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WORKING PAPER N°

Mots clés :

Codes JEL :

Unemployment Alters the Set-Point for Life Satisfaction

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Running Head: Unemployment and Life Satisfaction
Word Count: 4,028

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Abstract

According to set-point theories of subjective well-being, people react to events but then return to baseline levels of happiness and satisfaction over time. We test this idea by examining reaction and adaptation to unemployment in a 15-year longitudinal study. In accordance with set-point theory, individuals reacted strongly to unemployment and then shifted back toward their baseline levels of life satisfaction. However, on average, individuals did not completely return to their former levels of satisfaction, even after they became re-employed. Furthermore, contrary to expectations from adaptation theories, people who had experienced unemployment in the past did not react any less negatively to a new bout of unemployment. These results suggest that although life satisfaction is moderately stable over time, life events can have a strong influence on long-term levels of subjective well-being.

Unemployment Alters the Set-Point for Life Satisfaction

Subjective well-being (SWB) researchers examine the causes and correlates of life satisfaction, positive affect, and negative affect (Diener, Suh, Lucas, & Smith, 1999). These variables are moderately stable over time and often change only slightly following major life events. Life circumstances including health, income, and beauty often account for a very small percentage of variance in SWB (Argyle, 2001; Diener et al., 1999; Myers, 1992) and most life events affect SWB for less than two months (Suh, Diener, & Fujita, 1996). Furthermore, personality and temperament variables seem to play a strong role in determining individuals' levels of SWB (Diener & Lucas, 1999). Lykken and Tellegen (1996), for instance, used a twin study design to examine the heritability of well-being, and they concluded that about 80 percent of the variance in long-term stable levels of SWB could be attributed to inborn temperament. Because of these findings, researchers have claimed that people have inborn SWB "set-points" (Headey & Wearing, 1992). According to this theory, people initially react to events, but then return to baseline levels of well-being that are determined by personality factors.

Most studies that test the set-point theory examine reactions to life events using one of two research designs. Cross-sectional studies examine the impact of life events by comparing the SWB of people who have experienced an event to those who have not (e.g., Brickman, Coates, & Janoff-Bulman, 1978); and post-event longitudinal studies examine the course of adaptation using a longitudinal design that begins shortly after an event has taken place (e.g., Silver, 1982). Unfortunately, neither of these designs is ideal because pre-event levels of SWB are not known. Thus, these designs cannot determine whether people return to pre-event levels of SWB. In fact, because many events do not occur randomly, differences in happiness might precede the experience of events. For example, longitudinal studies have shown that happiness prospectively

predicts higher income levels (e.g., Diener, Nickerson, Lucas, & Sandvik, 2001; Marks & Fleming, 1999) better health (Danner, Snowdon, & Friesen, 2001), and the experience of various positive life events (Magnus, Diener, & Fujita, 1996). Thus, difference in happiness might precede events or even cause events to occur.

Existing studies of adaptation to life events also suffer from an additional limitation: By focusing on group-level characteristics rather than within-person changes, these studies may provide an incomplete picture of adaptation processes. In studies of life events, researchers often compare average levels of SWB before and after an event. If average levels are the same across time periods, researchers may conclude that adaptation has occurred. However, even if average levels are stable, there could be a great deal of individual-level instability. People who were above average before the event could be below average after the event, while mean levels stay the same. Therefore, to provide an adequate test of set-point theory, researchers must use large-sample longitudinal studies to examine both individual-level and group-level changes following exposure to an important life event.

In the current study, we examine long-term adaptation by tracking changes in life satisfaction before, during, and after the experience of unemployment. Previous cross-sectional studies of unemployment have shown that unemployed individuals tend to be substantially less happy than employed individuals (Argyle, 2001). In addition, individuals who have been unemployed at some point in the past tend to be less satisfied than individuals who have never been unemployed (Clark, Georgellis, & Sanfey, 2001). As mentioned above, however, cross-sectional studies leave open the possibility that unemployed individuals were less happy even before the unemployment period began. No study has determined whether individuals ultimately return to baseline levels of satisfaction after the period of unemployment ends.

If set-point theory is correct, individuals should initially react to unemployment, but then they should return to their baseline levels after a year or two. If unemployment alters the set-point for life satisfaction, then people will not fully adapt to the unemployment event, even years after they become re-employed. This question is of large applied importance to society because it is relevant to whether progress in societal SWB is doomed by what Brickman and Campbell (1971) called the hedonic treadmill—a process by which gains in well-being are inevitably followed by adaptation back to baseline (Kahneman, 1999).

Method

The data in this study were obtained from waves 1 through 15 of the German Socio-Economic Panel Study (GSOEP), a longitudinal study of German households (see Haisken-De New & Frick, 1998, for a description of the study and its sample). Households were selected using multi-stage random sampling, and all members of each selected household were asked to participate. Surveys were conducted yearly using face-to-face interviews. Response rates for the survey were generally very high (ranging from 60% to 70% across various sub-samples), and attrition rates were low (ranging from 3% to 13% per year; see Haisken-De New & Frick and Lucas, Clark, Georgellis, & Diener, in press, for more details). The entire sample consists of over 30,000 respondents who participated in at least one of the 15 waves. Of those respondents, 5,184 reported being registered as unemployed during at least one wave of the study.

In addition to a variety of demographic questions (including employment status, the primary independent variable in the current study), participants were asked how satisfied they were with their lives at the time of the survey, using a scale that ranged from 0 to 10. Preliminary analyses of this measure revealed what appear to be historical trends in average satisfaction scores (for example, satisfaction scores declined before the fall of the Berlin Wall, increased

following the fall, and then gradually decreased again). Because of these trends, we centered satisfaction scores within each year of the survey and within the four sub-samples of the larger population (West Germans, East Germans, immigrants to Germany, and foreigners living in Germany)¹. Thus, a score of zero on the life satisfaction measure reflects the average level of satisfaction for a particular year within a particular sub-sample.

Analytic Technique. We used a multi-level modeling approach to investigate changes in life satisfaction before, during, and after unemployment (see Lucas et al., in press, for a more detailed discussion of the models used in a similar context). Multi-level models allow for the simultaneous investigation of within- and between-person effects. For example, one could examine the effect of a within-person variable (employment status) on life satisfaction over time. One could then test whether various between-person factors (e.g., age, sex, income) moderate the within-person effect of unemployment. Multi-level models also allow for different numbers of assessment occasions for different participants (some participants entered the study after the study began or dropped out before the most recent year of the study), and these models allow individuals to be included in the analyses, regardless of when the unemployment event occurred.

If the set-point theory is correct, individuals should experience a brief reaction to unemployment followed by a period during which satisfaction shifts back towards baseline. The critical test for the set-point theory is whether satisfaction scores ever return to pre-event levels. To test the hypothesis that people do return to baseline, we selected a subset of our sample who started the survey employed, experienced some period of unemployment during the course of the study, and eventually regained employment ($N = 3,733$)². This selection criterion allowed us to estimate a baseline level of satisfaction during which individuals were employed. Next, we examined three periods of time surrounding the first unemployment event. The Baseline period

consists of all years that are at least two years prior to the year during which the individual reported being unemployed. We do not include the year immediately preceding the event as part of the baseline phase because preliminary analysis of the current data set suggested that people exhibit anticipatory reactions to the experience of unemployment. Satisfaction levels often start to decrease in the year before unemployment, and including this year as part of the baseline would artificially lower the estimate of one's baseline level of satisfaction.

The second period, the Reaction period, consists of the year before the first period of unemployment, all consecutive years of unemployment, and the year after unemployment. The year after unemployment is included in the reaction phase to allow individuals time to return to baseline. Finally, the Adaptation period consists of all years that are at least one year after the first period of unemployment has ended. The multi-level model tests the difference between average satisfaction in the baseline period and average satisfaction in the reaction and adaptation periods. If set-point theory is correct and individuals quickly return to baseline, levels of satisfaction in the adaptation phase should be no different than levels of satisfaction in the baseline phase.³

As a final test of the set-point theory, we examine whether there are gradual, linear changes in satisfaction following re-employment. If there is a significant linear effect, we can use the slope from the linear change variable to estimate how long it will take to return to baseline.

All models also include within-person changes in income as a control variable (specifically, the log of a person's monthly household income is included as a within-person variable, and this variable is centered around a person's average pre-unemployment level of income). In addition, various person-level characteristics (age, sex, log of one's average household income across the entire study) are included in the model to determine whether these

characteristics moderate the within-person patterns. Finally, three additional person-level variables are included in the models. These include: (1) Whether the person had ever been unemployed before the study began; (2) Whether the person was unemployed for more than one year during the reaction phase; and (3) Whether the person ever became unemployed again. If adaptation theory is correct, individuals who have been unemployed in the past (or who are unemployed for long periods of time) should adapt to the condition and should not experience quite as large a drop in satisfaction as do individuals who are unemployed for the first time.

Results

Results from the reaction and adaptation multi-level model are reported in Table 1. In this model, the intercept (γ_{00}) reflects a person's baseline satisfaction, the reaction parameter (γ_{20}) reflects the average drop in satisfaction from the baseline level during the reaction period, and the adaptation parameter (γ_{30}) reflects the average difference from baseline during the adaptation period. The additional parameters in the model reflect the extent to which various person-level characteristics moderate changes in satisfaction across these three periods.

An examination of the intercept shows that individuals who would become unemployed at some point in the 15 years of the study were actually slightly happier than average in the years before their bout of unemployment. This baseline level of satisfaction was also moderated by a number of person-level characteristics. For example, individuals who had a higher average income over the course of the fifteen-year study reported significantly higher baseline satisfaction. In addition, all three variables that index the extent of unemployment were also related to baseline satisfaction. Specifically, the significant "previously unemployed" parameter shows that individuals who were unemployed at some point in time before the GSOEP study began were significantly less satisfied than individuals who had not experienced a previous bout

of unemployment (perhaps suggesting that these individuals never adapted to that event). In addition, the significant “multiple bouts” parameter shows that individuals who would later experience more than one period of unemployment during the 15 years of the study actually began the study less satisfied than people who only experienced one bout of unemployment (even after controlling for the experience of unemployment before the study began). Thus, lower levels of satisfaction prospectively predicted the experience of later events. Consistent with this finding, the significant “multiple years” parameter shows that individuals whose first bout of unemployment lasted for more than one year were less satisfied even before they experienced that event.

Table 1 also shows that people became over one-half of a point less satisfied during the reaction phase of unemployment, even after controlling for changes in income across the two periods. The difference in satisfaction is fairly large—approximately one-half of a standard deviation in baseline levels of satisfaction (the standard deviation for the intercept was 1.11). This effect was moderated by sex, with women reporting less negative reactions to unemployment. Contrary to predictions from adaptation theories (which suggest that multiple exposures or extended exposures to the same event should dampen the impact of that event), one’s reaction to unemployment was not moderated by previous exposure to unemployment. In addition, individuals whose first period of unemployment lasted longer than one year experienced a significantly more negative reaction (reflected in the significant “multiple year” parameter), suggesting that they did not adapt over time (a finding that is consistent with Clark’s, 2002, analysis of habituation among individuals who remain unemployed for long periods of time).

The critical test for set-point theory is whether people return to baseline levels of satisfaction following an important event. Thus, the critical test in these data is whether the

adaptation parameter is significantly different from zero. Table 1 shows that, on average, people did not return to baseline levels long after the period of unemployment had ended (recall that this parameter reflects the average of all years that are at least one year after the end of unemployment). This finding held even after controlling for differences in income from the baseline period to the adaptation period. In fact, although the adaptation parameter was significantly smaller than the reaction parameter ($\chi^2 = 18.54$, $df = 1$, $p < .001$)—which shows that people did start shifting back towards baseline during the adaptation phase—the adaptation parameter was still fairly large. Thus, the experience of unemployment seems to have created a new baseline level of life satisfaction that is lower than their initial levels of satisfaction before the unemployment began⁴. The moderator analyses show that the only person-level characteristic that influenced this adaptation parameter was whether the individual went on to experience a subsequent bout of unemployment. Individuals who would become unemployed again had a significantly more negative adaptation parameter.

We also calculated the correlations among these within-person parameters to determine whether people who were initially more satisfied reacted more or less strongly or adapted more or less completely to unemployment. Initial baseline levels of satisfaction correlated $-.11$ with the reactivity parameter and $-.37$ with the adaptation parameter. Because these parameters can be thought of as change scores, these correlations indicate that people who started out with high levels of life satisfaction reacted slightly more negatively than people who started out with lower levels of satisfaction, and people who were more satisfied to begin with were less likely to adapt back to baseline. Perhaps more strikingly, the reaction parameter correlated $.64$ with the adaptation parameter, demonstrating that one's initial reaction to unemployment strongly predicts how he or she will adapt in the long run. If a person experiences a big drop in satisfaction during

unemployment, it is very likely that that person will remain at a low level of satisfaction after becoming re-employed. The stability of satisfaction from the reaction period to the adaptation period provides strong support for the idea that unemployment created a new set-point for life satisfaction.

As a final step in our analyses, we tested whether there were any trends in satisfaction following re-employment. Results from this analysis showed that in the first year after unemployment, individuals, on average, were still .32 points below their baseline. Furthermore, the parameter for the linear trend variable was non-significant and very close to zero ($\gamma = -0.01$, S.E. = .01, $t = -1.58$, n.s.). Thus, given the very large sample size and the high power to detect an effect in this sample, there is no indication that individuals eventually returned to baseline many years after they regained employment. Moderator analyses showed that the lack of linear trends over time was true both among individuals who never experienced unemployment again as well as individuals who later experienced additional bouts of unemployment. In fact, none of the potential moderator variables had any significant effect on the linear change variable.

Discussion

The experience of unemployment did, on average, alter people's set-point levels of life satisfaction. People were less satisfied in the years following unemployment than they were before unemployment, and this decline occurred even though individuals eventually regained employment. Furthermore, the changes that occurred from baseline were very stable from the reaction period to the adaptation period—individuals who experienced a large drop in satisfaction during unemployment were very likely to be far from baseline many years after becoming re-employed. There was also no indication that satisfaction levels would eventually return to baseline if the study were continued for many more years—the linear trend parameter was non-

significant and very close to zero. Thus, unemployment seems to have had a lasting effect on individuals' life satisfaction.

One question is whether some personal event such as alcoholism or depression might have led to both unemployment and to lower life satisfaction, without unemployment having a causal role. Although this possibility cannot be ruled out entirely, several findings cast doubt on it. First, prior to unemployment, individuals who would eventually become unemployed reported high life satisfaction, and did not show evidence of lower levels that would likely result from problems with alcohol, dysphoria, and so forth. Furthermore, even individuals who dropped dramatically after unemployment showed some rebound toward baseline—not the pattern we would expect from a downward spiral due to internal causes. Thus, we believe that the present evidence is most readily interpreted in terms of the effects of unemployment on long-term life satisfaction.

Our results are not incompatible with the idea that temperament is a powerful influence on SWB; the data simply suggest that temperament is not the sole influence on long-term levels of life satisfaction. Events such as unemployment can have a long-lasting influence on people's set-point level of satisfaction. It is important to note, however, that these and other data demonstrate that there are clear individual differences in reactions to important life events (Lehman, Lang, Wortman, & Sorenson, 1989; Lucas et al., in press). Some people adapt quickly, whereas others never seem to return to initial levels. Thus, because adaptation is not inevitable, an important goal for future research will be to elucidate the factors that speed adaptation to unpleasant events and prolong reactions to pleasant events.

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Footnotes

¹We also re-ran all analyses with the uncentered satisfaction scores and results were similar.

²One thousand one hundred forty-nine individuals were unemployed when they started the study, an additional 310 individuals dropped out of the study before regaining employment.

³Some of the individuals experienced subsequent periods of unemployment during the adaptation phase. Clearly, this subsequent unemployment changes the meaning of the adaptation period. This complicating factor could be handled by including subsequent periods as additional within-person variables. However, adding these additional periods would have resulted in complicated models that, in most cases, could not be estimated. Therefore, we chose a simpler strategy in which the experience of multiple events is considered a between-person variable that moderates the within-person effects. Thus, we can determine whether individuals who experience subsequent unemployment have lower satisfaction during the adaptation phase than do individuals who remain employed.

⁴This difference cannot be explained by regression to the mean because satisfaction levels did not just trend towards the mean, they actually dropped below the mean. In addition, differences across the three periods cannot be explained by attrition because these are within-person changes (and thus, declines from baseline to the adaptation period could not simply be due to the happiest people dropping out of the study).

Table 1

Estimated Parameters from Reaction and Adaptation Model.

Effect	Coefficient	S.E.	t	p
Initial level, β_0				
Intercept, γ_{00}	0.10	0.03	3.05	<0.01
Average Income, γ_{01}	0.54	0.06	9.53	<0.001
Multiple Bouts, γ_{02}	-0.17	0.06	-3.04	<0.01
Multiple Years, γ_{03}	-0.12	0.04	-2.73	<0.01
Previously Unemployed., γ_{04}	-0.25	0.06	-4.12	<0.001
Within-Person Income, β_1				
Intercept, γ_{10}	1.01	0.07	14.97	<0.001
Average Income, γ_{11}	-0.34	0.17	-2.06	<0.05
Reaction, β_2				
Intercept, γ_{20}	-0.53	0.03	-16.67	<0.001
Sex, γ_{21}	0.16	0.04	3.55	<0.001
Multiple Years, γ_{22}	-0.12	0.04	-2.66	<0.01
Adaptation, β_3				
Intercept, γ_{30}	-0.37	0.04	-10.15	<0.001
Multiple Bouts, γ_{31}	-0.25	0.06	-4.43	<0.001

Note: $N = 3,731$. Sex, age, average income, multiple bouts, multiple years, and previously unemployed were entered as moderators of all within-person effects. Only the significant effects were retained for the final model.