DISCUSSION PAPER SERIES

IZA DP No. 7654

The Emotional Timeline of Unemployment: Anticipation, Reaction, and Adaptation

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September 2013

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zur Zukunft der Arbeit
Institute for the Study
of Labor

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Discussion Paper No. 7654
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IZA Discussion Paper No. 7654
September 2013

ABSTRACT

The Emotional Timeline of Unemployment: Anticipation, Reaction, and Adaptation

Unemployment continues to be one of the major challenges in industrialized societies. Aside from its economic dimensions and societal repercussions, questions concerning the individual experience of unemployment have recently attracted increasing attention. Although many studies have documented the detrimental effects of unemployment for subjective well-being, they overwhelmingly focus on life satisfaction as the cognitive dimension of well-being. Little is known about the emotional antecedents and consequences of unemployment. We thus investigate the impact of unemployment on emotional well-being by analyzing the frequency with which specific emotions are experienced in anticipation of and reaction to job loss. Using longitudinal data of the German Socio-Economic Panel (SOEP) and fixed effects regressions, we find that becoming unemployed leads to more frequent experiences of unpleasant emotions only in the short run and that adaptation occurs more rapidly as compared to life satisfaction. Contrary to existing studies, we find decreases in emotional well-being but not in life satisfaction in anticipation of unemployment.

JEL Classification: A14, D63, J17

Keywords: unemployment, emotions, well-being, life satisfaction, SOEP

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The affective timeline of unemployment: Anticipation, reaction, and adaptation

Unemployment is one of the most severe and enduring problems facing economies worldwide. Historically, massive rises in unemployment have often exacerbated social frictions in industrialized countries, as seen in record unemployment in the US and Germany during the Great Depression and in the UK during the early 1980s. The recent spikes in unemployment in many Western countries are seen as a consequence of the post-2007 financial crisis, with jobless rates in the US peaking at 9.9% in May 2010 and in the Eurozone reaching 12% in April 2013, with some 19 million unemployed people across Europe. In Greece and Spain, unemployment rates even exceeded 26% in early 2013 (Wanberg 2012; BBC 2013).

It therefore comes as no surprise that unemployment has been the subject of intensive investigation in various scientific disciplines and from numerous perspectives. This research can be grouped into two broad categories. First, countless studies have investigated the reasons for and determinants of unemployment, for instance, skills, education, job market conditions, taxes, wages, labor supply characteristics, and unemployment benefits. Second, a large quantity of research has examined the manifold consequences of unemployment for individuals and social relations, the economy, and the political and institutional landscape (see, e.g., Verhaar and Jansma 1992). More recently, there has been a surge in research on the individual consequences of unemployment in the social and behavioral sciences, in particular in terms of the subjective experience of unemployment, which have been summarized by Binyamin Appelbaum in the *New York Times* as "both devastating and enduring" (Appelbaum 2012).

This research stands in the broader tradition of classical sociological studies dealing with how social structural and economic conditions impact individuals' subjective experiences. Seminal contributions in this tradition were made by Durkheim (1951), who

famously examined the consequences of anomie on suicide; Jahoda and colleagues (1971), whose pioneering *Marienthal* study provided elaborate documentation of the personal experience of unemployment in a small town, and Merton, whose groundbreaking work (1938) offered key insights into the experience of social structure as feelings of anomie. Contemporary research on the individual consequences of unemployment has focused primarily on its effects on mental and physical health, suicide, and well-being, whereby the latter research strand is among the most ambitious in terms of analyzing the subjective experiential effects of unemployment (e.g., McKee-Ryan et al. 2005; Lucas et al. 2004; Nordenmark and Strandh 1999; Oesch and Lipps 2012; Wanberg 2012; Milner, Page, and LaMontagne 2013; Chen, Marks, and Bersani 1994).

Although well-being – often also termed "happiness" – is usually defined as comprising cognitive (life-satisfaction) as well as affective components (emotional well-being) (Kahneman, Diener, and Schwartz 1999; Davern, Cummins, and Stokes 2007), the large majority of research on the impact of job loss on well-being has focused either on life satisfaction as the cognitive component of well-being or on well-being as an inclusive concept comprising both cognitive and affective components. This is all the more surprising since studies have for some time suggested the specific emotional consequences of unemployment, which have rather been related to overall mental health than to current concepts of well-being (e.g., Kessler, Turner, and House 1989).

The importance of disentangling the cognitive and affective components of well-being is shown by recent studies indicating that the two dimensions follow different trajectories in their contingency on life events and individual life course changes and also have differential implications for social behavior (e.g., Kahneman and Deaton 2010). There is thus a substantial need to further analyze the consequences of unemployment for the emotional components of well-being and their role in coping with unemployment.

Moreover, well-being, in terms of both its cognitive and its affective components, has been investigated almost exclusively as a *consequence* of unemployment. Little is known, on the other hand, about self-selection and its precursor effects on the way into unemployment, that is, before job loss actually occurs. Looking at cross-sectional data, it seems plausible that lower levels of well-being in the unemployed can also be explained by selection effects, in that persons with low well-being are more likely to lose their jobs than individuals with high well-being (see Wanberg 2012). Although meta-analyses of longitudinal data suggest that this is most likely not the case (Paul and Moser 2009), the question is far from settled (Diette et al. 2012; Goldsmith and Diette 2012).

Therefore, to further investigate these two pressing questions, the present study seeks to investigate individuals' emotional reactions towards the experience of unemployment, both on their trajectory *into* unemployment, that is, before a job loss actually occurs, as well as *during* unemployment, that is, from the time of job loss onwards. This reasoning is partly motivated by the open question of reverse causality in research on unemployment and well-being (e.g., Paul and Moser 2009), but also draws on findings from studies investigating the impact of life events on changes in life satisfaction. These studies have reliably identified anticipation as well as adaptation effects with regard to specific events, and show that life satisfaction changes even years before and after a specific event occurred. We therefore suspect that emotional anticipation and adaptation effects may likewise occur in the face of unemployment.

Moreover, we are not only interested in emotional well-being as a broad and general indicator of an individuals' overall emotional experiences, but rather focus on specific discrete emotions, in particular anger, anxiety, happiness, and sadness. Looking at discrete emotions rather than emotional well-being allows predictions to be made about the likely consequences for social action and behavior, because discrete emotions usually go hand in

hand with specific action tendencies, for example, risk behavior or social withdrawal (e.g., Zhu and Thagard 2002; Baumeister et al. 2007).

Using longitudinal data from the German Socio-Economic Panel (SOEP), a representative household survey of the entire population living in Germany (Wagner, Frick, and Schupp 2007), we investigate the frequencies with which certain emotions are experienced before and during continued unemployment. We first discuss eminent theories and findings on the subjective experience of unemployment. Following the literature, this review focuses on well-being and life satisfaction and two key theoretical frameworks, Set-Point Theory and Social Production Function Theory, both of which we subsequently discuss and locate in the broader framework of the sociology of emotion. Based on these frameworks, we outline the hypotheses that guide our empirical analysis. Second, we describe the set of data on which our study is based and specify two fixed effects models to analyze the data. Third, we present the results of our statistical models. Finally, we summarize and discuss our findings, highlight potential shortcomings of our approach, and outline perspectives for future research.

The Subjective Experience of Unemployment

Research on the individual experience of job loss can be dated back at least to the 1930s, when Jahoda, Lazarsfeld, and Zeisel (1971) sought to bring life to the bare figures of unemployment statistics and to investigate what unemployment actually means for those involuntarily excluded from the workforce. In their famous *Marienthal* study, Jahoda and colleagues (1971) documented not only the rapidly worsening economic situation that results from unemployment but also notable changes in the daily life routines of the unemployed. They were among the first to establish links between unemployment and overall mental and physical health, and showed that the unemployed became passive, apathetic, fatigued, and

generally lacking in motivation almost immediately after losing their job. As a consequence, they were hardly able to continue their previous everyday life.

Based on these initial findings, Jahoda developed what came to be known as the Latent Deprivation Model (Jahoda 1981, 1982) of unemployment. This model emphasized the multiplicity of resources and benefits that are usually linked to employment and from whose lack the unemployed tend to suffer. Individuals in the workforce not only profit from income, but also from important non-material – latent – benefits such as social status, prestige, structured time use, a sense of collective purpose, social contact, and activity. The Latent Deprivation Model motivated countless studies that relied on distinguishing between the pecuniary from the non-pecuniary costs of unemployment (e.g., Young 2012; Newman 1999; Winkelmann and Winkelmann 1998).

Although the literature on the individual experience of unemployment is vast and has been reviewed in several previous studies (e.g., Catalano 1991; DeFrank and Ivancevich 1986; Dooley, Fielding, and Levi 1996), one of the most recent summaries (Wanberg 2012) groups the repercussions of unemployment indentified in the literature into the categories of psychological health, suicide, and physical health (Wanberg 2012). Here, we will discuss findings related to psychological health only, which in the extant research refers primarily to an individual's emotional and mental well-being. There is broad consensus in the literature that job loss has pronounced negative consequences for the overall well-being of unemployed individuals (McKee-Ryan et al. 2005; Wanberg 2012).

Although earlier studies have explicitly accounted for the emotional consequences of unemployment (Kessler, Turner, and House 1989), more recent research has focused on the impact of unemployment on subjective well-being (SWB), primarily understood as an inclusive concept referring "to an individual's appraisal of his or her life situation overall

– the totality of pleasures and pains, or quality of life" (Ormel et al. 1999, 61). Compared to other major life events, such as divorce, widowhood, marriage, or birth of a child, losing one's job has been considered to have the most prolonged consequences for SWB (Clark et al. 2008; Fujita and Diener 2005; Lucas 2007). Studies investigating changes in SWB as a consequence of unemployment have not only demonstrated significant drops in life satisfaction upon unemployment (Clark and Oswald 1994; Gerlach and Stephan 1996; Gerlach and Stephan 2001; Lucas et al. 2004; Winkelmann 2008; Winkelmann and Winkelmann 1995; Winkelmann and Winkelmann 1998), but also suggest that the unemployed usually do not return to the levels of well-being enjoyed before the job loss occurred, even after they become reemployed (Lucas et al. 2004; Knabe and Rätzel 2011). Moreover, the unemployed generally also show higher levels of psychological distress than individuals who are in the labor force (Clark and Oswald 1994; Paul and Moser 2009 and the most recent study by Krueger and Mueller 2011).

This is in line with studies showing that well-being decreases in response to job loss not only in the short- but also in the long-run, indicating that the unemployed do not adapt to levels of well-being reported previous to unemployment (Angeles 2010; Clark, Georgellis, and Sanfey 2001; Clark et al. 2008; Knabe and Rätzel 2011; Lucas et al. 2004; Oesch and Lipps 2012). These lasting repercussions of unemployment have been referred to as "scarring effects" since they leave notable marks on an individual's SWB, independently of his or her current labor market status (Clark, Georgellis, and Sanfey 2001). Knabe and Rätzel (2011) suggest that the causal mechanisms bringing about this "scarring effect" are negative expectations regarding the future employment status. People use information on the frequency of past unemployment to infer the likelihood of future unemployment, which, if sufficiently high, induces fear of future unemployment. They thus suggest that unemployment leaves well-being "scars" because it "scares".

Stability and Change in Well-Being

Most of the research on changes in well-being in relation to unemployment draws on established theoretical frameworks that seek to explain the dynamics in well-being more generally.

Adaptation theory

Adaptation theories of well-being (Brickman and Campbell 1971) argue that individuals adapt comparably quickly to changing life circumstances and sooner or later return to an assumed "baseline" of well-being. Hence, individuals are assumed to have relatively stable levels of well-being over the long run. Empirical findings in support of this assumption have shown, for example, that lottery winners do not report higher levels of life satisfaction compared to average people and that victims of accidents are not substantially more dissatisfied with life compared to others (see Brickman, Coates, and Janoff-Bulman 1978). One presumed consequence of this perspective is that individuals – as part of their general adaptation to change – are constantly striving for new positive experiences and are caught in a "hedonic treadmill" (Brickman and Campbell 1971).

Adaptation theories generally assume that individual "set-points" regulate the long-term stability of subjective well-being. Various mechanisms have been proposed to explain how individual set-points are determined. For example, Costa and McCrae (1980) argue that individual differences in personality bring about corresponding differences in individuals' set-points. Headey and Wearing (1989) showed that stable personality traits predispose individuals to experience stable levels of favorable and unfavorable life events and, correspondingly, stable levels of well-being. However, they also suggest that life events can influence well-being over and above the effects of personality, in particular in cases of life events that are highly unlikely and exceptional (Heady and Wearing 1989; Headey, Muffels,

and Wagner 2010). Furthermore, individual set-points have been argued to be tied to genetic variation (Lykken and Tellegen 1996).

More recently, numerous studies have failed to show people's adaption to baseline levels of well-being and called the concept of set-points into question (Headey 2010). For instance, investigating marital transitions on life satisfaction, Lucas and colleagues (2003) found that, although individuals show a general tendency to adapt towards baseline levels, a substantial number of cases did not adapt at all or even showed trajectories in the opposite direction of that predicted by Set-Point Theory. Likewise, studies on unemployment have shown long-term decreases in well-being and no adaptation to previous levels, suggesting instead that unemployment alters individuals' set-points (Angeles 2010; Clark, Georgellis, and Sanfey 2001; Clark et al. 2008). Still other studies have shown that over longer periods of time (20 years), a large number of individuals (14-30%) showed marked and apparently permanent changes in life satisfaction and, hence, in their individual set-points of well-being (Headey 2010).

These and other findings have led to substantial revisions of adaptation and set-point models. Diener, Lucas, and Scollon (2006), for example, have suggested that to properly account for these inconclusive results, research on changes and stability in well-being should consider that, most likely, set-points are not hedonically neutral; that people have different set-points depending partly on temperament; that they have multiple set-points for the cognitive and affective components of well-being that can move in different directions; that set-points can change under certain conditions; and, finally, that individuals differ in their adaptation to events. In sum, therefore, one lesson learned from work based on Set-Point Theory is that paying closer attention to the different components of well-being may enhance our understanding of how individuals react to certain life events and help to explain why they react differently, over and above issues related to personality and genetic predisposition.

A meta-analysis of adaption to major life events by Luhmann et al. (2012) showed that the initial reaction to unemployment was negative on average for both affective and cognitive well-being. The findings therefore failed to support the hypothesis that the rate of adaptation is higher for affective than for cognitive well-being.

Social production function theory

Social Production Function (SPF) theories explain variation and change in well-being as a consequence of major life events primarily through shifts in goal attainment and pursuit (Ormel et al. 1997; Ormel et al. 1999; Lindenberg 1996). SPF models suggest that well-being is determined by the attainment of five instrumental and more or less universal goals: stimulation, comfort, status, behavioral confirmation, and affection (Ormel et al. 1999). Depending on individuals' resources, certain activities can be undertaken to satisfy these instrumental goals and, hence, to promote well-being. Therefore, differences in general well-being result partly from differences in the resources individuals have at their disposal. SPF argues that exogenous shocks (i.e., major life events) affect individuals' composition and amount of resources. For example, life events such as divorce, widowhood, or unemployment tend to produce declines in the availability of important resources necessary to carry out certain activities required to satisfy instrumental goals. Consequently, satisfaction of the instrumental goals is lower than before the event occurred and thus, overall well-being will most likely decrease.

SPF theories stand in the tradition of the rational and utility-maximizing actor, and individuals are thus assumed to try to substitute unavailable resources. However, SPF holds that substitution is limited and that all goals have to be met at some minimum level. For example, no possible level of affection can increase well-being if basic needs, such as housing or food, are not met. Changes in well-being as a consequence of major life events will thus be long-lasting if – and only if – individuals are unable to find suitable substitutes

for unavailable resources and cannot attain the respective goals on at least the pre-event level of attainment (Ormel et al. 1997; Ormel et al. 1999).

In view of the links between well-being and job loss, being in the workforce can be seen as a "multifunctional" resource. Such resources are critical to the SPF framework since they are presumed to simultaneously satisfy several goals and to produce immediate well-being while at the same time also serving as an investment into future well-being (Ormel et al. 1999). However, if individuals lose multifunctional resources as a consequence of unemployment, several goals are barred from attainment and the respective resources can hardly be substituted. This explains long-term changes in well-being as a consequence of unemployment. However, some studies indicate that shifting patterns of time use, which may represent substitute goal attainment, counter the negative effects of unemployment on emotional well-being (Knabe et al. 2010; but see Krueger and Mueller 2012, for contrasting evidence).

In sum, and in contrast to set-point theories, SPF accounts rely more thoroughly on exogenous, social factors in explaining changes in well-being over time. This includes established indicators such as income, education, social networks, household contexts, and other socio-demographic variables above and beyond personality factors that tend to be the main explanatory variables in adaptation theories.

Poor well-being: Cause or consequence of unemployment?

Some research has not only documented changes in well-being as a *consequence* of unemployment, but also produced initial evidence that it also changes in *anticipation* of job loss (Clark et al. 2008). Analyses by Clark and colleagues (2008) suggest that men's well-being decreases one year and women's well-being two years *prior* to unemployment, concluding that future unemployment significantly reduces current well-being. Similarly, in a longitudinal study using panel data from Germany and Switzerland, Oesch and Lipps (2012)

show that the anticipation of job loss already dampens life satisfaction one year prior to actual unemployment, but find this relatively unsurprising “as plant closure and individual lay-offs are usually announced several months ahead“ (Oesch and Lipps 2012, 5-6).

These anticipation effects of well-being in the face of unemployment relate to debates on the causal relationship between job loss and well-being. Since much of earlier research relied on cross-sectional data to investigate such links, the associations identified could well have been due to selection effects and reversed causality. From this point of view, poor well-being and psychological distress could well be factors increasing the likelihood of being laid off rather than consequences of job loss (Wanberg 2012; Paul and Moser 2009; Diette et al. 2012; Goldsmith and Diette 2012). Paul and Moser (2009, 268) assume that these could be the result of mental health problems that reduce employee performance or increase absenteeism, which might in turn increase the probability of dismissal (see Mastekaasa 1996). Also, poor well-being might affect reemployment success by impairing job candidates’ impression management skills and reducing the effort invested in job seeking (Paul and Moser 2009).

Recent meta-analyses have looked into the possibility of reverse causation using longitudinal and quasi-experimental data from studies on factory closures. Although these analyses find some evidence of reverse causation, the overall results clearly show decreases in well-being when entering unemployment and increases in well-being upon becoming reemployed, thus supporting the view that unemployment is a cause of poor well-being (Paul and Moser 2009; McKee-Ryan et al. 2005; Wanberg 2012). In an effort to shed further light on the question of causality, Diette and colleagues (2012) used a subsample of individuals that have been identified as resilient towards psychological distress and showed that these individuals only suffer from long-term and not from short-term unemployment. This also

suggests that there is a causal effect of losing one's job, but only if unemployment is prolonged.

The cognitive and affective components of well-being

In psychological unemployment research, the majority of studies have used the "General Health Questionnaire" (Goldberg and Hillier 1979) to measure well-being and psychological distress (Paul and Moser 2009). This scale was developed "as a screening tool to detect those likely to have or be at risk of developing psychiatric disorders" and is "a measure of the common mental health problems/domains of depression, anxiety, somatic symptoms and social withdrawal" (Jackson 2007, 79). Since the advent of subjective well-being research (Diener 1984), studies on the effects of unemployment have increasingly made use of well-being scales, which were not developed primarily as medical diagnostic tools or as tools aimed at distinguishing between pathological and non-pathological cases but rather to reflect everyday levels of general well-being (Diener, Oishi, and Lucas 2003).

Although concepts and measures of well-being have long included a cognitive (representing a general form of life satisfaction) and an emotional (representing positive and negative affect) dimension (Lucas, Diener, and Suh 1996), most studies tend to focus either on the cognitive component or on compound measures that integrate both dimensions. Studies that have investigated cognitive and affective well-being separately in relation to unemployment show that unemployment clearly affects both dimensions (Murphy and Athanasou 1999; Lucas et al. 2004; Winkelmann and Winkelmann 1998). However, as Schimmack and colleagues (2008) emphasize, no studies have yet directly compared the effects of unemployment on affective and cognitive well-being, although indirect comparisons suggest that job loss has more pronounced effects on cognitive than on affective well-being.

To assess the emotional components of well-being, most studies use broad, single-item survey measures such as “In general how happy are you?” (see Diener, Oishi, and Lucas 2003, 405). Life satisfaction as the cognitive component of subjective well-being is usually described as “a global judgment that people make when they consider their life as a whole” (Diener 1994, 107). This judgment is based on a comparison towards a relevant standard (Schimmack, Schupp, and Wagner 2008; Schwarz and Strack 1999, 63), which may be either a set of life circumstances or expectations experienced by the individual at some point in the past, or the situation of a relevant reference group as observed by the individual. The affective component of well-being is understood as a balance between individual happiness and individual uneasiness (Schimmack, Schupp, and Wagner 2008) and represents a process of ongoing evaluation (Diener, Scollon, and Lucas 2004) rather than an overall retrospective evaluation of life circumstances, as in the case of life satisfaction. Unlike life satisfaction, affect consists of two distinct dimensions (positive and negative affect) underlying discrete emotions such as happiness or joy, on the one hand, and sadness or anxiety, on the other (Diener et al. 1999; see also Watson and Clark 1991). Positive and negative affect thus do not represent two ends of one continuum, but are defined and should be measured as separate constructs (Diener et al. 2004).

Up to now, the affective dimension has not been fully conceptualized or measured in the research on the links between well-being and unemployment, since single items can hardly do justice to the multidimensionality of the concept. Schimmack and colleagues (2008) suggested measuring emotional well-being not by using a single “happiness” item, but rather by assessing the frequency of experience of five discrete positive (relaxed, joyful, happy, pleasant, affectionate) and five negative emotions (unpleasant, sad, fearful, angry, worried). Measuring discrete emotions to assess emotional well-being not only better accounts for its multidimensional nature, but also allows predictions of likely action

tendencies that have been shown to go hand in hand with discrete emotions. Action tendencies that accompany certain emotions have generally been conceptualized on a general approach/avoidance or activity/passivity continuum, although there is debate over whether these propensities are brought about by *discrete action programs* or *motivational tendencies* (see Lowe and Ziemke 2011, for a review). Other studies have capitalized on emotions and specific behaviors and shown, for example, that anger prompts risky behavior whereas fear leads to risk-averse decisions (Lerner and Keltner 2001). Moreover, looking at the experience of discrete emotions in relation to unemployment allows findings to be embedded not only within well-being and happiness research, but also within the larger framework of the sociology of emotion, in particular approaches that have link social structure and socio-economic status to emotional experiences (e.g., Turner and Stets 2006; Barbalet 1998; von Scheve 2013; Rackow, Schupp, and von Scheve 2012; Collett and Lizardo 2010; Schieman 2004).

Given existing research on the individual experience of unemployment, we focus on two broad issues in the present study. First, we are interested in how emotional well-being is related to unemployment. In going beyond much of the existing research, we first pay particular attention to the experience of discrete positive and negative emotions in relation to job loss. Second, we investigate emotional well-being not only as a consequence of unemployment, but also look at emotional precursor effects of unemployment. In general, we therefore aim at tracking the emotional timeline of unemployment and answer the question of how people's feelings change both on their way into unemployment as well as after becoming unemployed.

Based on the results of previous research, we hypothesize that (H1) unemployment is associated with decreases in emotional well-being, more specifically with an increased experience of negative emotions (anger, anxiety, sadness) and decreasing experiences of

positive emotions (happiness). The same should be true for cognitive well-being, that is, life satisfaction (H1a). In line with adaptation theories of well-being, we hypothesize that the unemployed approximate near pre-unemployment levels of emotional (H2a) and cognitive well-being (H2b) when unemployment persists for longer periods. However, and in line with social production function theory and studies linking variations in time use to emotional well-being in the unemployed, we hypothesize that adaptation in emotional well-being occurs more rapidly than adaptation in life satisfaction (H3). Finally, we assume that individuals who become unemployed experience negative emotions more often and positive emotions less often even before the job loss actually occurs (H4). The same should be true for life satisfaction (H4a).

Methods

Data and Sample

To investigate how emotional well-being relates to unemployment, we use data from the German Socio-Economic Panel (SOEP), a longitudinal and representative survey comprising more than 20,000 respondents living in private households in Germany (Wagner, Frick, and Schupp 2007). Aside from a wide array of standard socio-demographic indicators and unemployment data that have been collected since the beginning of the study in 1984, since 2007 the SOEP has also included measures tapping the experience of certain discrete emotions (assessed on an annual basis) that have been conceptualized to represent the affective components of well-being (see Schimmack, Schupp, and Wagner 2008, for details).

Using the last six waves of the SOEP (2007-2012), the sample comprises individuals between 18 and 65 years of age living in private households in Germany. Furthermore, to be included in the sample, respondents must have participated in survey for at least two successive years since two points of measurement are the minimum needed to apply our data analysis strategy (fixed effect models). This means that respondents who transition into

unemployment at some point must have taken part in the survey at least in their final year of employment and subsequent initial year of unemployment. In case of gaps between two points of measurement, all observations following the gap are excluded to ensure that possible unobserved changes in employment status do not bias our results. Moreover, our sample only comprises individuals who have been continuously employed or unemployed during an observational period (spanning one year); hence, we excluded individuals who, for example, have been out of the labor market for only a few months. Finally, we exclude civil servants, trainees, and the self-employed. This sampling yields an unbalanced panel including 6,740 respondents, of whom 422 become unemployed (see Appendix Table A1 for sample description).

Measures

In the SOEP, discrete emotions are assessed using a scale comprising four items. Respondents are asked how often they felt happy, angry, anxious, and sad during the past four weeks, ranging from “very rarely”, “rarely”, “sometimes”, and “often” to “very often”. The scale has been specifically designed to capture the emotional components of well-being (Diener, Smith, and Fujita 1995; Schimmack 2003). Information on reliability and validity of the scale are provided by Rackow and colleagues (2012), Schimmack and colleagues (2008) and by Kunzmann, Richter, and Schmukle (2013).

Even though we focus on the emotional component of well-being as our main dependent variable, we also included information on life satisfaction as the cognitive component of well-being to compare our results to previous findings. Life satisfaction is measured on an 11-point scale ranging from 0 “completely dissatisfied” to 10 “completely satisfied” by asking “How satisfied are you with your life, all things considered?” (Kroh 2006).

Information on employment status is obtained from activity spell data on employment available in the SOEP. This activity spell data is acquired by asking respondents about their employment status (among other variables) for every single month of the last calendar year using an "activity calendar" (Lohmann and Witzke 2011). Please note that information on employment status is always asked retrospectively for the year *previous* to the survey interview. Therefore, our analyses will be based on data from the years 2007 to 2011 only. Using employment spell data, we generated a binary variable representing the employment status for the month in which the interview took place. The category "employed" includes all full-time, part-time, or marginally employed people as well as individuals in part-time "mini-jobs", a specific kind of non-taxable low-wage job in Germany. The category "unemployed" includes all respondents who are unemployed and are actively seeking a job.

To account for general macro-level trends, business cycles and conditions in the labor market that might affect the impact of unemployment onto individuals' well-being, we looked up the monthly unemployment rate (at the time the interview took place) for all German federal states in which respondents reside and included them as controls in our model (Destatis 2013).

Data Analysis

To investigate the impact of unemployment on emotional and cognitive well-being, we use fixed effects models (e.g., Allison 2009; Wooldridge 2006, Andreß, Golsch, and Schmidt 2013). Fixed effects models control for unobserved heterogeneity, that is, they solely rely on within-person variation and therefore control for all observable and unobservable time-invariant variables (e.g., personality traits) that may influence our dependent (e.g. experience of discrete emotions, i.e., emotional well-being) or independent variable (e.g., duration of unemployment) and hence bias results.

Because all outcome variables, which are either measured on a 5-point (emotional well-being) or 11-point scale (life satisfaction), are treated as cardinal constructs, we use linear fixed effects models. This is justified by findings from life satisfaction research suggesting that assumed cardinality or ordinality of life satisfaction is relatively unimportant for estimation results (Ferrer-i-Carbonell and Frijters 2004, 654-55; Clark et al. 2008). Since our dependent variables are measured using different scales, we opted to standardize them to make anticipation, reaction, and adaptation effects comparable across all outcome variables.

To assess the effects of unemployment on the emotional components of well-being in terms of anticipation, reaction, and adaption, we follow an approach proposed by Clark and colleagues (2008) and estimate two different models for each outcome variable. To measure reaction and adaptation to unemployment, Model 1 is specified as follows:

$$(1)\ DV_{it} = \beta_0 + \beta_1 unemployment_{it} + \beta_2 plus1_{it} + \beta_3 plus2_{it} + \beta_4 plus3_{it} + \beta_5 reemployment_{it} + \beta_6 unempl.rate_{it} + \varepsilon_{it}$$

To investigate possible changes in emotional (and cognitive) well-being, we divided the unemployed into four different categories depending on the duration of their unemployment (see Clark et al. 2008): those who have been unemployed for 0-1 years, 1-2 years, 2-3 years, and 3-4 years. If respondent$_i$ became unemployed since last year's interview, $unemployment_{it}$ equals 1 while $plus1_{it}$ to $plus3_{it}$ all equal 0. If, however, respondent$_i$ is still unemployed 1 year later (2 or 3 years later, respectively), $plus1_{it}$ equals 1 ($plus2_{it}$, $plus3_{it}$, respectively) while $unemployment_{it}$ and any other non-applicable *plus* variables equal 0.

Following this approach, $unemployment_{it}$ represents reactions towards unemployment and $plus1_{it}$ to $plus3_{it}$ represent possible adaptations towards unemployment. Given that respondents can adapt to unemployment in terms of emotional well-being, we expect $unemployment_{it}$ to have the strongest impact on well-being with

decreasing coefficients for $plus1_{it}$ to $plus3_{it}$. Adaptation effects will attenuate when the latter coefficients become insignificant, indicating that respondents are not worse off compared to reported well-being during previous employment. We assume that no adaptation occurs if all variables approximate the same magnitude.

Finally, $reemployment_{it}$ captures the expected increase in individuals' emotional (and cognitive) well-being when re-entering the labor market. $Reemployment_{it}$ equals 1 if respondent_i re-enters the labor market after being unemployed in the previous year(s), and equals 0 if respondent_i remains unemployed.

To measure anticipation and reaction towards unemployment, Model 2 is specified as follows:

$$(2)\ DV_{it} = \beta_0 + \beta_1 minus2_{it} + \beta_2 minus1_{it} + \beta_3 unemployment_{it} + \beta_4 unempl.rate_{it} + \varepsilon_{it}$$

As in Model 1, $unemployment_{it}$ represents reactions to unemployment and equals 1 if respondent_i became unemployed since last year's interview. $Minus1_{it}$ ($minus2_{it}$ respectively) represents possible anticipation effects and equals 1 if respondent_i in year_t will lose his or her job in the following year or the year after that (given that respondent_i is currently employed). Again, and similar to model one, we expect the strongest impact of unemployment on emotional (and cognitive) well-being during the first year of unemployment $(unemployment_{it})$. Anticipation occurs if $minus2_{it}$ and $minus1_{it}$ have a significant negative effect on well-being and a significant positive effect on the frequency of experiencing the negative emotions anxiety, anger, and sadness, indicating that well-being scores differ two (one) year(s) before becoming unemployed compared to respondents' reported well-being 3 to 4 years before unemployment.

No anticipation occurs if $minus2_{it}$ and $minus1_{it}$ coefficients are insignificant. Please note that analyses regarding anticipation effects are based on a subsample. In addition to individuals not being faced with unemployment at any time (N=6,318), this

subsample only includes those unemployed who are observed in the first year of unemployment as well the previous three years during employment (N=145) (see Appendix, Table A1).

Results

Reaction and adaptation to unemployment

Table 1 shows estimates obtained from the specification of Model 1 measuring reactions and adaptations to unemployment depending on the duration of unemployment. Columns 1 to 5 depict the impact of unemployment on emotional well-being (the frequency of experiencing anxiety, anger, sadness, and happiness) and cognitive well-being (life satisfaction, LS) for those who became unemployed in the last year or in the last 1 to 2 years, 2 to 3 years, and 3 to 4 years.

< Table 1 around here >

Looking at emotional well-being (columns 1-4), the results show that respondents feel anxious (β = .108) and sad (β = .214) more often and are less happy (β = -.184) when they became unemployed within the last year, thus lending partial support to hypothesis H1. Yet, with the exception of sadness, unemployment only seems to affect emotional well-being in the short-run: Although individuals remain unemployed, they return to pre-unemployment frequencies of anxiety and happiness episodes after just one year in unemployment (supporting H2a). However, this pattern does not hold for sadness: Respondents not only feel sad more often when they recently became unemployed (β = .214), but the frequency of feeling sad increases slightly the longer individuals remain unemployed (unemployed for 1-2 years, β = .225; unemployed for 2-3 years, β = .280). The impact of unemployment on experiencing anger clearly differs from its impact on any other emotion we investigated: Respondents do not feel angry more often when becoming unemployed as compared to being in the labor force. The frequency of experiencing anger

does increase significantly, however, when respondents remain unemployed for a longer time (3-4 years, β = .467).

Since the unemployed seem to adapt comparably quickly to unemployment in terms of emotional well-being, we "zoomed in" on changes in emotional well-being within the first year of unemployment and looked separately at individuals who became unemployed within the last 3 months, 4 to 6 months, 7 to 10 months, and 10 to 12 months (Table 1 columns 6-10). This procedure addresses two issues. First, we can obtain more precise information on how quickly adaptation proceeds. Second, the impact of unemployment on emotional well-being might be underestimated if adaptation in fact proceeds very quickly (i.e., in terms of months rather than of years) and the temporal resolution is not high enough, that is, is measured in years rather than months or weeks. To better visualize the mean changes in emotional and cognitive well-being as a result of unemployment, Figure 1 illustrates the estimates obtained from the fixed effects regressions when accounting for the temporal distance towards job loss in more detail (Table 1, columns 6-10).

< Figure 1 around here >

Indeed, our results indicate that the unemployed feel angry more often (column 7) within the first 6 months of unemployment as compared to anger experiences during employment (unemployed for 1-3 months, β = .146; for 4-6 months: β=.171). Adaptation to pre-unemployment levels of anger occurs within 7 to 9 months after job loss. Even more important, the frequency of anger experiences further decreases with prolonged unemployment (unemployed for 10-12 months, β = -.208). Thus, unemployment clearly affects the experience of anger, but does so only very quickly after job loss occurs.

Regarding anxiety, we find a similar pattern when looking in detail at the first year of unemployment (column 6) as when looking at several years of job loss: The

unemployed feel anxious more often only within the first 3 months after job loss occurs. Similar results are obtained for happiness (column 9), although the unemployed feel happy less often within the first 3 months (β = -.202) as well as within 7 to 9 months after job loss (β = -.361). Concerning sadness (column 8), we did not expect to find significant differences between shorter and longer timeframes of unemployment. Indeed, coefficients are more or less identical, although after 7 to 9 months of unemployment, increases in sadness are close to the 10% significance level (p = .101).

Focusing on the impact of unemployment on life satisfaction (column 5), results are almost perfectly in line with previous studies. Respondents do not only suffer within the first year of unemployment (β = -.364), but continue to be dissatisfied with life throughout the first two years of unemployment (β = -.276), thus supporting our hypothesis H1a. Consistent with this finding, coefficients are also roughly the same when "zooming in" on changes within the first year of unemployment (column 10). Even though the adaptation of life satisfaction does not occur as quickly as in the case of emotional well-being (confirming hypothesis H3), it proceeds as expected and attenuates when individuals are unemployed for more than 2 years (supporting hypothesis H2b). This result is in line with most recent findings (Uglanova and Staudinger 2013), although there is also evidence to the contrary (Clark et al. 2008).

Anticipation and reaction to unemployment

Table 2 shows fixed effects estimates obtained from the specification of Model 2 measuring anticipation and reaction towards unemployment depending on the duration of unemployment. Results indicate that anticipatory changes in emotional and cognitive well-being only occur approximately two years before job loss, when respondents who later become unemployed report feeling more anxious (β = .183), angry (β = .173), and sad (β = .169) compared to 3 to 4 years before job loss, partially confirming our

hypothesis H3. Sadness, again, is an exception because we find anticipation effects also one year before unemployment occurs (β = .165), although the effect is only marginally significant at the 10% level. Contrary to previous findings (Clark et al. 2008; Uglanova and Staudinger 2013), our analyses do not lend support to the existence of anticipatory changes in life satisfaction or to our hypothesis H4a (see *Discussion* for possible explanations and shortcomings of our data).

< Table2 around here >

Looking at the actual impact of unemployment, results are more or less identical to those reported in Table 1, which is why we will not discuss results on the scale of monthly differences here. Our analyses show that respondents feel sad more often (β = .246) and happy less often (β = -.147) and are also less satisfied with life (β = -.282) when they became unemployed within the last year. Marginal deviations from results in Table 1 probably result from using the subsample instead of the full sample used for Model 1. Therefore, the number of unemployed respondents further decreases (N = 145), which in turn yields a different sample composition regarding the proportion of unemployed men and women (see Appendix table A1) and may result in slightly different coefficients (see Clark et al. 2008).

Discussion

Given that unemployment continues to be a growing social and economic challenge in most industrialized countries, it is increasingly important to better understand the individual repercussions of job loss. Since the *Marienthal* study, it has been clear that unemployment has detrimental consequences on overall well-being and life satisfaction. Job loss is usually accompanied by feelings of worthlessness, desperation, frustration, and social isolation and is related to psychological stress and mental health issues. These effects are brought about by the social and economic

consequences of unemployment as well as by the violation of a still existing normative obligation to belong to the workforce as of a certain age (and being male, one might add). These negative consequences, of course, have to be seen in light of the positive effects of being out of the work force, for example being subjected to less work-related stress, being able to use one's time more flexibly, and having the possibility to pursue alternative activities.

In recent research, the individual consequences of unemployment have been examined primarily by using well-being and life satisfaction as very general indicators of the overall evaluation of one's life. Results consistently show that unemployment has tremendously negative consequences on well-being and that even generous unemployment benefits cannot compensate for losses in life satisfaction. However, a number of issues have remained unresolved in this line of research. Most importantly, there still is debate whether the unemployed return to the same levels of well-being and life satisfaction they enjoyed when still part of the workforce, and when and under which conditions this adaptation occurs. Also, little is known about the distinct consequences of unemployment for emotional and cognitive well-being, and there are almost no studies addressing changes in the individual's experience of specific emotions. Finally, there is still debate over the question of whether decreased well-being and life satisfaction could be a cause of unemployment rather than one of its consequences.

Our research has addressed these questions at different levels of detail. Very generally, our study supports previous findings showing that unemployment leads to decreases in life satisfaction and that the unemployed tend to adapt to previous levels after approximately two years. Most importantly, our analyses uncover the emotional components of changes in well-being and show that individuals more often feel anxious and sad, and less often happy when transitioning into unemployment. Whereas increased

sadness tends to become prolonged during unemployment, adaptation of anxiety and happiness to pre-unemployment levels occurs much more rapidly, that is, in terms of months, than adaptation of life satisfaction. We suspect that this is due to differences in time use, as one previous study indicates (Knabe et al. 2010). Interestingly, our results show that anger increases only within the first three months of job loss and then again after several years in unemployment. This is probably because working life is one of the most frequent elicitors of anger (see Rackow et al. 2012).

We also find evidence for anticipatory changes in emotional well-being, that is, changes that take place before unemployment actually occurs. Those who become unemployed within the next two years more often feel anxious, angry, and sad than three to four years prior to losing their job. Only sadness also seems to be experienced more often within the year immediately preceding job loss. Although our findings cannot definitively settle the question of whether decreases in well-being prior to unemployment are an actual cause of unemployment, they suggest that these decreases may in principle be a contributing factor to job loss.

Contrary to our expectations, we do not find evidence of anticipatory changes in life satisfaction. There are two possible explanations for this. First, due to the fact that our longitudinal analyses are limited to five waves of the SOEP, we took life satisfaction three to four years prior to job loss as our reference category. Thus, coefficients of anticipation effects represent mean changes in life satisfaction between one and two years prior to job loss and three to four years prior to the event. Results of other studies (Clark et al. 2008; Uglanova and Staudinger 2013) are based on a broader time span, using five and more years prior to entering unemployment as the reference category. According to Clark and colleagues (2008), anticipatory changes in life satisfaction for men already occur up to three to four years prior to unemployment. Hence, our results may

underestimate existing effects since the mean scores in the reference year may already be lower as a consequence of approaching unemployment, resulting in insignificant and lower coefficients of possible anticipation and reaction in our data. Second, whereas Clark and colleagues (2008) conducted separate analyses for men and women, we cannot do so because our sample size would become too small. However, men and women may react differently to unemployment, and therefore, a combined analysis may yield different results than those obtained by Clark and colleagues (2008).

In sum, our research therefore contributes to a better understanding of the individual, in particular emotional, consequences of and precursors to unemployment. Knowledge about how the individual experience of discrete emotions changes in the face and as a consequence of unemployment not only helps to better comprehend the individual challenges related to unemployment, but also gives insights into likely behavioral patterns that are associated with unemployment. Given that anxiety and sadness and a lack of happiness dominate what individuals feel during the first year of unemployment, withdrawal, avoidance, and passiveness are likely behavioral tendencies that could be detrimental to quickly finding a job again. Likewise, the lack of anger during prolonged unemployment might keep the unemployed from taking action to counter their situation. Similarly, overly anxious and angry employees may act in ways (e.g., being overly passive or taking excessive risks) that increase the odds of being laid off. Although the detrimental consequences of unemployment clearly seem to prevail, our results in terms of differences between emotional well-being and life satisfaction concur with the overall assessment of Knabe and colleagues (2010) that the unemployed may in fact be “dissatisfied with life but having a good day.”

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Table 1: Fixed Effects Regression: Reaction and Adaptation of Emotional and Cognitive Well-Being to Unemployment.

	Anxiety	Anger	Sadness	Happiness	LS	Anxiety	Anger	Sadness	Happiness	LS
Reaction										
unemployed since 1-3 months						0.191** (0.061)	0.146* (0.065)	0.202** (0.065)	-0.202** (0.062)	-0.347*** (0.055)
unemployed since 4-6 months						0.024 (0.094)	0.171+ (0.098)	0.233* (0.097)	-0.096 (0.093)	-0.383*** (0.083)
unemployed since 7-9 months						0.129 (0.099)	-0.111 (0.105)	0.171 (0.104)	-0.361*** (0.100)	-0.404*** (0.089)
unemployed since 10-12 months						-0.107 (0.116)	-0.208+ (0.122)	0.293* (0.122)	-0.011 (0.116)	-0.345*** (0.104)
unemployed since 0-1 years	0.108* (0.045)	0.059 (0.047)	0.214*** (0.047)	-0.184*** (0.045)	-0.364*** (0.040)					
Adaptation										
unemployed since 1-2 years	0.097 (0.079)	0.052 (0.083)	0.225** (0.083)	-0.118 (0.079)	-0.276*** (0.071)	0.094 (0.079)	0.051 (0.083)	0.226** (0.083)	-0.116 (0.079)	-0.276*** (0.071)
unemployed since 2-3 years	0.018 (0.149)	0.084 (0.158)	0.280+ (0.157)	-0.200 (0.150)	-0.088 (0.134)	0.009 (0.149)	0.074 (0.158)	0.282+ (0.157)	-0.198 (0.150)	-0.089 (0.134)
unemployed since 3-4 years	-0.028 (0.215)	0.467* (0.228)	0.198 (0.226)	-0.055 (0.216)	-0.172 (0.194)	-0.032 (0.216)	0.447* (0.228)	0.198 (0.226)	-0.060 (0.216)	-0.173 (0.194)

Table 1: continued

	Anxiety	Anger	Sadness	Happiness	LS	Anxiety	Anger	Sadness	Happiness	LS
Controls										
re-employed	-0.150*	-0.144*	-0.010	0.089	0.138**	-0.148*	-0.137*	-0.010	0.090	0.138**
	(0.059)	(0.062)	(0.062)	(0.059)	(0.053)	(0.059)	(0.062)	(0.062)	(0.059)	(0.053)
unemployment rate	0.015*	0.010	0.004	0.002	-0.011+	0.015*	0.010	0.004	0.002	-0.011+
(mean centered)	(0.007)	(0.008)	(0.008)	(0.008)	(0.007)	(0.007)	(0.008)	(0.008)	(0.008)	(0.007)
wave dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Constant	-0.005	0.098***	-0.005	0.034***	0.007	-0.005	0.098***	-0.005	0.034***	0.007
	(0.009)	(0.010)	(0.010)	(0.009)	(0.008)	(0.009)	(0.010)	(0.010)	(0.009)	(0.008)
No. of observations	27,642	27,676	27,658	27,663	27,676	27,642	27,676	27,658	27,663	27,676
No. of individuals	6,740	6,740	6,740	6,740	6,740	6,740	6,740	6,740	6,740	6,740

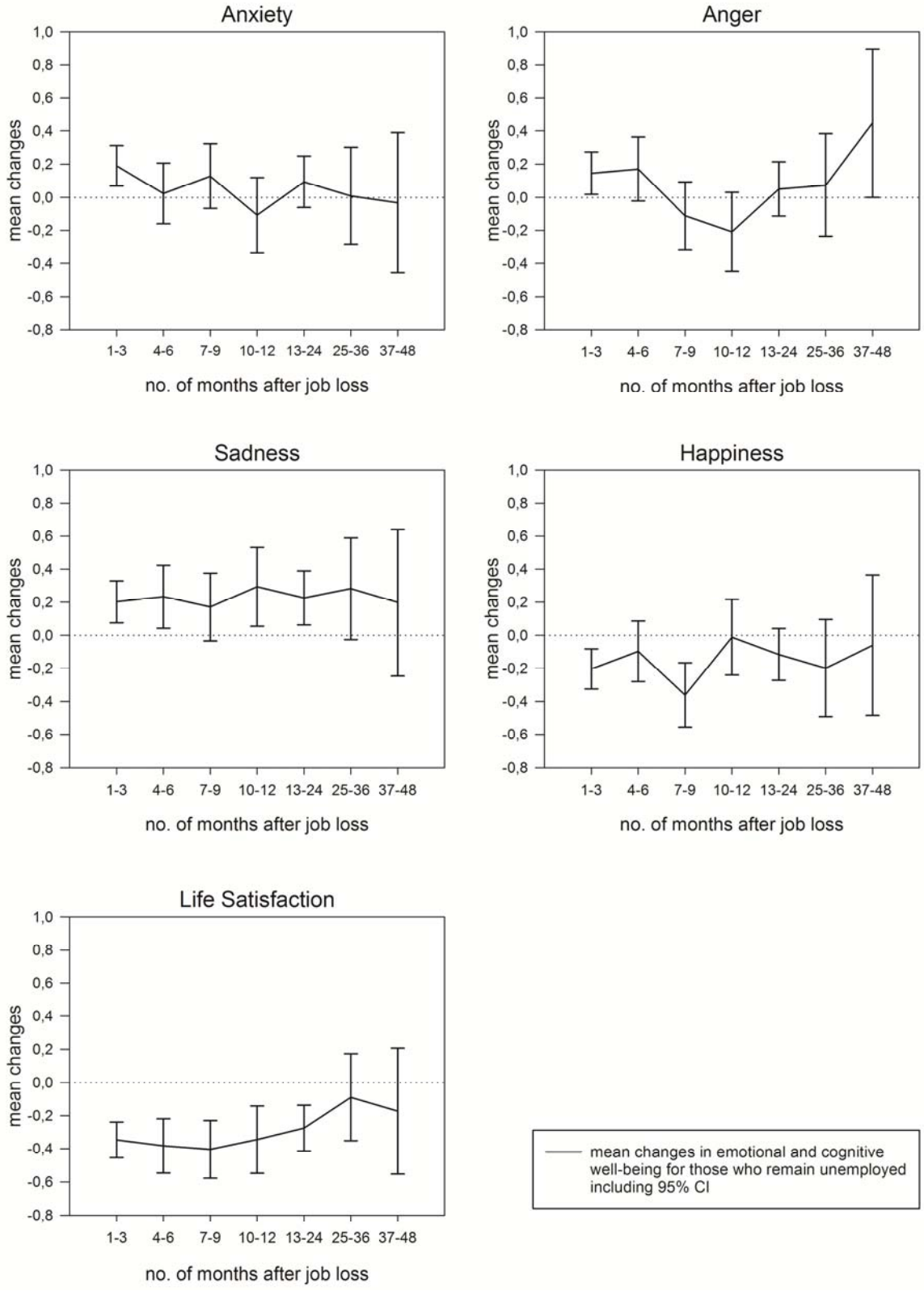
Note: Standard errors in parentheses; $^{+}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$; dependent variables are standardized for comparison reasons; results including wave dummies with year 2007 as reference

Table 2: Fixed Effects Regression: Anticipation and Reaction of Emotional and Cognitive Well-Being to Unemployment.

	Anxiety	Anger	Sadness	Happiness	LS
Anticipation					
unemployment in 1-2 years	0.183* (0.081)	0.173* (0.085)	0.169* (0.085)	-0.024 (0.081)	0.097 (0.072)
unemployment within next year	0.110 (0.081)	0.070 (0.085)	0.165+ (0.085)	-0.038 (0.081)	0.071 (0.073)
Reaction					
unemployed since 0-1 years	0.092 (0.081)	-0.060 (0.085)	0.246** (0.085)	-0.147+ (0.081)	-0.282*** (0.072)
Controls					
unemployment rate (mean centered)	0.013+ (0.008)	0.011 (0.008)	0.006 (0.008)	0.004 (0.008)	-0.009 (0.007)
wave dummies	yes	yes	yes	yes	yes
Constant	-0.002 (0.009)	0.101*** (0.010)	0.001 (0.010)	0.032*** (0.009)	0.002 (0.008)
No. of observations	26,505	26,537	26,520	26,526	26,537
No. of individuals	6,463	6,463	6,463	6,463	6,463

Note: Standard errors in parentheses; $^{+}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$; dependent variables are standardized for comparison reasons; results including wave dummies with year 2007 as reference

Figure 1: Mean Changes in Emotional and Cognitive Well-being during Unemployment.



Note: Fixed effects estimates from Table 1, columns 6-10

Appendix

Table A1: Sample description

	Never unemployed	Unemployed	
	(N=6,318)	Full sample (N=422)	Subsample (N=145)
Sex			
male	3,244 (51.4%)	231 (54.7%)	66 (45.5%)
female	3,074 (48.7%)	191 (45.3%)	79 (54.5%)
Education (CASMIN-Scheme)			
low	1,871 (30.2%)	185 (45.8%)	59 (41.8%)
medium	2,916 (47.0%)	170 (42.1%)	61 (43.3%)
high	1,418 (22.9%)	49 (12.1%)	21 (14.9%)
ø Age	**44**	**46**	**48**
Number of previous unemployment spells			
0	-	171 (40.5%)	79 (54.5%)
1	-	95 (22.5%)	28 (19.3%)
2	-	40 (9.5%)	12 (8.3%)
more than 3	-	116 (27.5%)	26 (17.9%)
Number of observations before and after job loss			
3-4 years before	-	51	51
2-3 years before	-	145	145
1-2 years before	-	259	145
within the next year	-	422	145
within the last 12 months	-	422	145
1-2 years ago	-	272 (120)[1]	-
2-3 years ago	-	138 (32)[1]	-
3-4 years ago	-	65 (15)[1]	-

[1] Numbers in brackets indicate number of respondents who are still unemployed in the respective year, e.g., there are 272 respondents who are also observed one year after becoming unemployed, of which 120 were still unemployed.