentheses, \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . The dependent variable is the change in life satisfaction between the last interview before retirement and the first interview after retirement. The constant represents a person who is has a "0" in all dummy and change variables, reports average health satisfaction and income levels, is 65 years old, and has secondary schooling. The year dummies are estimated such that their average, i.e. the effect in the reference year, is zero.

Table A2: Life satisfaction regression (modified panel)

	Pooled OLS		Fixed effects OLS	
	(1) men	(2) women	(3) men	(4) women
Retired from employment since...				
... one year or less, no unemployment experience	0.194*** (0.061)	-0.075 (0.077)	0.131** (0.054)	-0.172*** (0.067)
... at least one year, no unemployment experience	0.100** (0.049)	-0.014 (0.059)	0.109** (0.046)	-0.102* (0.055)
... one year or less, with unemployment experience	0.129 (0.185)	-0.435** (0.206)	0.340** (0.162)	0.017 (0.183)
... at least one year, with unemployment experience	-0.010 (0.083)	-0.202** (0.099)	0.329*** (0.096)	0.033 (0.113)
Retired from unemployment since...				
... one year or less, no unemployment experience	-0.003 (0.144)	-0.619*** (0.183)	0.291** (0.127)	-0.433*** (0.161)
... at least one year, no unemployment experience	-0.105 (0.071)	-0.284*** (0.087)	0.211*** (0.077)	-0.032 (0.098)
... one year or less, with unemployment experience	-0.319 (0.231)	-0.184 (0.278)	0.153 (0.202)	0.073 (0.246)
... at least one year, with unemployment experience	-0.259** (0.110)	-0.198 (0.122)	0.272** (0.116)	0.231 (0.146)
being unemployed (last spell immediately before retirement)	-0.605*** (0.085)	-0.495*** (0.109)	-0.288*** (0.080)	-0.248** (0.103)
being unemployed (other spells)	-0.788*** (0.080)	-0.400*** (0.106)	-0.636*** (0.073)	-0.156 (0.097)
being out of the labor force	-0.154*** (0.047)	0.042 (0.053)	-0.149*** (0.046)	0.098* (0.051)
other employment states	-1.379*** (0.359)	-0.822* (0.466)	-0.869*** (0.312)	-0.510 (0.406)
taking part in a workfare scheme	-0.800* (0.415)	-0.802 (0.602)	-0.521 (0.359)	-0.266 (0.522)
net equivalence income (at 2006 prices)	0.090*** (0.008)	0.182*** (0.013)	0.038*** (0.011)	0.065*** (0.016)
people in need of care living in the household	-0.545*** (0.051)	-0.612*** (0.069)	-0.554*** (0.056)	-0.545*** (0.072)
children below 14 years living in the household	0.040 (0.051)	0.138 (0.090)	0.094* (0.057)	0.285*** (0.103)
single	-0.244*** (0.035)	-0.165*** (0.032)	-0.273*** (0.045)	-0.253*** (0.051)
primary educational level	-0.026 (0.031)	0.143*** (0.033)		
tertiary educational level	-0.068*** (0.025)	0.010 (0.036)		
satisfaction with health	0.406*** (0.005)	0.381*** (0.007)	0.269*** (0.006)	0.259*** (0.008)
home ownership	0.235*** (0.023)	0.171*** (0.028)	0.114** (0.052)	0.179*** (0.063)
age between 50 and 55	-0.421*** (0.040)	-0.258*** (0.053)	-0.281*** (0.050)	-0.213*** (0.067)
age between 55 and 60	-0.207*** (0.033)	-0.129*** (0.044)	-0.143*** (0.034)	-0.139*** (0.044)
age 65 or older	0.062** (0.032)	0.099** (0.041)	0.027 (0.036)	0.093** (0.047)
Year dummy controls	Yes	Yes	Yes	Yes
Constant	6.552*** (0.061)	6.494*** (0.076)	6.644*** (0.065)	6.566*** (0.080)
Observations	17,610	11,237	17,718	11,367
Number of persons	1,198	765	1,198	765
R-squared	0.324	0.284	0.149	0.121

Source: SOEP 1984-2009.

Note: Standard errors in parentheses, \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . The dependent variable is life satisfaction. The constant represents a person who is has a "0" in all dummy variables, reports average health satisfaction and income levels, is between 60 and 65 years old, and has secondary schooling.