On the Relationship of Unemployment and Well-being

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Erklärung zu Koautoren

Die vorliegende Dissertation umfasst eine Einleitung (Kapitel 1) und vier Forschungspapiere (Kapitel 2 bis 5). Die Kapitel 1 und 4 sind allein verfasst worden. Die Kapitel 2, 3 und 5 sind in Ko-Autorenschaft entstanden. Ko-Autoren der Kapitel 2 und 3 sind Prof. Dr. Andreas Knabe und Prof. Dr. Ronnie Schöb. Dr. Adrian Chadi ist Ko-Autor des 5. Kapitels. Für die Dissertation sind diese Kapitel gegenüber den gemeinsam verfassten Manuskripten redaktionell leicht angepasst worden. Diese Veränderungen verantwortet allein der Autor der vorliegenden Dissertation. Eine Liste mit Vorveröffentlichungen von Kapiteln befindet sich auf Seite 131.

Acknowledgements

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Chapter One

*Unemployment and Well-being –
an Introduction*

1.1 The persistent challenge of unemployment and the economics of happiness

Unemployment persists in modern market economies. Figure 1.1 illustrates this view for France, the United States, the United Kingdom and Germany based on unemployment rates from 1960 to 2012. Despite substantial variation between and within countries, the rates imply that at least since the mid-1970s millions of workers in each country and at each point in time have been unemployed.[1] Economists put a large effort into researching the causes and consequences of unemployment as well as investigating ways to fighting it.[2] It is obviously considered a major economic problem. A huge number of unemployed workers implies that unemployment will reduce social welfare substantially if being unemployed affects workers' welfare negatively. Investigating individual welfare effects of joblessness can thus contribute to revealing to what extent and why unemployment is an economic problem. In addition, corresponding studies can assess the effectiveness of policy instruments that aim at supporting the unemployed. The present thesis complements research on the impact of unemployment on individual welfare using four studies that are introduced in this chapter.

Economics provides two ways of measuring individual welfare: one is traditional, the other is new. The former is the revealed preferences approach, which can be considered an indirect method (e.g. Frey 2008). It assumes that individual choices are *rational* to the effect that they are made in order to increase personal welfare. The example of unemployment shows that this strategy is limited when the observable outcome does not necessarily originate from a voluntary choice. Unemployment can be caused involuntarily, for instance, when employers are bankrupt. If an unemployed person seeks a new job, one can conclude that she is not happy about being unemployed. However, policies push people to look for jobs and sanction those who do not make an effort, which means that overcoming unemployment is not necessarily the motivation for job search behaviour. Moreover, workers will put an effort into job search only if they see any probability of success, but if unemployment depresses, it may also take away this optimism. These difficulties in interpreting observed behaviour limit the applicability of the revealed preferences approach to measuring the individual welfare effect of being unemployed.

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[1] The observation that unemployment has persisted for a very long time does not depend on the selection of countries underlying Figure 1.1. It applies to the vast majority of market economies, as it can be seen in the database of the OECD annual labour force statistics (OECD 2014).

[2] See, for example, the annual employment outlooks of the OECD or the textbook of Layard et al. (2009).

Figure 1.1: Unemployment rates in traditional market economies since 1960

The second strategy used to measure individual welfare is to ask people directly about their current well-being. Economists most favorite instrument in this is a single question on life satisfaction (Frey 2008). Related instruments ask people about their general happiness or aggregate multiple indicators of mental health such as the GHQ-12. Sometimes, researchers aim at analysing specific aspects of welfare rather than overall well-being. In these cases, they explore data on domain satisfactions (e.g. job satisfaction) as well as on affective well-being (moods and emotions). As applying measures of happiness is an object of methodological criticism (e.g. Weimann et al. in press), it is a priori neither better nor worse than the revealed preferences approach. Nevertheless, thanks to huge progress in happiness research, this direct way of analysing utility has reached a high level of acceptability in the recent past and is applied to a huge variety of economic issues nowadays (e.g. Frey 2008, Ferrer-i-Carbonell 2013). In some respects, the happiness

approach to measuring individual welfare challenges the foundations of economics, such as in case of the Easterlin Paradox, but often it also confirms basic economic assumptions.[3] The probably most valuable contributions of the economics of happiness arise when it helps to overcome limitations of traditional economic concepts and methods. For instance, the use of information on subjective well-being is analysed in order to improve the measurement of social progress (e.g. Kroll and Delhey 2013) as well as to calculate the individual willingness to pay for a specific public good (e.g. Frey et al. 2010).

The introduction of subjective measures of utility to the analysis of unemployment is closely related to the difficulties of the revealed preferences approach. The observation of rising unemployment during the 1970s and the 1980s led to the question whether most unemployed people prefer this status over being employed (voluntary unemployment) or would rather work (involuntary unemployment), which is a crucial distinction for policy implications. Using indicators of subjective well-being, it could be shown that unemployment is accompanied by much lower individual welfare than working, suggesting that people, on average, do not prefer being unemployed, but suffer from involutary unemployment (Clark and Oswald 1994).

Since then, a large body of research has analysed the welfare effects of unemployment and of related phenomena such as insecurity about being employed in the future, using well-being data (see, e.g., Frey 2008 for a review). The following Section (1.2) summarises the main insights of these studies and comments briefly at which points the four parts of the present thesis complement them. Afterwards (Section 1.3), the contributions of the present thesis are summarised, before they are documented in detail by one chapter each (Chapters 2, 3, 4 and 5). Discussions of the results regarding methodological issues, findings of previous research and directions of future research take place at the end of each of the following chapters.

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[3] Weimann et al. (in press) provide a recent examination of the Easterlin Paradox. Gielen and van Ours (2012) reconcile the two approaches to assessing individual welfare in regard to unemployment. Chadi and Hetschko (2014) provide a further labour market related example of happiness research that confirms the revealed preferences approach.

1.2 Previous literature

1.2.1 The well-being effect of unemployment

Depending on their employment status, workers report different satisfaction with life scores in representative surveys. Figure 1.2 shows calculations of Hetschko and Knabe (2013) of the average life satisfaction of employed and unemployed people using German data. Two patterns emerge, and they do so consistently and worldwide in investigations of unemployment and overall well-being: first, unemployed people are less happy than employed people and, second, this difference is larger for men than for women. The gap between employed and unemployed workers cannot be translated automatically into a causal effect of unemployment because it might also originate from other phenomena, such as the selection of unhappy workers into unemployment. However, the dynamic analysis of exogenously triggered entries into unemployment by Kassenboehmer and Haisken-De New (2009) shows that life satisfaction declines substantially *because of* the entry into unemployment.

The importance of the negative impact of unemployment for individual welfare becomes clear when comparing it to other major life events. Marriage, birth of child and divorce change life satisfaction to a much smaller extent. Only widowhood has at least as much impact as unemployment (e.g. Clark et al. 2008a). A way to further validate the well-being effect of unemployment as an actual welfare effect is to relate it to observable behaviour and behavioural intentions (see also Section 1.1). Indeed, the less happy unemployed workers are, the more they intend to become reemployed and search for a new job (Chadi 2010, Gielen and van Ours 2014).

Why is unemployment that detrimental? A natural guess is its effect on income. Most workers may have to reduce consumption when becoming unemployed. A way to measure how much this accounts for the utility loss caused by unemployment is to calculate a notional income an unemployed person has to receive in order to restore her prior level of life satisfaction. If this income is no higher than the actual former income, one could conclude that the loss of income covers the whole negative effect of unemployment. In fact, such a payment would need to be much higher than the income prior to unemployment. Thus, unemployed workers dreadfully miss non-monetary benefits of employment (e.g. Winkelmann and Winkelmann 1998, Knabe and Rätzel 2011a).

Figure 1.2: Life satisfaction and employment status in Germany (2008)
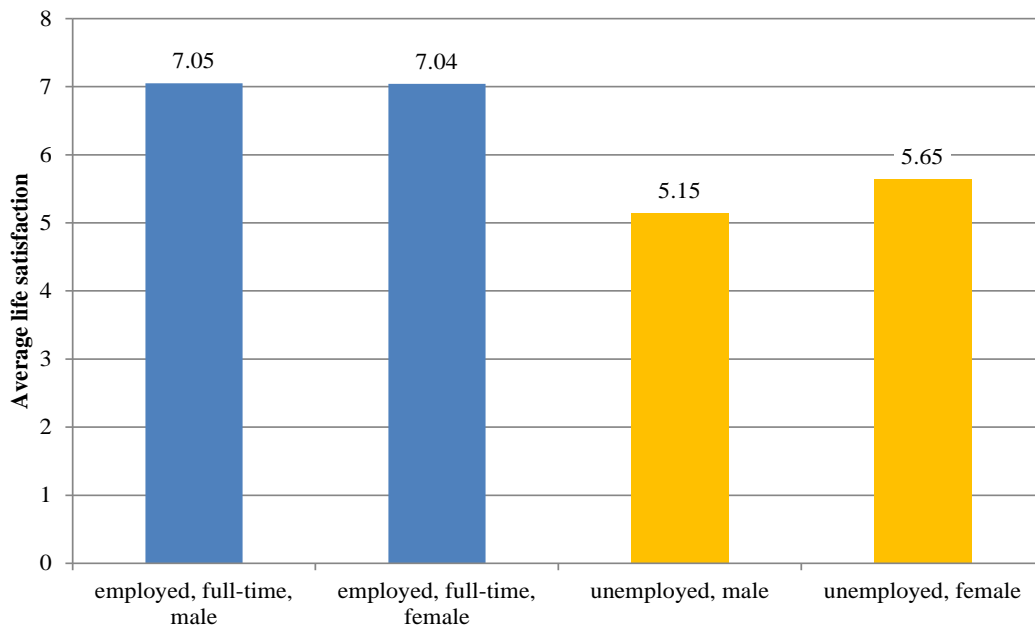
Source: Hetschko and Knabe (2013).
Note: Life satisfaction is measured on a scale from 0 to 10.

This insight contradicts the basic economic view of labour supply that neglects any motives beyond income for being employed. But which other factors matter? For many years, research in this context has started from Marie Jahoda's premises that being employed

> *"imposes a time structure on the waking day, implies regularly shared experiences and contacts with people outside the nuclear family, links individuals to goals and purposes that transcend their own, enforces activity, and defines aspects of personal status and identity" (Jahoda 1981, p. 188, slightly shortened).*

As a first contribution of the present thesis, the study documented in *Chapter 2* suggests that the final immaterial function of employment mentioned by Jahoda, personal status and identity, seems to be particularly relevant for explaining the individual loss of welfare caused by unemployment. The analysis shows that unemployed workers who retire experience a huge increase in life satisfaction although their life circumstances remain the same. It is argued that changing the status from being unemployed to being retired helps workers to retrieve their self-chosen identity. Conversely, a loss of utility caused by deviating from one's identity explains part of the extraordinary suffering of the unemployed. This finding is in line with studies showing that unemployment is especially detrimental to workers who live in (or profess to) communities that are characterised by a

relatively strong work ethic and studies showing that unemployed men benefit from unemployment of a certain reference group (Clark 2003, Stutzer and Lalive 2004, Schöb 2013, van Hoorn and Maseland 2013).

1.2.2 The long-term effects of unemployment

Many life events are characterised by the phenomenon of adaptation since they change well-being for a certain time only. While people adapt at least partly to marriage, divorce, widowhood and birth of child, they do not get used to unemployment. They continue reporting the reduced level of life satisfaction that they reached directly after becoming unemployed as long as they stay unemployed (Lucas et al. 2004, Clark et al. 2008a). Hence, the differences between the impacts of unemployment and that of other life events on individual welfare mentioned above increase in the long-run.

The lack of adaptation to unemployment is valid for overall measures of subjective well-being such as life satisfaction, but it does not apply to moods and emotions experienced over a waking day (Knabe et al. 2010). Hence, part of subjective well-being, namely its affective components, adapt to unemployment, if they are affected at all.[4] The difference between overall life satisfaction and affective measures of well-being lies in the process of the individual assessment. People may have met and unmet aspirations in mind when evaluating global satisfaction with life rather than when reporting concretely experienced emotions. Hence, the fact that life satisfaction does not recover during the time of unemployment may stem from unmet aspirations, such as in case of deviating from one's identity (see also Section 2.7)

Not even when workers overcome joblessness does well-being adapt fully and return to the level it was at prior to unemployment. The detrimental effect outlasts the unemployment spell to some extent (e.g. Clark et al. 2001). Such 'scarring effects' are well known from other outcomes (e.g. Arulampalam et al. 2001): Past unemployment reduces earnings, which may be a monetary reason for the persistent reduction of life satisfaction after becoming reemployed. Lost human capital because of deteriorated skills can explain this effect and it may also account for the fact that future employment prospects worsen during an unemployment spell. In addition, employment protection can be weak during a probationary period at the beginning of a new job. Hence, people who have overcome

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[4] See also Krueger and Mueller (2012) as well as von Scheve et al. (2013) in this context.

unemployment suffer more from insecurity about being employed in the near future than they did prior to unemployment, which can be seen as a non-monetary scar (Knabe and Rätzel 2011b).

The analysis presented in *Chapter 3* questions whether non-monetary unemployment scarring is limited to reemployment. It turns out that people who become unemployed for the first time directly before retirement do not, after retiring, reach the level of satisfaction experienced prior to unemployment. This indicates that the reasons why unemployment reduces well-being even when it has been overcome are not limited to aspects of working life, but extend to other areas as well.

1.2.3 Unemployment and life satisfaction: Do all workers react the same?

Thus far, the impact of unemployment on well-being has been characterised as clearly negative. As a matter of course, such an empirical finding is based on mean effects which do not reveal whether all workers react more or less in the same way. The results of Gielen and van Ours (2014) suggest substantial variation in the change in life satisfaction that accompanies the entry into unemployment. Only one half of the transitions to unemployment lead to a reduction of life satisfaction. 25% do not experience a change at all and 23% gain well-being.

The personal circumstances of becoming unemployed potentially explain this variation. The reasons for the suffering from being unemployed may not apply to each worker to the same extent. In addition, personal characteristics modify the individual welfare cost of unemployment. As mentioned above, men suffer much more than women. Voluntary transitions to unemployment are unlikely to be accompanied by a reduction of well-being that is driven by unemployment (Kassenboehmer and Haisken-De New 2009, Chadi 2010). In contrast, the availability of social capital in terms of social contacts and social activities does not weaken the loss in well-being (Winkelmann 2009). A further explanation is provided by the study presented in *Chapter 4*. It compares the change in life satisfaction between self-employed and paid employed workers who become unemployed. The results suggest that the former suffer substantially more.

1.2.4 Unemployment and employees' well-being

The finding outlined in Subsection 1.2.2 according to which "past unemployment scars because it scares" (Knabe and Rätzel 2011b, p. 292) already makes it clear that people not only suffer from being unemployed, but also from the fear of becoming unemployed. The probability of future unemployment affects current well-being. This applies to both unemployed and employed workers. Remarkably, worrying a lot about the security of one's current job is associated more with lower life satisfaction than being unemployed but at the same time full of hope to find a new job soon (Knabe and Rätzel 2010). Further analyses of a variety of measures of perceived security about being employed in the future confirm as well that good prospects benefit the well-being of employed people. Decreasing expected probability of job loss, decreasing concerns about the security of the present job and growing confidence about being able to find a new job if the current one were to be lost increase well-being (e.g. Sverke et al. 2002, Green 2011, Geishecker 2012).

The impacts of objective measures of security are less clear. The current local unemployment rate has at least two qualitatively different implications for the well-being of unemployed and employed workers. A rising number of job seekers sends out a signal that employment is becoming more insecure, which reduces well-being substantially (e.g. Luechinger et. al. 2010, Helliwell and Huang 2014). This negative impact may be strengthened when massive layoffs constrain workers possibilities to leave bad jobs (Cooper 1986) and make employed workers feeling guilty towards those who lose their jobs (Noer 1993).

Rising local unemployment may also have a positive impact on the individual changes in welfare that are caused by a growing expectation of becoming unemployed (Clark et al. 2010). A likely explanation is that deviating from one's self-chosen identity because of unemployment depends on how much the social environment accepts that a person is unemployed (see also Subsection 1.2.1). The more workers have already lost their jobs, the more normal or accepted it would be to become unemployed. The ambiguous impact of the unemployment rate hence originates from the fact that it does not only reflect the security of employment.

One can also argue that working on a fixed-term contract instead of a permanent contract is an objective indicator of insecurity because of the limitation of the employment duration (De Witte and Näswall 2003). However, previous research could not show that

temporary jobs reduce well-being because of the limitation of the employment duration (e.g. de Cuyper et al. 2008). *Chapter 5* sheds light on this unexpected finding. It turns out that a negative impact of working on a fixed-term contract instead of a permanent contract appears when controlling for the extraordinarily happy first time after a job change.

1.3 The contributions of the present thesis

1.3.1 Changing identity: retiring from unemployment

The study documented in the second chapter aims at identifying a non-monetary reason why unemployment reduces life satisfaction. Andreas Knabe, Ronnie Schöb and I test whether workers suffer from a loss of 'identity utility' when they become unemployed. Our analysis is based on theoretical considerations by Akerlof and Kranton (2000) who postulate that people define their identity by assigning themselves to social categories that altogether form an ideal self. People obtain identity utility from meeting prescriptions of these social categories. A loss of identity utility can thus be seen as a loss of self-esteem originating from becoming unable to meet one's ideal self. We apply these theoretical considerations to people of working age, assuming that they often consider being an able-bodied member of the society that makes at least his own living to be such a social category and that being employed is the natural prescription of this category. By implication, being unemployed costs identity utility.

Using German panel data, we analyse unemployed workers' transitions to retirement as a natural setting that makes it possible to identify empirically whether losing identity utility contributes to the individual welfare cost of unemployment. We assume that retired people do not assign themselves to social categories that require working and thus do not need to work anymore in order to meet their ideal selves. If this holds true, unemployed people who retire experience an increase in identity utility as they stop deviating from their ideal selves. This hypothesis is tested under the assumption that retirement changes nothing in the lives of the unemployed except the employment status, so that an increase in life satisfaction necessarily reflects an increase in identity utility.

A mean analysis reveals that the transition from unemployment to retirement yields a huge increase in life satisfaction, whereas other living conditions hardly change. This result is confirmed by regression analyses which control for changes in living conditions. One might wonder whether the effect on the unemployed does not originate from overcoming

unemployment, but from entering retirement instead. However, we show that employed workers who retire, on average, do not experience an increase in life satisfaction. Hence, leaving unemployment may benefit workers' well-being. It is also conceivable that unemployed workers who can decide the beginning of their retirement benefit from this step for other reasons and not necessarily from having escaped unemployment. However, our results apply in particular to a subgroup of unemployed workers who cannot decide when they retire, but are forced to do so instead. Thus, retiring from unemployment itself may cause the increase in life satisfaction. These findings and further results obtained from various subgroups are consistent with the interpretation that increasing identity utility explains why retirement benefits the unemployed. By implication, the loss of identity utility is an important non-monetary reason why unemployment yields a decline in individual welfare.

1.3.2 Looking back in anger? Retirement and unemployment scarring

It is shown in Chapter 2 that retirement raises the happiness of the unemployed. However, the mean analysis (Section 2.4) makes clear that they do not catch up completely with retirees who were employed before entering retirement. In the study documented in Chapter 3, Andreas Knabe, Ronnie Schöb and I investigate several explanations for the remaining gap using German panel data. We focus in particular on scarring effects (see Section 1.2.2): Does unemployment prior to retirement reduce life satisfaction after the transition? Explanations for unemployment scarring identified by previous research refer to employment-related aspects only (e.g. increased insecurity about future employment prospects). These factors cannot account for unemployment scarring after retirement if the transition is irreversible. Hence, definite transitions to retirement provide a natural setting that enables us to test whether unemployment scarring goes beyond employment-related aspects.

Our empirical analysis starts with cross-sectional regressions that explain the remaining life satisfaction gap between retirees who were employed prior to retirement and retirees who were unemployed prior to retirement. We make use of information on lifetime unemployment experience in order to disentangle potential scarring of the final unemployment spell from potential scarring of previous unemployment spells. On average, retirees who were never unemployed report higher life satisfaction than retirees who were unemployed prior to retirement. The gap is larger for workers who experienced

unemployment not only at the end of their working life. These differences can be explained by variations in income, wealth as well as the 'Big five' personality traits to some extent, but not completely.

We also conduct a longitudinal approach that enables us to control for all time-invariant personal characteristics by individual fixed-effects. It turns out that a onetime unemployment spell before retirement reduces life satisfaction afterwards compared to times of employment before this spell. In contrast, retired workers who experienced several unemployment spells reach the level of well-being they reported before their final unemployment spell. We conclude that the first unemployment experience in life may scar beyond employment-related aspects, whereas further times of unemployment do not leave additional scars.

1.3.3 On the misery of losing self-employment

German panel data are also analysed in order to answer the question whether self-employed workers or paid employed workers suffer more from losing work. Two approaches are developed to address this issue: First, it is assumed that the effect of the probability of losing work on workers' current life satisfaction reflects the utility loss they expect from losing work. If this holds true, the results obtained from cross-section and panel estimations imply that self-employed workers expect this loss to be higher than salaried workers. Given that workers' expectations are correct, these findings identify the individual welfare loss from losing self-employment to be higher than that of losing dependent employment. The results also indicate that the current probability of losing work modifies the well-being effect of being self-employed. Self-employment is more promising than dependent employment up to a certain level of this likelihood only.

A second identification strategy follows workers in the transition to unemployment. It is assumed that self-employed workers who become unemployed lose their work due to exogenous reasons. The same applies to salaried workers who become unemployed because they lose their jobs due to plant closures. A first difference approach is employed in order to compare the two groups' average changes in life satisfaction when entering unemployment. It reveals that becoming unemployed reduces self-employed workers' well-being considerably more than salaried workers' well-being. Hence, both identification strategies indicate that losing self-employment is an even more harmful life event than losing dependent employment.

The second identification strategy makes it possible to shed some light on the reasons why losing self-employment may reduce individual welfare more than losing dependent employment. It turns out that monetary and non-monetary reasons seem to account for the difference. An interesting question in this context is whether the self-employed lose more well-being because they are more satisfied with their lives when working. However, the larger loss of well-being originates from lower well-being after entering unemployment rather than from higher well-being before unemployment. Implications regarding the literature on unemployment and well-being as well as on self-employment and well-being are discussed at the end of the chapter.

1.3.4 Flexibilisation without hesitation? Temporary contracts and job satisfaction

Regarding the huge negative impact of unemployment and insecurity about future employment on workers' well-being (see Section 1.2), one might believe that a fixed-term contract reduces job satisfaction compared to a permanent contract. However, empirical research could not establish a clear relationship between fixed-term employment and job satisfaction so far. As described in Chapter 5 in detail, Adrian Chadi and I research this contradiction using German panel data. We suppose that previous studies yield inconclusive findings because random assignments of fixed-term contracts and permanent contracts in the data at hand are missing. In line with these studies, average job satisfaction does not vary significantly between fixed-term employees and permanent employees in our data although the former report lower perceived job security than the latter.

It is conceivable that people who are happier because of their personality or socio-demographic characteristics are observed as fixed-term employees rather than as permanent employees. Furthermore, workers might be compensated by pleasant job characteristics and earnings for accepting a fixed-term contract. However, our cross-section and longitudinal regression analyses do not identify these characteristics as relevant for the statistical relationship between fixed-term employment and job satisfaction (the reference category is always permanent employment).

We also consider recent job switching. Both permanent and fixed-term employees are extraordinarily happy right after switching jobs ("honeymoon-hangover effect"), but fixed-term employees are more likely to be observed at the beginning of the employment relationship. Controlling for recent switching indeed yields a negative statistical relationship between fixed-term employment and job satisfaction. We confirm this finding

by cross-section and longitudinal regression analyses as well as by a propensity score matching approach. In addition, we show that perceived job insecurity explains the negative relationship between fixed-term employment and job satisfaction. Finally, it turns out that the feeling to be easily able to find a new job if the current job was lost can partly compensate for the potential utility loss caused by fixed-term employment. We discuss policy implications of our findings in regard to labour market flexibilisation.

Chapter Two

*Changing Identity: Retiring from Unemployment**

Chapter Three

Looking Back in Anger?
Retirement and Unemployment Scarring

3.1 Unemployment, scarring and well-being

Involuntary unemployment affects the lives of people in several ways. The immediate loss of income and the gain in leisure time only partly explain the effect of unemployment on subjective well-being. Even full compensation of the income loss due to unemployment would not raise an unemployed person's life satisfaction to the level it was during employment (see Winkelmann and Winkelmann 1998, Blanchflower and Oswald 2004 as well as Subsection 1.2.1). Among other reasons, deviating from the social norm to work, which negatively affects social identity, explains at least to some extent why the pain of unemployment goes far beyond that caused by the income loss (see, e.g., Clark 2003, Stutzer and Lalive 2004, Schöb 2013).

Unemployment not only hurts as long as one is unemployed – it also leaves scars. A job loss diminishes future employment prospects, with the result that it affects people even when they become reemployed. The new job might be characterised, *inter alia*, by higher job insecurity and thus higher income volatility, lower (expected) wages, and worse working conditions (see, e.g., Arulampalam et al. 2001, Brand 2006, Dieckhoff 2011). The longer people are unemployed, the more they may lose human capital and send worsened productivity signals. Other factors that intensify with time, such as social relations within firms, are also likely to suffer as a result of multiple unemployment spells. These scars, which we call *employment-related* scars, might explain why life satisfaction does not recover fully after finding a new job (Clark et al. 2001, Knabe and Rätzel 2011b, Young 2012). Even decades later, early career unemployment seems to have a detrimental effect on current well-being (Bell and Blanchflower 2011, Daly and Delaney 2013). Moreover, each further job loss lowers life satisfaction during subsequent employment and unemployment spells (Luhmann and Eid 2009). It is, however, also conceivable that unemployment scarring goes beyond working life insofar as unemployment experience has long-lasting effects on other life domains and, hence, leaves *non-employment-related* scars on workers' well-being.

In this study, we analyse the existence of non-employment-related scarring effects of unemployment. For this purpose, we focus on retired people with different unemployment experience during their working lives. By definition, retirees cannot suffer from employment-related scars as long as they do not intend to return to the workforce. They do not need to worry about job characteristics or job security anymore. Their future income

path is determined by their pension and income volatility has vanished. Non-employment-related scars, however, may persist. Some of these non-employment-related scars are of *monetary* nature. People with previous unemployment experience may have saved less and contributed less to public pension systems than employed people and, hence, receive lower pensions after retirement and possess less wealth. Other non-employment-related scars are of *non-monetary* nature. People with previous unemployment experience may look back in anger when assessing their life because, for example, a past career with multiple violations of the social norm to work leaves their self-image after retiring devastated. To the extent that the factors that cause monetary scarring can be observed in the data, the transition to retirement provides a unique life event that can be employed to identify non-monetary non-employment-related scars.

In Chapter 2, it is documented that people retiring from unemployment report significantly lower life satisfaction before, as well as after, retirement compared to those who retire from employment. The gap diminishes in the transition process but does not vanish. This suggests that there could be non-employment-related scars remaining after retirement. However, the gap could also result if unhappy people are more likely to be unemployed during their working life. If this were the case, retired people with unemployment experience would simply continue to report lower life satisfaction in the aggregate, without there being a causal effect of unemployment on post-retirement life satisfaction.

We provide an empirical test to identify the different possible channels that explain the gap in life satisfaction between retired people with and without previous experience of unemployment. In a first step, we use cross-sectional data to find out whether there is a gap in life satisfaction between retirees with and without this experience and to identify potential factors that correlate with the magnitude of the gap. We find that retirees' well-being is indeed lower, the longer they have experienced unemployment during their careers. Lower income and wealth, differences in personality and differences in socio-demographic characteristics can only explain part of this gap. This indicates that unemployment leaves scars that cannot be attributed to current employment or future employment prospects.

In a second step, we turn to a longitudinal analysis of changes in life satisfaction when people retire. We test whether such non-employment-related scars exist against the

alternative explanation that time-invariant unobservables affecting baseline well-being differ between retirees with unemployment experience and those without. To do so, we focus on the final unemployment spell and analyse whether it lowers subjective well-being after retirement compared to subjective well-being reported in times of employment before retirement. We find evidence that an unemployment spell directly before retirement reduces life satisfaction after retiring when people had never been unemployed before. In contrast, when people experienced unemployment at earlier times during their career, the final unemployment spell does not scar. We conclude that it may be only the first unemployment experience in life that leaves non-employment-related non-monetary scars.

Our findings complement the research on unemployment scarring by showing that non-monetary scarring may affect workers' lives beyond employment-related aspects, such as job quality and job insecurity, and, additionally, contribute to the investigation of well-being effects of retirement (see, e.g., Bender 2012, Bonsang and Klein 2012).

In the following section (3.2), we show how retirement can be used to test scarring beyond employment-related aspects and explain why German data is especially well suited for this identification strategy. In Section 3.3, we describe how we process German Socio-Economic Panel (SOEP) data for this purpose. Section 3.4 provides the descriptive statistics. The two sections following that show the results of the cross-sectional analysis (Section 3.5) and the longitudinal approach (Section 3.6). In Section 3.7 we discuss our findings and conclude.

3.2 Retirement and non-employment-related scars from unemployment

We provide a new approach to identifying unemployment scarring beyond employment-related aspects by examining the transition to retirement. In fact, Germans' retirement entries are nearly always definite in the sense that retirees do not intend to return to the labour market in the future. The public pension system enables most people to continue living under material conditions after retirement similar to those before retirement without having to work anymore. Basic income support and the public health system ensure that this applies even to the small minority of retirees who were frequently unemployed during their working lives. Hence, the vast majority of retired people neither work nor intend to return to the workforce and, hence, stop worrying about current or future work experience. Insecurity about future employment prospects, which has been identified as a pathway of

unemployment scarring (Knabe and Rätzel 2011b, Lange 2013), disappears after retiring. However, if unemployment causes scars beyond aspects that matter during working life only, the transition to retirement cannot heal them. These non-employment-related scars should still be measurable after retirement, especially if the last period of unemployment does not date back too long.

Scars are long-lasting consequences of having been unemployed that persist even after changing one's employment status, in particular after becoming reemployed or entering retirement, irrespective of what caused these changes. Thus, comparing the life satisfaction of retirees with and without earlier unemployment experience reveals whether unemployment leaves non-employment-related scars or not. Some of these scars might be monetary. When past unemployment leads to lower wage incomes during a person's working life, savings and contributions to public pension systems might have been affected negatively as well. Hence, controlling for income and wealth in the econometric analysis allows us to detect any remaining non-monetary non-employment-related scars.

As a first step, we test whether the well-being difference between retirees from unemployment and employment persists once relevant personal characteristics are controlled for in a cross-sectional setting. By making use of biographical data, we can even account for unemployment experiences taking place before people took part in the survey. We conduct a regression analysis explaining the individual life satisfaction LS after retirement as a result of binary variables for employment status and unemployment experience combinations before retirement. The variable

- *E* equals one for people retiring from employment who never experienced unemployment during their careers and zero otherwise;
- *U* equals one for people retiring from unemployment who did not experience unemployment before the last spell and zero otherwise;
- *UEXP* equals one for people retiring from unemployment who have also experienced unemployment before the last spell and zero otherwise;
- *EEXP* equals one for people retiring from employment who have experienced unemployment during their working life and zero otherwise.

A large share of the variation in life satisfaction between individuals is caused by personal characteristics such as personality traits or other dispositions (Lykken and Tellegen 1996). These differences bias our estimates as long as they affect both unemployment and

subjective well-being simultaneously. We address this issue by considering personality traits (vector *P*) and socio-demographic characteristics (vector *SD*) in the regression analysis. The latter contains information on income and wealth, and thus allows us to separate monetary aspects of non-employment-related scarring effects of unemployment from their non-monetary aspects. The corresponding econometric model estimates life satisfaction at the first interview after retiring as a function of contemporaneous characteristics, past labour market experiences, time effects (vector of dummies *Y* indicating the year of retirement) and an error term (ε):

$$LS_i = \alpha + \beta_1 U_i + \beta_2 UEXP_i + \beta_3 EEXP_i + \gamma' P_i + \delta' SD_i + \eta' Y_i + \varepsilon_i. \qquad (3.1)$$

A negative coefficient β_1 might be interpreted as non-monetary non-employment-related scarring of the last unemployment spell. If $\beta_2 < \beta_1$, earlier unemployment experiences are negatively related to the life satisfaction of people retiring from unemployment. The same applies for those who had some unemployment experiences but retire from employment, when $\beta_3 < 0$.

Some of the control variables considered in (3.1) might also represent pathways of unemployment scarring, for instance when job losses make people less optimistic in general. In this respect, taking into account controls that are positively influenced by unemployment and that themselves have a negative influence on life satisfaction (or *vice versa*) estimates the lower bound of the non-employment-related non-monetary scarring effect of unemployment.

Even if the cross-sectional approach shows differences in well-being for the different subgroups, it cannot be ruled out that this difference is due to unobservable personal characteristics, with the result that the observed gap in life satisfaction between retirees from unemployment and retirees from employment would also have been present when they were still in employment. Any difference we find in the cross-sectional analysis, i.e. any negative sign of β_1, β_2, β_3, can only be attributed to non-employment-related scarring if the well-being of a person who retires from unemployment is lower than her reported well-being would have been had she not experienced the last unemployment spell. We tackle this problem by proceeding with a longitudinal analysis in which we focus on the last unemployment experience and compare the life satisfaction change from preceding times in employment with the time in retirement for people who experienced

unemployment directly before retirement. This longitudinal approach includes observations of the same individuals at different points in time *t* in employment, unemployment and retirement. Personal time-invariant characteristics are controlled for by introducing individual fixed-effects ϕ such that time-independent factors cannot bias our estimates. We estimate the following model (3.2), where *E*, *U*, *UEXP* and *EEXP* are defined as before, indicating retirement with different labour market experiences. The variable *UNEMP* denotes being unemployed in year *t*. A time-fixed effects τ controls for the year of the interview.

$$LS_{it} = \alpha + \beta_1 U_{it} + \beta_2 UEXP_{it} + \beta_3 EEXP_{it} + \beta_4 E_{it} + \beta_5 UNEMP_{it} + \delta' SD_{it} + \tau_t + \phi_i + \varepsilon_{it} \quad (3.2)$$

3.3 Data

Our analysis relies on 28 waves (1984-2011) 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 about 11,000 households are interviewed and provide information on their well-being, 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 compare both the life circumstances of different persons and the subjective well-being of the same person before and after retirement.

During the time period used for our study, people in Germany could receive retirement benefits when they reached the statutory 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 that certain conditions were met. In these cases, monthly pensions were lowered by 0.3% for every month a person retired before reaching the statutory 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 increasing for people born after 1941 and converging to that of employed people (Lühning 2006).

In the SOEP, people provide information about their current employment status, such as whether they are unemployed, employed or retired. Thanks to the SOEP's panel structure, we can identify retired people who were either unemployed or employed prior to retirement. We further distinguish these two groups by overall unemployment experience. SOEP respondents fill out a one-time biographical questionnaire in which they, *inter alia*, report their whole employment history in detail. Together with their employment situation reported at subsequent interviews, these pieces of information are used to aggregate lifetime unemployment experience in years. Combining this with the previous employment status of recently retired people, we obtain 2×2 groups of retirees who were either employed or unemployed before retirement and retired with or without unemployment experience beyond the last spell. Our cross-sectional analysis considers these four groups at the first interview after retiring. The longitudinal approach adds observations during employment and unemployment spells before retirement and in their retirement years. Other groups on the labour market are not considered (e.g. people in workfare schemes).

To ensure that future employment prospects do not matter anymore to the interviewed persons, we only consider retirees who are at least 50 years old and continuously report to be retired without returning to any other employment status later in their lives. 95% of these people already state directly after retirement that they are not going to return to work in the future. Hence, the quasi-experimental setting we need in order to analyse potential scarring beyond worrying about future employment prospects is guaranteed to a very large extent. To rule out the issue that unobservable events shift individual life satisfaction baselines over the life cycle and affect the results of the longitudinal approach, we only consider employed and unemployed people who are at least 50 years old as well.

The cross-sectional approach makes use of information on "Big Five" traits (openness to experiences, neuroticism, conscientiousness, agreeableness and extraversion) to account for the simultaneous impact of personality on well-being and employment. As this data is only available for 2005 and 2009, we have to transfer the information to observations of the same person in other years, counting on the stability of personality traits (Specht et al. 2011). The data of 2005 describe personality traits between 1996 and 2006 in our analysis,

and information from the 2009 wave is transferred to the time span from 2007 to 2011. Three self-assessments assemble each personality trait. We pool the five characteristics using the mean value of the three answers (each given on seven-point scales). For the econometric analysis, we assign people, depending on the position of their individual values within the distribution of each trait, to high (highest quartile), medium (lower and upper middle quartile) and low (lowest quartile) manifestations. Robustness checks address the sensitivity of our results against the sample restrictions we make.

We measure subjective well-being using 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?"*

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 use information about the presence of children and people in need of care in the household as well as about age, sex, educational level, partner status and home ownership as a proxy for household wealth. The longitudinal approach also considers job security levels before retirement derived from the question "Are you concerned about the security of your job?" The levels 'high', 'medium' and 'low' follow the answers 'not at all', 'somewhat' and 'very'. We also use information on workers' self-reported job satisfaction (on a scale from 0 to 10). As some respondents do not give answers to each question, some observations drop out because of missing values.

The remaining sample covers 1,561 retirees for the cross-sectional analysis. Among these, 318 people were registered as unemployed before retirement. This final spell is the only unemployment experience for 209 of them whereas 109 experienced earlier unemployment spells during their working life. Of the 1,243 people who were employed in the last year before retirement (full-time, part-time or self-employed), 1,052 have never

been unemployed while the other 191 retirees from employment have had some unemployment experiences. For the longitudinal approach, we use all the SOEP waves because we do not need to consider information about personality. There are 12,655 people in the resulting unbalanced panel, providing 77,538 observations (51,817 employed, 8,764 unemployed, 16,957 retired). The average number of observations (years) per person is 6.1.

3.4 Unemployment scarring and life satisfaction after retirement – an overview

Retirees with different labour market experiences differ considerably in socio-demographic characteristics, personality traits and well-being. The following overview distinguishes between four groups of people who retired between two interview dates (so approximately within the last twelve months before the first post-retirement interview). All results discussed in this section are statistically significant at least on the 5% level. The complete findings are presented in Table 3.1.

Group *UEXP* surpasses Groups *EEXP* and *U* with respect to overall unemployment experience. Comparing Groups *U* and *EEXP* reveals that, on average, a final unemployment spell is longer than the entire lifetime unemployment experience of retirees from employment. Unemployment experience and subjective well-being are strongly related. The more years of unemployment retirees experienced in their lives, the less satisfied they are. In consequence, a large gap of 1.37 points on the eleven-point life satisfaction scale appears between the happiest group E and the unhappiest group *UEXP*.

People in Group *E* have the highest average equivalence income. Former unemployment experience lowers the average equivalence incomes. Compared to Group *E*, people who experienced unemployment during their careers, on average, retire at a younger age, are less educated, less open, more neurotic, less likely to own their houses and more likely to live with people in need of care. All in all, the descriptive overview indicates that unemployment before retirement is related to well-being afterwards. It cannot identify the nature of this relationship since the four groups analysed differ in many ways that may affect life satisfaction as well. In the following, we employ multiple regression analyses to further investigate whether the life satisfaction gap between retired people who experienced unemployment and those who did not is explained by unemployment scarring or other differences.

Retired from ...	Employment		Unemployment	
Unemployment experience beyond the last spell:	*No (Group E)* mean / share	*Yes (Group EEXP)* mean / share	*No (Group U)* mean / share	*Yes (Group UEXP)* mean / share
Means				
Life satisfaction (scale 0…10)	7.44 (1.59)	6.96 (1.63)	6.64 (1.77)	6.07 (1.83)
Overall unemployment experience in years	0.00 (0.00)	1.62 (2.31)	2.25 (0.99)	3.82 (1.81)
Monthly equivalence income in € at 2006 prices	2,322 (2,426)	1,671 (859)	1,491 (773)	1,293 (543)
Age in years	61.57 (3.23)	61.16 (3.33)	60.58 (2.50)	60.42 (2.75)
Educational level (scale 1…3)	2.34 (0.68)	2.17 (0.69)	2.03 (0.72)	2.02 (0.71)
Neuroticism (scale 1…7)	3.83 (1.20)	4.02 (1.22)	4.06 (1.11)	4.26 (1.13)
Extraversion (scale 1…7)	4.74 (1.08)	4.77 (1.10)	4.56 (1.04)	4.53 (1.02)
Openness (scale 1…7)	4.59 (1.21)	4.46 (1.20)	4.23 (1.18)	4.18 (1.17)
Conscientiousness (scale 1…7)	6.00 (0.88)	5.91 (0.98)	5.96 (0.90)	5.90 (0.98)
Agreeableness (scale 1…7)	5.40 (0.97)	5.49 (1.00)	5.33 (0.97)	5.34 (1.01)
Shares				
Home ownership	70%	51%	55%	52%
Women	37%	53%	44%	42%
Singles	13%	20%	13%	17%
People in need of care live in household	2%	5%	7%	6%
Children live in household	1%	2%	1%	0%
Number of persons	1,052	191	209	109

Source: SOEP 1996-2011.
Note: The data refer to the first interview after a person has entered retirement (i.e. retirement has taken place within approximately 12 months before the interview). Standard deviation in parentheses.

3.5 A first glance at retirement and unemployment scarring

Our first approach to throwing light on unemployment scarring after retirement applies an OLS estimation of retirees' life satisfaction. As described in detail in Section 3.2, we regress life satisfaction reported at the first interview after retiring on a set of binary variables indicating different previous labour market experiences: retiring from unemployment with previous unemployment experience (β_2) and without (β_1) as well as retiring from employment with earlier unemployment spells (β_3). The reference group in our regressions is represented by (hypothetical) retirees from employment who never

experienced unemployment during their working life. The first model specification (1) only includes year of retirement dummies to control for time effects. As documented in Table 3.2, the coefficients of the three last spell/unemployment experience combinations are negative, substantial and statistically significant. The β-coefficients differ significantly for $|\beta_2| > |\beta_3|$ and $|\beta_2| > |\beta_1|$. The difference between β_1 and β_3 is not statistically significant. As these results might come from monetary consequences of unemployment, we control for equivalence income (in logs, at 2006 prices) and home ownership as a proxy for household wealth in the second specification (2). This change lowers the sizes of potential scarring effects considerably although they remain significant (though β_3 only at the 10% level) and differ from each other as before. Hence, differences in income and wealth partially explain life satisfaction differences between people with different labour market experiences.

With the next two specifications, (3) and (4), we control for factors that may cause unemployment during working life and directly affect well-being after retirement simultaneously. However, these characteristics might also be potential transmission channels of non-employment-related scarring, such as in the case of personality traits. The third specification only considers factors that are not expected to be affected by unemployment, such as gender, age, educational attainment and living with people in need of care or children in the same household. In contrast, (4) includes potential pathways such as "Big Five" personality traits and being single. For instance, people might become less open through unemployment and, in consequence, their well-being declines. Hence, the corresponding results must be interpreted with caution because the β-coefficients only cover potential scarring effects beyond the variables that are held constant. Nevertheless, in the OLS estimations of (3) and (4) the β-coefficients are still negative and, in the case of β_1 and β_2, highly significant. Furthermore, we find that $|\beta_2| > |\beta_1|$ and $|\beta_2| > |\beta_3|$ continue to hold. Retiring from unemployment with and without previous periods of unemployment coincide with lower life satisfaction after the transition compared to the life satisfaction of those retirees who never experienced unemployment. In consequence, the cross-sectional approach supports the claim that unemployment leaves scars on workers' well-being beyond employment-related aspects and reduces life satisfaction even when they have retired.

Table 3.2: OLS estimates of life satisfaction after retirement

Specification	(1)	(2)	(3)	(4)
Retired from unemployment, no previous unemployment (β_1)	-0.737***	-0.463***	-0.456***	-0.382***
	(0.138)	(0.139)	(0.138)	(0.134)
Retired from unemployment, previous unemployment (β_2)	-1.337***	-0.947***	-0.907***	-0.804***
	(0.182)	(0.188)	(0.185)	(0.179)
Retired from employment, unemployment in the past (β_3)	-0.465***	-0.235*	-0.206*	-0.186
	(0.129)	(0.127)	(0.121)	(0.120)
Log. household income		0.687***	0.693***	0.653***
		(0.086)	(0.093)	(0.092)
Home ownership		0.336***	0.309***	0.306***
		(0.089)	(0.088)	(0.085)
Women			-0.057	-0.094
			(0.082)	(0.085)
Living with people in need of care in the same household			-0.522**	-0.506**
			(0.248)	(0.242)
Living with children in the same household			0.116	0.006
			(0.277)	(0.278)
Age, at least 50 but not older than 54			-1.171***	-1.149***
			(0.246)	(0.243)
Age, at least 55 but not older than 59			-0.312***	-0.270**
			(0.115)	(0.112)
Age, at least 65			-0.001	-0.057
			(0.116)	(0.112)
Educational attainments, primary level			0.077	0.142
			(0.132)	(0.130)
Educational attainments, tertiary level			0.067	0.045
			(0.092)	(0.089)
Single				-0.159
				(0.115)
Neuroticism, high				-0.144
				(0.098)
Neuroticism, low				0.373***
				(0.095)
Extraversion, high				0.127
				(0.097)
Extraversion, low				-0.075
				(0.095)
Conscientiousness, high				0.174*
				(0.094)
Conscientiousness, low				-0.024
				(0.101)
Agreeableness, high				0.264***
				(0.095)
Agreeableness, low				-0.326***
				(0.097)
Openness, high				0.124
				(0.095)
Openness, low				-0.093
				(0.098)
Year of retirement dummies	yes	yes	yes	yes
Constant	7.693***	2.148***	2.179***	2.335***
	(0.123)	(0.668)	(0.703)	(0.709)
Observations	1,561	1,561	1,561	1,561
R²	0.077	0.130	0.152	0.206

Source: SOEP 1996-2011.

Note: Robust standard errors in parentheses, ***p<0.01, **p<0.05, *p<0.1. The data refer to the first interview after a person has entered retirement (i.e. retirement has taken place within approximately 12 months before the interview). The reference group is generally represented by (hypothetical) persons who have been employed before retirement, never experienced unemployment and give their first interview in retirement in 2006. From (2) to (4), they neither have household income nor own their home. In (3) and (4), they are between 60 and 64 years old, male, educated to secondary level and live neither with people in need of care nor children in the household. In (4), they are cohabiting and range between the 25% and the 75% quantile of the distribution of each "Big Five" personality trait.

Retirees' life satisfaction increases with income, home ownership and agreeableness. In contrast, living with people in need of care, neuroticism and being younger than 60 years when retiring seem to lower well-being. Based on smaller subsamples, it is possible to test the effect of health (e.g. measured by overnight stays in hospital) and further personality information (locus of control), which yields practically the same results. Additional tests address the sensitivity of our results to the sample composition. We have assumed so far that personality is constant over a ten-year period when we transfer "Big Five" information from 2005 to waves from 1996. The stability of personality is, however, still the subject of current research. Although traits seem to be very stable in general, some exceptional life events such as divorce or death of a spouse may affect certain traits (see, e.g., Specht et al. 2011), so that our assumption needs to be analysed further. A robustness check is to limit the transfer of personality information to a maximum of four further waves because the shorter the time intervals are, the less likely exceptional life events occur in the meantime. The test restricts the transfer of personality information conducted in 2005 to waves from 2001 (instead of 1996) to 2006 (as before). As in the initial analysis, information of the 2009 SOEP wave is transferred to all waves between 2007 and 2011. As Column 1 of Table 3.3 reveals on the basis of Specification (4), this stronger restriction compared to the basic sample leads to the same qualitative results as before. However, the difference between β_2 and β_1 is smaller and no longer significant (in contrast to the difference between β_2 and β_3). This slight change compared to the initial analysis also appears in the course of the following two robustness checks.

As mentioned above, 95% of the basic sample state as early as in the first year after retirement that they "definitely do not intend to engage in paid employment in the future". The remaining 5%, however, might experience retirement as another kind of unemployment. To test whether life satisfaction answers of these retirees bias our β-coefficients, we leave them out of the sample in a robustness check (Column 2 of Table 3.3) based on Specification (4). With respect to the β-coefficients, this test yields the same findings as the initial analysis.

Table 3.3: Subgroup analyses, cross-sectional approach

Subsample	1 SOEP Waves 2001-11	2 No Return Intentions	3 Age 57+	4 Women	5 Men	6 Primary/ Secondary Education	7 Tertiary Education
Retired from unemployment, no previous unemployment (β_1)	-0.433*** (0.154)	-0.343** (0.139)	-0.349** (0.142)	-0.368* (0.217)	-0.372** (0.175)	-0.454*** (0.172)	-0.226 (0.196)
Retired from unemployment, previous unemployment before (β_2)	-0.746*** (0.188)	-0.662*** (0.203)	-0.773*** (0.191)	-0.726*** (0.259)	-0.947*** (0.252)	-0.771*** (0.212)	-0.972*** (0.318)
Retired from employment, unemployment in the past (β_3)	-0.140 (0.132)	-0.197 (0.122)	-0.107 (0.122)	-0.274* (0.165)	-0.088 (0.177)	-0.253 (0.156)	0.005 (0.197)
Controls as in (4)	yes	yes	yes	yes	yes	yes	yes
Constant	2.707*** (0.736)	2.381*** (0.726)	2.312*** (0.730)	1.909 (1.185)	2.707*** (0.884)	2.598** (1.007)	2.543** (1.012)
Observations	1,323	1,479	1,410	631	930	929	632
R²	0.224	0.196	0.190	0.240	0.216	0.196	0.265

Source: SOEP 1996-2011.
Note: The table shows OLS estimates of life satisfaction in the first year after retirement. Robust standard errors in parentheses, ***p<0.01, **p<0.05, *p<0.1. The reference group is represented by (hypothetical) persons with the same characteristics as described in the note of Table 3.2, except those characteristics that are restricted by the respective subgroup definition. 1 considers waves from 2001 to 2011; 2-7 consider waves from 1996 to 2011.

Retirement might be experienced as late career unemployment when people retire relatively young. Therefore, we test Specification (4) based on a subsample of retirees of at least 57 years of age, so that the youngest 10% of retirees in the basic sample drop out. This change also does not affect our results qualitatively (Column 3 of Table 3.3).

We further test the robustness of our results in subsamples. In so doing, we divide the basic sample by gender and estimate Specification (4) separately for each group. It turns out that retiring from unemployment with or without unemployment experience is more negative for men than for women (Columns 4 and 5 of Table 3.3). We proceed similarly with subsamples of people with a university or polytechnic degree (education at the tertiary level) as well as with lower attainments (primary and secondary level). We find that retirees of the highly educated subsample with earlier unemployment experience report much lower life satisfaction after they retired from unemployment than those without earlier unemployment experience (Columns 6 and 7 of Table 3.3). In contrast, β_1 and β_2 are more similar for people with primary/secondary education. In sum, the results on gender and education subgroups do not differ qualitatively from those of the main sample although the negative β_1-coefficients lose size and significance in the cases of women and highly educated people. Among the gender and education subsamples, we find $\left|\beta_2\right| > \left|\beta_1\right|$ (not statistically significant for women and the highly educated) and $\left|\beta_2\right| > \left|\beta_3\right|$ (always statistically significant).

Table 3.4: Life satisfaction after retirement at different points in time

Year after retirement	t=0	t=1	t=2
Retired from unemployment, no previous unemployment (β_1)	-0.348***	-0.340***	-0.420***
	(0.131)	(0.132)	(0.134)
Retired from unemployment, previous unemployment (β_2)	-0.763***	-0.585***	-0.520***
	(0.200)	(0.187)	(0.195)
Retired from employment, unemployment in the past (β_3)	-0.221	-0.202	-0.150
	(0.148)	(0.147)	(0.155)
Controls as in (4)	yes	yes	yes
Constant	2.100***	2.553***	3.218***
	(0.804)	(0.713)	(0.849)
Observations	1,220	1,220	1,220
R²	0.213	0.203	0.155

Source: 1996-2011.
Note: The table presents OLS estimates of life satisfaction of retired people at different points in time after retirement. Robust standard errors in parentheses, ***p<0.01, **p<0.05, *p<0.1. The reference group is represented by (hypothetical) persons with the same characteristics as described in the note of Table 3.2. Only the distance to the transition to retirement has changed in the cases of t=1 and t=2.

People adapt to many positive and negative life events (see, e.g., Clark et al. 2008a), and so it is plausible that the scars of unemployment heal over time. We analyse a subsample of retirees who are observed in the second and third year after the transition ($n = 1,220$) as well in order to test whether non-employment-related scarring vanishes over time. Based on this group, we repeat the OLS regression as in Specification (4) in the first year after retirement ($t = 0$), the second year ($t = 1$) and the third year ($t = 2$). The controls included reflect the contemporary SOEP information at each point in time.

As Table 3.4 shows, the effect of having retired from a single unemployment spell, $|\beta_1|$, increases (though not significantly) between $t = 0$ and $t = 2$. In contrast, the coefficient of having retired from unemployment with previous unemployment experience, $|\beta_2|$, diminishes over time (but not significantly). However, it is still negative and highly significant in $t = 2$. Hence, β_1 and β_2 seem to converge. The effect of having retired from employment with unemployment experience in the past (β_3) diminishes insignificantly over time. It remains insignificantly different from zero across all periods.

3.6 Scarring through the last spell

The results of our cross-sectional analysis are compatible with the hypothesis that unemployment leaves scars beyond working life. However, unobserved time-invariant personal characteristics might also explain both unemployment before retirement and relatively low life satisfaction afterwards. To identify potential non-employment-related scars, we employ the panel fixed-effects approach described in Section 3.2 and determine the impact of a final unemployment experience prior to retirement on life satisfaction afterwards. Individual fixed effects capture time-invariant individual differences in life satisfaction. The estimated coefficients of our regression equation (3.2) 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. As a further advantage, we avoid having to control for potential pathways of non-employment-related unemployment scarring.

Our model (3.2) is specified further with the four binary variables *U*, *UEXP*, *E* and *EEXP* being differentiated according to the time since the transition to retirement. In so doing, we separate short-term scarring effects from longer-run ones. All in all, we use eight binary variables representing $2 \times 2 \times 2$ combinations of *employment states before retirement × previous unemployment experience × point in time after retirement* (transition types).

The corresponding OLS estimates are presented in Table 3.5. Besides individual and time fixed effects, the first specification (I) considers the eight transition types as well as binary variables for being unemployed (in any year except in the year immediately before retirement), being unemployed directly before retirement and being employed directly before retirement. The reference category is being employed (in any year except in the year immediately before retirement). The differentiation between employment and unemployment directly prior to retirement and employment and unemployment in earlier periods should separate the effects of normal periods of these states from potential anticipation effects that might occur directly before the retirement transition.

Table 3.5: Fixed effects estimates of life satisfaction

Specification	(I)	(II)	(III)	(IV)
Retired from employment, no unemployment experience, retired < 1 year	0.101** (0.042)	0.142** (0.042)	0.089** (0.042)	0.160*** (0.044)
Retired from employment, no unemployment experience, retired > 1 year	0.023 (0.035)	0.074** (0.035)	0.026 (0.037)	0.080** (0.039)
Retired from employment, with unemployment experience, retired < 1 year	0.028 (0.107)	0.084 (0.106)	0.015 (0.102)	0.017 (0.102)
Retired from employment, with unemployment experience, retired > 1 year	0.132* (0.078)	0.185** (0.078)	0.140* (0.078)	0.144* (0.079)
Retired from unemployment, no previous unemployment exp., retired < 1 year	-0.020 (0.088)	0.044 (0.088)	-0.018 (0.087)	-0.126 (0.088)
Retired from unemployment, no previous unemployment exp., retired > 1 year	-0.035 (0.145)	0.037 (0.082)	-0.026 (0.080)	-0.144* (0.079)
Retired from unemployment, with previous unempl. exp., retired < 1 year	0.145 (0.124)	0.204 (0.124)	0.129 (0.125)	-0.025 (0.129)
Retired from unemployment, with previous unempl. exp., retired >1 year	0.335*** (0.110)	0.401*** (0.101)	0.312*** (0.110)	0.161 (0.111)
Employed in the year before retirement	-0.006 (0.030)	-0.006 (0.030)	-0.034 (0.030)	-0.019 (0.030)
Unemployed in the year before retirement	-0.407*** (0.079)	-0.327*** (0.080)	-0.356*** (0.079)	-0.484*** (0.081)
Unemployed except in the year before retirement	-0.557*** (0.037)	-0.481*** (0.037)	-0.501*** (0.036)	-0.623*** (0.038)
Log. equivalence income at 2006 prices		0.344*** (0.028)	0.337*** (0.028)	0.301*** (0.028)
Home ownership		0.098* (0.040)	0.070* (0.040)	0.070* (0.039)
Living with people in need of care in the same household			-0.574*** (0.064)	-0.583*** (0.064)
Living with children in the same household			0.034 (0.040)	0.039 (0.039)
Single			-0.447*** (0.046)	-0.450*** (0.045)
Age, at least 50 but not older than 54			-0.174** (0.036)	-0.167*** (0.036)
Age, at least 55 but not older than 59			-0.147*** (0.024)	-0.126*** (0.023)
Age, at least 65			0.042 (0.029)	0.046 (0.029)
Job security, high				0.105*** (0.017)
Job security, low				-0.163*** (0.017)
Job satisfaction, average of the sample				0.176*** (0.005)
Time fixed effects	yes	yes	yes	Yes
Individual fixed effects	yes	yes	yes	Yes
Constant	6.828*** (0.025)	4.218*** (0.214)	4.434*** (0.214)	4.713*** (0.210)
Observations	77,538	77,538	77,538	77,538
Number of persons	12,655	12,655	12,655	12,655
R² (within)	0.022	0.026	0.034	0.070

Source: SOEP 1984-2011.

Note: The table presents OLS estimates of life satisfaction with individual and time fixed effects. Robust standard errors in parentheses, ***p<0.01, **p<0.05, *p<0.1. The reference group represents (hypothetical) persons who are employed. From (II) to (IV), they additionally have no disposable income and do not own their home. In (III) and (IV), they live neither with people in need of care nor children in the household, are cohabiting and between 60 and 64 years old. In (IV), they have sample-average job satisfaction and medium job security.

The second specification (II) adds income and home ownership, and the third specification (III) introduces further socio-demographic characteristics.[9] None of these specifications reveal non-monetary non-employment-related scarring effects. Compared to times of employment, people retiring from unemployment with previous unemployment experiences benefit from retirement.

It is plausible that the transition to retirement genuinely affects well-being through non-monetary non-employment-related channels. If true, it is the difference-in-differences that measures the actual non-employment-related scarring effect: the change in life satisfaction since periods of employment for retirees from unemployment *minus* the change in life satisfaction from employment to retirement, given the same level of unemployment experience and the same point in time after retirement. Scars are detected if the values are negative. Specifications (I), (II), (III) in Table 3.6 display the corresponding values which are calculated as the sums of the coefficients from the estimations of (3.2) given in Table 3.5. These sums are slightly positive for people with previous unemployment experience and slightly negative otherwise, but statistically never significantly different from zero.

This strategy does not take into account that retirement might affect people who retire from unemployment differently from those who retire from employment because their job conditions differed as well. One could imagine that unpleasant job characteristics, in particular job insecurity prior to unemployment, or low work motivation during late career employment were more prevalent among people who eventually retired from unemployment. This would explain why these people seem to experience a larger increase in life satisfaction upon retirement, relative to their life satisfaction when employed, than people who retire from employment, as indicated by some of our estimates. If true, this larger increase in life satisfaction countervails non-employment-related non-monetary unemployment scarring. To address this issue, we test a fourth model specification (IV) in which we include job security and job satisfaction as additional controls for insecurity, unpleasant job characteristics and low motivation in times of employment. In the process, we interpret job satisfaction as an aggregate measure of both situational conditions (e.g. job characteristics) and personal characteristics (e.g. motivation).

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[9] We postpone the description and discussion of the fourth specification for the time being.

Table 3.6. Scarring effects of the last unemployment spell

Difference in life satisfaction differences between retirement and employment for
retirees from unemployment and employment

Specification		(I)	(II)	(III)	(IV)
… without previous unemployment experience	0–1 year	-0.121 (0.096)	-0.099 (0.087)	-0.106 (0.094)	-0.286*** (0.094)
	1 year +	-0.058 (0.087)	-0.036 (0.086)	-0.052 (0.085)	-0.223*** (0.083)
… with previous unemployment experience	0–1 year	0.116 (0.162)	0.120 (0.162)	0.114 (0.161)	-0.042 (0.163)
	1 year+	0.202 (0.132)	0.216 (0.131)	0.181 (0.132)	0.017 (0.132)

Source: SOEP 1984-2011.
Note: The table presents linear combinations of the OLS fixed effects estimation presented in Table 3.5 (I), (II), (III) and of a model extension (IV) with job security and job satisfaction controls. Standard errors in parentheses. ***p<0.01, **p<0.05, *p<0.1.

The resulting difference in life satisfaction differences between retirement and employment for people retiring from employment and from unemployment is displayed in the 4th column of Table 3.6. It is significantly negative when the final unemployment spell was the only one, which might be interpreted as non-employment-related non-monetary unemployment scarring. If at all, this potential scar hardly heals over time. However, for people with earlier unemployment experiences, unemployment before retirement does not cause a reduction in their well-being. A potential interpretation of this finding is that the additional non-employment-related non-monetary scarring effect of a specific unemployment spell seems to be, if anything, rather small when a person has had earlier unemployment experiences.

We further test whether the scarring effects we find for those who only experience unemployment directly before retirement in fact originate from a late career health shock that simultaneously causes unemployment and reduced well-being in retirement. If it happened after age 50, it would not necessarily be covered by the fixed effect. Nevertheless, the results obtained so far are also supported when we control for, first, health satisfaction (on a scale from 0 to 10), second, self-assessed health (on a five point scale ranging from "bad" to "very good"), third, for hospital stays during the past twelve months or, fourth, disability.

Besides these main results, the estimations presented in Table 3.5 reveal that income, job security, job satisfaction and age are positively related to life satisfaction whereas both being single as well as living with people in need of care lower life satisfaction. Unemployment is negatively related to life satisfaction in general. Although the size of the

effect is slightly lower directly before retirement compared to other times, the negative impact of unemployment also shows up for the final unemployment spell. This indicates that, on average, such a final unemployment spell is not chosen voluntarily or perceived as a kind of early retirement and is comparable to other unemployment spells at least with respect to its impact on current well-being.

Being employed in the year directly prior to retirement does not affect well-being differently than being employed in earlier years. The overall increase in life satisfaction upon retirement of a person who was unemployed immediately before retirement depends on, first, the difference in life satisfaction of being retired and being employed and, second, the contemporaneous loss in well-being experienced in the last unemployment spell. Indeed, overall life satisfaction increases for this group as the respective sum of coefficients is positive and statistically significant (with and without previous unemployment experience) and remains positive after the first year of retirement. This confirms the results presented in Chapter 2, by employing a more extensive panel analysis.

Our approach to distinguishing between employment-related and non-employment-related non-monetary scarring might fail for those who intend to return to the workforce after a short retirement spell. As mentioned above, only a very small minority of retirees could imagine returning to the workforce. We exclude this group in a first robustness check, and re-estimate Specifications (III) and (IV), which yields practically the same results as before.

In a similar manner, we test whether subgroups of retirees suffer from a final unemployment spell by estimating model Specification (IV), separately for women and men as well as for people with different educational attainments. Table 3.7 presents the corresponding linear combinations of coefficients indicating non-employment-related non-monetary scarring (as in Table 3.6). Men and the group of people with primary or secondary education who retired from a singular unemployment spell show significant negative differences that might indicate unemployment scarring. However, these findings do not correspond with the difference found for retirees with previous unemployment experience. For the subgroups of women and highly educated people, we do not find statistically robust evidence for non-employment-related non-monetary scarring.

Table 3.7: Subgroup results on scarring through a last unemployment spell

Difference in life satisfaction differences between retirement and employment for retirees from unemployment and employment

Subsample		Women	Men	Primary/Secondary Education	Tertiary Education	Age 40+
… without previous unemployment experience	0–1 year	-0.192 (0.167)	-0.340*** (0.11)	-0.262** (0.116)	-0.330** (0.163)	-0.388*** (0.097)
	1 year +	-0.101 (0.145)	-0.301*** (0.099)	-0.262** (0.104)	-0.176 (0.129)	-0.304*** (0.082)
… with previous unemployment experience	0–1 year	-0.025 (0.226)	-0.058 (0.230)	-0.151 (0.182)	0.149 (0.343)	0.047 (0.171)
	1 year+	-0.044 (0.177)	0.069 (0.190)	-0.083 (0.148)	0.249 (0.279)	-0.047 (0.127)

Source: SOEP 1984-2011.
Note: The table presents linear combinations of OLS fixed effects estimates based on varying sample compositions and the fourth model specification. Standard errors in parentheses. ***p<0.01, **p<0.05, *p<0.1.

Finally, we test the sensitivity of our results to the age limitation we applied to our sample. We enlarge the sample with people who are between 40 and 50 years old and apply Specification (IV) again. These estimates, presented in the last column of Table 3.7, indicate that expanding the analysis to earlier career stages does not affect our main findings.

3.7 Conclusion

Unemployment in the past seems to cause a loss in subjective well-being even after a person has found a new job. The persistent loss in subjective well-being from past unemployment episodes may occur, *inter alia*, because past unemployment worsens job characteristics and leads to an increased fear of becoming unemployed again in the future, which in turn leads to lower expected labour income and higher expected income volatility. Beyond these employment-related scars, unemployment might also leave a non-employment-related scar. To separate employment-related from non-employment-related scars, we make use of the transition to retirement because this life event eliminates the employment-related consequences of unemployment from which people suffer during their working life. Retired people do not have to worry about future employment chances or job characteristics anymore. Analysing retirement allows us to control for monetary non-employment-related scars that carry over to the time of retirement, with the result that we can take into account that previously unemployed retirees have to make a living with less income and lower wealth.

Cross-section regressions show that a significant gap in life satisfaction appears after retirement and this seems to be related to different labour market experiences before retirement. Those who have never been unemployed are much happier than people with recent unemployment experiences even when income, home ownership (as a proxy of wealth) as well as various other socio-demographic characteristics and personality traits are controlled for. These findings indicate that unemployment leaves a scar on workers' well-being beyond what is explainable by means of monetary consequences. This result is in line with previous research showing that unemployment seems to have long-lasting negative effects on life satisfaction (e.g. Luhmann and Eid 2009, Bell and Blanchflower 2011, Daly and Delaney 2013). It is also compatible with the analysis by Knabe and Rätzel (2011b), who show that a large part, but not all, of the non-monetary scarring effect can be explained by worsened job prospects.

The cross-sectional identification of scarring effects suffers from the disadvantage that unobservable personal characteristics explaining both unemployment before retirement and low well-being afterwards cannot be fully controlled. Therefore, we employ a longitudinal analysis of the life satisfaction change experienced by the same people between employment and retirement, considering previous unemployment and employment spells as well. We find that a final unemployment spell affects well-being after retirement negatively when people have not already experienced unemployment at an earlier point in time. For people who have had previous unemployment experiences in their life, an additional unemployment spell immediately before retirement does not cause (further) reductions in their life satisfaction after retirement. This suggests that additional non-employment-related non-monetary scars caused by repeated unemployment spells are rather small compared to the scar resulting from the first unemployment experience. Hence, unemployment does indeed scar – and the first cut is the deepest.

Chapter Four

On the Misery of Losing Self-employment

4.1 Introduction

Successful entrepreneurs increase economic growth and create jobs. They contribute to innovations, knowledge diffusion and market efficiency. These possibilities may play a part in motivating policies that incentivise workers to become self-employed despite the fact that a lot of start-ups do not succeed.[10] Encouraging 'the right' people to start a business requires an understanding of the reasons that affect a worker's choice between self-employment and dependent employment.[11] The risks of self-employment have consistently been considered in this context. Recent empirical evidence based on large panel data indeed confirms that the more risk-averse people are, the less likely they go into business (Caliendo et al. 2009, 2014). In consequence, higher risks for self-employed workers than for salaried workers can explain why people hesitate to become self-employed. This study considers the utility effect of losing work as such a risk. Following research that measures the individual welfare cost of unemployment (e.g. Clark and Oswald 1994), this potential risk is assessed using well-being data. The aim here is, first and foremost, to answer two questions: Does losing self-employment lead to a stronger reduction of life satisfaction than losing dependent employment? Do people anticipate such a difference when they are self-employed or paid employed?

The self-employed enjoy several pleasant work characteristics that increase their job satisfaction on average above the level of salaried workers (e.g. Benz and Frey 2008a). If this difference translates into general well-being, the transition from self-employment to unemployment is accompanied by a stronger decline in life satisfaction than the transition from dependent employment to unemployment because the former fall from a higher level than the latter. However, the level of well-being after losing work might differ as well. Lost self-employment may be more strongly associated with a feeling of personal failure and a deviation from one's ideal self because running the firm contributes more to it functioning successfully than working for it. In contrast, if the self-employed are more likely to find a new job soon, they might be better-off since promising future employment prospects increase the well-being of the unemployed (Knabe and Rätzel 2010). It is also

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[10] See European Commission (2010) for several examples of policy measures aimed at supporting start-ups as well as Shane (2008) for a critical discussion.

[11] See Parker (2009) for an extensive account of theoretical and empirical work that has been done on this issue.

conceivable that employers suffer from the necessity of having to dismiss employees when their firm fails (Torres 2011).

The individual monetary consequences of business failure are likely to be different from those of losing a paid job as well. Self-employed workers may run into debt more often and are less likely to receive benefits out of public unemployment insurance than salaried workers (Schulze Buschoff 2007). Thus, both the current financial situation as well as future income prospects might differ between the two groups. If being needy goes along with deviating from the social norm of making one's own living, a higher prevalence of welfare recipients among workers who lost self-employment compared to workers who lost dependent employment might explain why the former suffer more than the latter (see, e.g., Chadi 2012).

It has so far remained unexplored whether these or other reasons lead to a difference in the individual welfare cost of unemployment between self-employment and dependent employment. The present study fills this gap by analysing the potential well-being effect of losing self-employment using life satisfaction data of the German Socio-Economic Panel study (SOEP) and comparing it to that of losing dependent employment. A first identification strategy analyses the anticipation of the loss of work when workers are either self-employed or paid employed. The results of multiple regressions suggest that a growing expectation of loss of work within the next two years lowers life satisfaction much more when self-employed than when paid employed. Thus, the loss of self-employment seems to be an even more harmful life event than the loss of dependent employment. This interpretation is strengthened further by the results from applying a second identification strategy that does not rely on the same assumptions as the first approach. Comparing the reasons for entry into unemployment, it is found that workers who give up self-employment experience a much larger decline in life satisfaction than those who lose their jobs due to plant closures, are dismissed, resign or reach the end of their work contract.

The two identification strategies make it possible to shed some light on the potential reasons why the self-employed seem to suffer more from losing work than salaried workers do. It turns out that lower satisfaction of the former self-employed after entering unemployment, rather than a higher satisfaction level beforehand, explains this difference. Hence, the consequences of losing work drive apart the different declines in life

satisfaction. Furthermore, both monetary and non-monetary factors seem to explain the difference in the individual welfare cost of unemployment between the two types of work. The present study links and complements three major directions of economic research on subjective well-being. First, it adds to analyses of the well-being effect of unemployment by discovering that being self-employed prior to unemployment boosts this individual welfare cost, which has not been documented so far. Similarly, the present investigation extends, second, insights about the relationship of future employment prospects and current subjective well-being by revealing that self-employed workers suffer more from expecting the loss of work than salaried workers do. Third, the study complements research investigating the general difference in well-being between self-employment and dependent employment by indicating that the contemporaneous probability of losing work determines whether the one or the other type of work is more promising. Self-employment appears to be at least of equal value to dependent employment as long as the probability of losing work is relatively low. But when work is at very high risk of being lost, or even lost, self-employment reduces life satisfaction more than dependent employment.

In the following, Section 4.2 summarises major results of these three areas of research. The empirical identification strategies are described in Section 4.3. Section 4.4 documents data and sampling. Section 4.5 and Section 4.6 present results obtained from applying the two identification strategies. Section 4.7 concludes.

4.2 Previous literature

The present study is related to previous literature analysing the well-being effects of unemployment and insecurity of work. This research shows clearly that losing one's job causes a huge reduction in life satisfaction that cannot be explained by the reduction in income alone (e.g. Clark and Oswald 1994, Winkelmann and Winkelmann 1998, Di Tella et al. 2001, Blanchflower and Oswald 2004, Kassenboehmer and Haisken-De New 2009). In fact, non-pecuniary consequences of losing work, such as being unable to match one's ideal self due to deviating from norms of working, matter as well.[12] Monetary and non-monetary reasons may also explain why workers who remain unemployed for a long time do not get used to this status. Their life satisfaction does not recover as time goes by, in contrast to life satisfaction after many other severe life events (e.g. Clark et al. 2008a) and

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[12] See Schöb (2013) for an extensive discussion of this point; see also Chapter 2 and Section 1.2.

despite the fact that some measures of emotional well-being recover, if they fall at all (Knabe et al. 2010, Krueger and Mueller 2012).

Part of the negative impact of an unemployment spell on life satisfaction seems to persist like a scar even when workers are reemployed (Clark et al. 2001). One reason may be that unemployment in the past increases the risk of future unemployment and, hence, reduces well-being (Knabe and Rätzel 2011b). In general, increasing uncertainty about future employment stability reduces well-being substantially, regardless of whether such insecurity is induced by others' unemployment (e.g. Clark et al. 2010, Luechinger et al. 2010), one's own perceptions of job insecurity and employability (e.g. Knabe and Rätzel 2010, Green 2011) or 'objective insecurity' as in case of fixed-term employment (see Chapter 5).

Although the average impact of unemployment on overall well-being is clearly negative, the effect varies substantially between workers (Gielen and van Ours 2014). Hence, the circumstances of losing work as well as individual characteristics may modify the misery of unemployment. In this respect, it has been shown that men suffer more than women (e.g. Gerlach and Stephan 1996) whereas social capital in terms of social networks and social activities does not seem to play a role (Winkelmann 2009). A further potential explanation for the variation in individual reactions of well-being to unemployment is the type of work prior to unemployment (either self-employment or dependent employment). However, this aspect has been neglected so far, which I consider a shortcoming. The question of why some people suffer from losing work more than others is a part of understanding the impact of unemployment. Policies that aim at supporting or activating unemployed workers need to take into consideration the personal characteristics that modify the welfare cost of unemployment in order to identify target groups for different labour market policies. Therefore, in contrast to previous studies, the role of prior self-employment in the well-being effect of losing work is analysed in this study.

A few studies compare perceptions of the security of current work between dependent employment and self-employment, albeit without linking them to life satisfaction. Self-employment is associated with lower security measured as 'satisfaction with job security' than dependent employment (Millàn et al. 2013). However, dependent employment leads to lower security as measured by the self-assessed likelihood of job loss than self-

employment (Hundley 2001). This seeming contradiction is revisited and reconciled against the background of the findings of the present study in Section 4.7.

The present study not only complements research on the well-being effects of unemployment and insecurity at work. It also adds to the literature on well-being differences between self-employment and dependent employment. Empirical studies on the difference between salaried and self-employed workers' welfare reveal inconsistencies between various manifestations of well-being. A clearly positive view on self-employment appears in regard to job satisfaction. Running one's own business is a strong source of work-related well-being, offering greater autonomy and more of other pleasant job features than paid employment (e.g. Blanchflower 2000, Hamilton 2000, Parasuranam and Simmers 2001, Benz and Frey 2008a, Benz and Frey 2008b, Lange 2012, Hytti et al. 2013). Self-employment increases, in particular, those workers' job satisfaction who value independence (Fuchs-Schündeln 2009) and who do not have self-employed parents (Clark et al. 2008b).

Andersson (2008) finds that self-employment is positively related to life satisfaction, too, but the results are less robust compared to those of her investigation of job satisfaction. She also reveals that being self-employed is accompanied by more mental health problems, although it seems to be less stressful than being paid-employed. Binder and Coad (2013) summarise the existing evidence on differences in overall well-being between dependent employment and self-employment as sparse and inconclusive. In their own empirical study, they suggest that this difference depends on third factors and show that employment status prior to self-employment is one of them. The transition from dependent employment to self-employment is more beneficial in regard to life satisfaction than the transition from unemployment to self-employment. A similar relationship applies to entrepreneurs' satisfaction with their start-ups as it is higher for former employed workers than for former unemployed workers (Block and Koellinger 2009).[13] The present study complements these findings by proposing the use of the contemporaneous probability of losing work to determine the well-being effect of being self-employed. This has been neglected to date.

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[13] Krause (2013) also focuses on the transition from unemployment to reemployment, but documents another role of life satisfaction: Overall well-being during unemployment is more positively related to being self-employed than to being paid employed in the future.

4.3 Identification strategies

4.3.1 An indirect measure: life satisfaction and the probability of losing work

The first identification strategy employs an indirect approach to comparing the individual welfare cost of losing work between self-employed and paid-employed workers. It is based on three main assumptions. The first one is very common: The impact of expecting a loss of work in the near future on contemporaneous subjective well-being may depend on the expected individual welfare cost of this event (e.g. Geishecker 2012). Growing expectations of losing work affect current life satisfaction all the more, the higher the expected loss in well-being when losing work. Thus, a stronger negative reaction of life satisfaction to an increased probability of losing work when self-employed than when paid employed indicates that self-employment is associated with a higher expected decline in well-being in the event of actual loss of work.

Such a result reflects actual differences in the misery of losing work when workers' expectations are correct (second assumption). This implies that people know well how likely they are to lose their work and that such self-reports are unbiased by current mood. The latter aspect is particularly important for the first strategy because current mood might affect self-reports of expectation of loss of work and life satisfaction simultaneously. It may help in this respect that the information used is ascertained with a question that refers to an objective measure, i.e. the probability of losing work (see Section 4.4 for the exact wording), rather than to a more subjective self-assessment such as concerns about the security of one's job. Regarding the applicability of the second assumption as a whole, the findings of Knabe and Rätzel (2010) as well as Dickerson and Green (2012) suggest that SOEP respondents assess the probability of losing work quite correctly.

The econometric model that is used to investigate differences in the expected cost of losing work between being self-employed and being paid employed explains the level of life satisfaction (*LS*) of worker *i* in year *y* by type of employment (binary variable for each type, covered by vector *ES*) and interactions of type of employment with the current probability of losing work in the near future (q). Based on the two assumptions described above, the difference in the effects of the binary variable for being self-employed times q and the binary variable for being paid employed times q identifies whether life satisfaction when self-employed or when paid employed reacts more strongly to uncertainty about the

security of current work. The model also considers socio-demographic characteristics *SD* and job characteristics *JC*. Time (τ) and individual fixed-effects (φ) are taken into account as well. The constant α measures the average life satisfaction of the reference group; *u* represents the error term.

$$LS_{iy} = \alpha + \beta' ES_{iy} + \gamma'(ES_{iy} \cdot q_{iy}) + \delta' SD_{iy} + \varepsilon_{iy}' JC_{iy} + \tau_y + \varphi_i + u_{iy} \qquad (4.1)$$

To interpret the results as effects of combinations of the type of employment and the probability of losing work, one needs to make a third assumption according to which sources of bias such as selection issues do not matter beyond all time-invariant characteristics and further observable characteristics that are controlled for. Hence, the corresponding OLS estimation results are to be interpreted with caution.

4.3.2 A direct measure: life satisfaction and the termination of self-employment

Two complementary approaches to answering the same question can strengthen interpretations if the results are consistent or raise reasonable doubts if they are not. This consideration motivates a second identification strategy that can be seen as a more direct approach than the first one because it compares the reactions of subjective well-being to the loss of work between self-employed workers and paid-employed workers at the time the event occurs. The same workers' life satisfaction is compared at two points in time, before the termination of a job ($t = -1$ in the following) and afterwards ($t = 0$). In so doing, the second approach does not employ information about the current likelihood of losing work and thus obviates the need for the first and the second assumption of the former identification strategy.

The effects of the events are preferably identified by analysing exogenous triggers. Job losses due to plant closures are thus considered the most appropriate comparison group of salaried workers (Kassenboehmer and Haisken-De New 2009). In the case of self-employment, it is more difficult to distinguish between voluntary and involuntary terminations. Information about the respondents' employment status in $t = 0$ is used to best isolate exogenously triggered terminations of self-employment. Whereas people who give up self-employment and become paid employed or leave the workforce may often switch voluntarily, those who become unemployed are more likely to lose their work involuntarily. The main assumption of the second identification strategy is hence that self-employed people who become unemployed lose work for exogenous reasons. Robustness

checks address this issue further (Subsection 4.6.3). Since the first identification strategy does not rely on the same assumption, it can also be seen as a robustness check at this point.

Some factors might simultaneously explain terminations of employment and changing well-being. They are controlled for by the following first difference approach. It identifies the difference between self-employed and salaried workers in the changes in life satisfaction between $t = -1$ and $t = 0$. The corresponding model (4.2) explains this change in life satisfaction ($\Delta LS = LS_{t=0} - LS_{t=-1}$) by means of a vector of binary variables that represent reasons for termination of work (R), including the cessation of self-employment, reached end date of a fixed-term contract, dismissal and resignation. The reference category is plant closure. The model also takes into account changes in socio-demographic characteristics (vector C) as well as levels of socio-demographic characteristics (vector SD). α denotes the average change in life satisfaction of the reference group. Y is a vector of dummies which reflect the years of $t = 0$. u_i is the error term.

$$\Delta LS_i = \alpha + \beta' R_i + \gamma' C_i + \delta' SD_i + \theta' Y_i + u_i \qquad (4.2)$$

In so doing, it is assumed that potential biases are controlled for by all of the (changes in) characteristics included in the model and by comparing within-person changes.

4.4 Data and sampling

Because of its unique facilities regarding the empirical analyses of this study, data of the German Socio-Economic Panel study (SOEP; see Wagner et al. 2007) is used. The SOEP provides an extraordinarily large set of data, with members of over 10,000 households participating each year. This makes it possible to analyse even such rare life events as becoming unemployed after self-employment. The panel structure allows us to compare the same workers' well-being in different employment states. The SOEP contains reliable and consistent information about someone's socio-demographic characteristics and many more. The samples analysed in this study consist of people aged between 18 and 65. People are assigned to the employment states self-employed or 'standard' paid employed depending on their self-reported main working activity. They spend at least 15 hours per week doing this work. Observations of unemployment are based on self-reports of this status. 'Non-standard' paid employees work less than 15 hours and do not report being unemployed. A final group is 'out of the labour force', in that it is neither self-employed,

unemployed nor paid employed and reports no working hours. Life satisfaction is used in this study as a proxy of subjective well-being. It is measured by the 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?*

As described above, the first identification strategy employs information about the probability of losing work. In line with the recommendation by Dickerson and Green (2012), the corresponding information is obtained from the following question:

> *How likely is it that you will lose your job within the next two years? Please estimate the probability of such a change according to a scale from 0 to 100. 0 means that such a change will definitely not take place. 100 means that such a change definitely will take place. All the values in-between can be used for differentiation.*

Because of the term 'job', one might wonder whether self-employed workers understand this wording as a request to assess the likelihood of having to give up self-employment. If they believed that this question did not apply to them, they probably would not answer at all. However, almost all observations of self-employed workers (99.6%) and salaried workers (99.9%) contain an answer. Another concern could be that self-employed workers' answers to this question are meaningless. At this point, it helps to compare their statements with answers to a similar question that casts less doubt on the wording, namely the assessment of the probability of job seeking. Almost 90% of self-employed workers who estimate the probability of job loss within the next two years at '0%' assess the probability of job seeking in the next two years at '0%' as well. All the answers of self-employed and salaried workers to these two questions substantially correlate (self-employment 0.55, dependent employment 0.47). These figures strongly suggest that the self-employed interpret the question on the probability of job loss as a request to assess the probability of losing self-employment. In the following, the term 'probability of losing work' is used when information from answers to the question on the probability of job loss are employed in order to avoid any confusion.

The question about the probability of losing work is included in six SOEP waves, surveyed in 1999, 2001, 2003, 2005, 2007 and 2009. The first identification strategy is

thus based on a panel of biennial observations ($n = 56{,}367$), which also provides all the other information used here. 4,739 of the observations are of self-employed, 47,613 are of standard paid employed, and 4,015 are of non-standard paid employed. Observations of unemployed and people out of the workforce are only included in the sample of the second estimation approach.

The second identification strategy mainly relies on information about triggers of job termination. If such an event occurs between two SOEP interviews, the person is asked *"How did that job end?"*. Five causes are surveyed consistently between 1991 and 1998 as well as from 2001 to 2012: cessation of self-employment, plant closure, end date of fixed-term contract, dismissal and resignation. Observations are compared between the last SOEP interview in the initial job ($t = -1$) and the first interview afterwards ($t = 0$). The time period between the two is approximately one year. In order to compare similar groups of workers who terminate jobs, observations consist of either standard paid employed or self-employed at $t = -1$. At $t = 0$, they can be self-employed, paid employed (standard or non-standard) and not employed (unemployed or out of labour force). The sample includes 12,605 observations, of which 427 give up self-employment, 1,781 lose their jobs due to plant closures, 1,888 reach the end date of their contracts, 3,694 are dismissed and 4,815 resign. The sample is restricted to observations of unemployment at $t = 0$ at a later stage.

Use is also made of SOEP data on disability, overnight stays in hospital during the last twelve months, marital status, children, age, gender, years of unemployment experience, receiving social benefits, years of education, type of self-employment (e.g. freelancer with academic degree), number of employees of self-employed workers, sector, working hours and tenure. Equivalence incomes are calculated based on the modified OECD scale by dividing real household income (at 2006 prices) by the weighted sum of household members (weights are 1 for the first adult, 0.5 for each further household member that is at least 14 years old, 0.3 for each younger further household member). Home ownership serves as a proxy of wealth.

4.5 Life satisfaction and the probability of losing work

4.5.1 Descriptive insights

The following mean comparisons provide a first impression of the potential connection of the probability of losing work in the next two years and well-being differences between self-employment and dependent employment. The probability of losing work ranges between 12% (standard deviation: 0.21) for self-employed workers, 22% (0.25) for standard salaried workers and 23% (0.27) for non-standard salaried workers. The three types of work are broken down into two classes of the probability of losing work (q), one up to 30% and one above 30%, yielding six groups. The threshold of 30% denotes the upper quartile of the distribution of the probability in the sample.

Table 4.1 documents the averages of life satisfaction, socio-demographic characteristics and job characteristics of the six groups. When the probability of losing work is not higher than 30%, self-employment is less promising than standard dependent employment with respect to life satisfaction. [14] A probability of more than 30% is associated with lower well-being for all types of work compared to $q \leq 0.3$. The gap between standard salaried workers and self-employed workers in this respect widens substantially. On a very preliminary basis, this indicates that an increased probability of losing work reduces life satisfaction especially when the workers are self-employed.

Running a business is always associated with considerably more equivalence income available and more wealth in terms of home ownership than working for an employer. When the probability of losing work exceeds 30%, these advantages of self-employment are smaller compared to $q \leq 0.3$. Self-employed workers are also more likely to be older, married and male, work more hours and are less likely to be disabled. Standard salaried workers are employed somewhat longer than self-employed workers run their businesses. Only when $q \leq 0.3$ are small differences regarding living with children in the same household and overnight stays in hospital during the last twelve months statistically significant. In general, observations of self-employed and standard paid-employed workers do not differ significantly with regard to unemployment experience. Taken as a whole, the figures of Table 4.1 suggest that self-employed workers are comparable to standard rather than to non-standard paid-employed workers. Hence, standard salaried workers form the preferred comparison group in the following.

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[14] Reported differences in Sections 4.5 and 4.6 are statistically significant at least at the 5% level.

Table 4.1: Descriptive statistics – first approach

Labour market status	self-employed, $q \leq 0.3$	self-employed, $q > 0.3$	std. paid employed, $q \leq 0.3$	std. paid employed, $q > 0.3$	non-std. paid employed $q \leq 0.3$	non-std. paid employed $q > 0.3$
Number of observations	3,856	883	30,935	16,678	2,567	1,448
Means:						
Life satisfaction, scale 0–10	7.27 (1.59)	6.33 (1.92)	7.38 (1.49)	6.66 (1.68)	7.30 (1.62)	6.79 (1.73)
Equivalence income[*]	2,233.73 (1,846.76)	1,683.80 (1,066.80)	1,778.47 (963.22)	1,508.55 (712.21)	1,460.25 (917.05)	1,292.88 (663.59)
Age	45.42 (9.65)	43.95 (9.42)	42.65 (10.62)	40.78 (10.26)	41.26 (12.37)	39.65 (11.99)
Years of unemployment	0.37 (1.00)	0.67 (1.46)	0.37 (1.06)	0.68 (1.46)	0.71 (2.02)	1.21 (2.41)
Working hours per day	9.55 (2.47)	9.40 (2.57)	8.89 (2.03)	8.99 (2.1)	3.53 (2.12)	3.73 (2.24)
Tenure in years	10.70 (9.08)	7.63 (7.73)	12.62 (10.33)	8.85 (8.83)	6.14 (7.07)	4.24 (5.58)
Shares:						
Women	31%	31%	44%	45%	86%	84%
People owning their home	64%	55%	53%	47%	54%	51%
Married	72%	66%	68%	63%	75%	69%
Children in the same household	35%	34%	32%	32%	45%	43%
Disabled	4%	2%	6%	6%	5%	6%
Recent overnight stays in hospital[**]	7%	7%	8%	8%	10%	9%

Source: SOEP 1999, 2001, 2003, 2005, 2007, 2009.
Note: Standard deviations in parentheses. [*]monthly, at 2006 Euros, [**]during the previous 12 months.

Self-employment has different manifestations. For instance, in the 2009 subsample, almost one third of the self-employed are freelancers with academic degrees, about 61% are other business owners and there is a very small number of farmers and family co-workers of business owners. One half of the self-employed (49.4%) employ other workers while the other half work alone (50.6%). 8.2% employ ten or more people. Regarding business sectors, most of the self-employed provide services such as health services, financial services and many more. Retailers (16%) as well as construction businesses (14%) that build housing, plants, machines and vehicles are relevant as well. 8% of the self-employed run firms that produce other commodities as craftsmen or manufacturers. The agricultural sector as well as mining, energy and transportation account for the rest. These figures vary

only slightly over time. At a later stage, robustness checks will address these different kinds of self-employment.

4.5.2 Multivariate analyses

The mean comparisons show that self-employed workers report lower life satisfaction than paid-employed workers in particular when the probability of losing work is relatively high. Multiple regression analyses considering individual fixed effects can shed light on the question of whether this result is related to other characteristics that are presented in Table 4.1 or originate from time-invariant factors such as personality traits. As described in detail in Subsection 4.3.1, the life satisfaction effects of interactions between employment status and the probability of losing work are therefore estimated and compared. Controls include employment status, socio-demographic characteristics and job characteristics. The corresponding results are presented in Table 4.2.

The first specification (1) of model (4.1) applied only controls for time effects. Self-employment and non-standard employment reduce life satisfaction slightly compared to the reference category, standard paid employed. Each interaction of the probability of losing work and the three types of work is negatively related to life satisfaction. The differences between the coefficients of these interactions reveal that the self-employed suffer much more from expecting a loss of work than standard and non-standard paid-employed workers. The following two differences are significant at the 1% level:

$$\textit{self-employed} \times (\frac{q}{100}) - \textit{std. paid employed} \times (\frac{q}{100}) = -1.959 - (-1.426) = -0.533$$

$$\textit{self-employed} \times (\frac{q}{100}) - \textit{non std. paid employed} \times (\frac{q}{100}) = -1.959 - (-0.841) = -1.118$$

Controlling for individual fixed effects (Specification (2)) weakens the effects of the probability of losing work on all of the types of work as well as the differences between them. Nevertheless, an increase in the probability of losing work of 100% lowers life satisfaction when self-employed by 0.329 points more ($p < 0.05$) than when standard paid employed. The difference between non-standard paid employment and self-employment is also substantial and even significant at the 1% level. These patterns neither change when further controls are added in Specification (3) (work and socio-demographic characteristics) nor when income and wealth are taken into account as well (Specification (4)).

Table 4.2: OLS regression results for the first identification strategy

Specification of (4.1)	(1)	(2)	(3)	(4)
Self-employed	-0.101***	0.183***	0.177***	0.176***
	(0.028)	(0.064)	(0.065)	(0.064)
Non-standard paid employed	-0.130***	-0.156***	-0.171***	-0.148***
	(0.035)	(0.052)	(0.054)	(0.054)
Self-employed $\times$ (q/100)	-1.959***	-0.874***	-0.880***	-0.876***
	(0.138)	(0.150)	(0.148)	(0.146)
Standard paid employed $\times$ (q/100)	-1.426***	-0.546***	-0.545***	-0.530***
	(0.032)	(0.038)	(0.038)	(0.038)
Non-standard paid employed $\times$ (q/100)	-0.841***	-0.277**	-0.280**	-0.259**
	(0.103)	(0.112)	(0.112)	(0.112)
Age²			0.000*	0.000**
			(0.000)	(0.000)
Divorced			0.016	0.043
			(0.057)	(0.058)
Separated			-0.310***	-0.283***
			(0.070)	(0.070)
Widowed			-0.618***	-0.611***
			(0.208)	(0.207)
Unwed			-0.108**	-0.095**
			(0.044)	(0.043)
Children living in household: yes			0.022	0.035
			(0.024)	(0.024)
Recent overnight stays in hospital: yes			-0.140***	-0.138***
			(0.025)	(0.025)
Disabled: yes			-0.332***	-0.328***
			(0.059)	(0.059)
Years of unemployment experience			-0.021	-0.004
			(0.026)	(0.026)
New job			0.019	0.024
			(0.030)	(0.022)
Tenure			-0.005	-0.005
			(0.004)	(0.004)
Tenure²			0.000	0.000
			(0.000)	(0.000)
Daily working hours, difference to 8			-0.004	-0.009*
			(0.005)	(0.005)
Log. equivalence income at 2006 prices				0.341***
				(0.030)
Home ownership				0.074**
				(0.029)
Time fixed effects	yes	yes	yes	yes
Individual fixed effects		yes	yes	yes
Constant	7.395***	7.026***	6.616***	3.995***
	(0.018)	(0.017)	(0.297)	(0.369)
Observations	56,397	56,397	56,397	56,397
Number of persons	19,436	19,436	19,436	19,436
Adjusted R²	0.049	0.029	0.033	0.038

Note: *p<0.1, **p<0.05, ***p<0.01. Robust standard errors in parentheses. The dependent variable is life satisfaction. The hypothetical reference group (Specification (4)) is standard paid employed, reports 0% probability of losing work, is 0 years old, married, not living with children in household, not disabled, did not stay overnight in hospital during the last 12 months, experienced 0 years of unemployment during the whole working life, is longer paid employed or self-employed than since the previous SOEP interview, reports 0 years of tenure, works 8 hours per day, was interviewed in 2009, does not receive equivalence income and does not own its home.

The estimation results also cast light on the question whether self-employment is a more promising employment status than dependent employment (e.g. Binder and Coad 2013). Remarkably, introducing individual fixed effects turns the general effect of self-employment on life satisfaction from negative (1) to positive (2). Hence, time invariant worker characteristics might explain why self-employed people are not happier than salaried workers, although the same people are happier when they are self-employed instead of paid employed. Furthermore, it is shown that the contemporaneous likelihood of losing work modifies these differences. For instance, the fourth model specification predicts that a 100% increase in the probability of losing work reduces the well-being of the self-employed by 0.346 points more than the well-being of salaried workers. The positive effect of being self-employed (0.176) is hence neutralised by a 51% increase in the probability of losing work.

Further findings are in line with previous happiness research (e.g. Weimann et al. in press). Across all of the specifications, indicators of poor health reduce well-being (disabled, overnight stays in hospital) whereas income and wealth (home ownership) benefit well-being. Being divorced and married (reference category) seem to be the most promising marital states. Non-standard dependent employment is associated with lower life satisfaction than standard dependent employment.

4.5.3 Subgroup analyses and the role of personality

Specification (4) is estimated based on more homogenous subsamples in order to improve the comparability of both self-employed and salaried workers as well as within the group of the self-employed. Table 4.3 summarises the main finding of each subgroup analysis, the difference between the coefficients of the interaction of the probability of losing work with being self-employed and the interaction of the probability of losing work with being standard paid employed. Table 4.A in the appendix of this chapter presents the estimation results of all subgroup analyses in detail.

Table 4.3: Main findings of subgroup analyses, first identification strategy

	self-employed $\times$ (q/100) – standard paid employed $\times$ (q/100)	
(1) whole sample	-0.346^{**}	(0.150)
(2) age 25-60	-0.387^{**}	(0.159)
(3) no civil servants	-0.321^{**}	(0.151)
(4) men	-0.420^{**}	(0.176)
(5) women	-0.106	(0.276)
(6) self-employed: employer	-0.306	(0.250)
(7) self-employed: no employees	-0.504^{**}	(0.217)
(8) self-employed: freelancer	-0.381	(0.251)
(9) self-employed: owner	-0.450^{**}	(0.192)
(10) self-employed: services	-0.423^{*}	(0.228)
(11) self-employed: not services	-0.381^{*}	(0.207)

Source: SOEP 1999, 2001, 2003, 2005, 2007, 2009.
Note: *p<0.1, **p<0.05 ***p<0.01. Robust standard errors in parentheses. The results presented in the table are differences in the effects of interactions of the probability of losing work with self-employment and standard dependent employment. The underlying OLS estimates are presented in Table 4.A (see appendix of this chapter).

The 1st row of Table 4.3 allows for comparisons to be made with the main finding by analysing the whole sample. To begin with, the sample is made more homogenous with respect to age. For instance, the timing of the retirement of self-employed and salaried workers may vary because they are treated differently by public pension insurance. The age group is therefore restricted to respondents that are between 25 and 60 years old (Table 4.3, 2nd row). A further check excludes civil servants (Table 4.3, 3rd row), which is an exceptional subgroup of salaried workers in many respects and especially regarding job security. Both analyses yield the same qualitative findings as before. Splitting the sample into subsamples, one male and one female (Table 4.3, 4th and 5th rows), reveals that the difference in the reaction of life satisfaction to an increase in the probability of losing work between self-employed and salaried workers is mainly driven by male workers.

Further subgroup analyses shed light on different manifestations of self-employment. It turns out that self-employed workers who do not employ others suffer in particular from expecting a loss of work in the near future (Table 4.3, 6th and 7th rows). This finding does not speak in favour of the supposition that the necessity to dismiss employees explains the higher welfare cost of losing self-employment compared to losing dependent employment. As described above, self-employed workers in the sample are freelancers with academic

degrees, farmers, family co-workers and other business owners. The first and the last group are large enough to run separate regressions (Table 4.3, 8th and 9th rows). It turns out that other business owners especially suffer from an increase in the probability of losing work. The effect for a subsample of freelancers is comparable to the average effect for all self-employed workers, but the result is not statistically significant. The results on freelancers and other business owners also make it clear that including family co-workers in the observations of self-employment does not drive the findings described so far. Finally, a weak sector difference emerges in that the well-being of self-employed workers whose businesses provide services reacts slightly more to the probability of losing work than the well-being of other self-employed workers (Table 4.3, 10th and 11th rows).

Altogether, the subgroup analyses indicate that the main finding of the first estimation approach seems to be generally valid. None of the differences between the interactions of the probability of losing work with being paid employed and with being self-employed point in a direction that is different to the results obtained from analysing the whole sample. This also applies to all of the further results (Table 4.A). In particular, being self-employed instead of being paid employed seems to increase life satisfaction. The highest benefits in this respect appear in the cases of self-employed workers without employees and freelancers with academic degrees. Being non-standard paid employed instead of standard paid employed reduces well-being. Furthermore, the negative effect of the probability of losing work on life satisfaction is very robust. It is also stronger for men than for women.

It is conceivable that some kind of entrepreneurial personality leads to the relatively high cost of losing work and hence drives the results obtained so far. To test this conjecture, it is analysed whether the different reactions of self-employed and standard salaried workers' life satisfaction to a higher probability of losing work vary depending on personality traits. For instance, it is tested whether observations of both types of work that are hardly risk averse (observations to the left of the first quartile of the distribution of risk aversion within the sample) vary differently in the loss of well-being compared to observations with middle or high risk aversion (high: observations to the right of the third quartile, middle: rest). This is repeated for openness to experience, conscientiousness, agreeableness, extraversion, neuroticism as well as internal and external locus of control. The results of these analyses reveal that there is no personality trait that is specifically

related to the difference in the reaction of life satisfaction of self-employed and salaried workers to the probability of losing work.[15]

4.6 Life satisfaction and unemployment

4.6.1 Descriptive insights

As a first step in the second identification strategy, the averages of life satisfaction before and after different terminations of work are documented. In the process, some light is also shed on the assumption that self-employed workers who become unemployed had no intention of this happening. People who cease self-employment and become unemployed are compared to two groups which represent transitions from paid employment to unemployment. Workers who resign and job losses due to plant closures are chosen as it is suspected that they identify endogenous and exogenous job terminations best (Chadi and Hetschko 2014). Figure 4.1 displays the different progressions at four points in time, from $t = -2$ (second last SOEP interview before job termination) to $t = 1$ (second SOEP interview afterwards). Workers are employed at $t = -2$ and $t = -1$, terminate jobs between $t = -1$ and $t = 0$, and are unemployed at $t = 0$ and $t = 1$. The period between two points in time covers approximately one year. The data used is not restricted to the waves in which reasons for job terminations are ascertained in the same manner in order to ensure the largest database available for this four-year analysis.

Self-employed workers start at a lower level of life satisfaction at $t = -2$ compared to the two groups of paid employees. This result is in line with the findings of the first estimation approach: If work is at risk for the next two years, self-employed workers report lower well-being than salaried workers. For all of the three groups, subjective well-being declines from periods $t = -2$ to $t = -1$. An even more substantial drop follows from $t = -1$ to $t = 0$. However, the three groups differ with respect to the magnitude of this change. The self-employed experience a loss of well-being the most, followed by workers witnessing plant closures and then those who resign. The gaps between the three groups diminish slightly between $t = 0$ and $t = 1$.

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[15] Information about all of these personality traits is not included in each SOEP wave. If information is not available, it is transferred from the nearest wave including it, assuming personality traits are stable over relatively short periods of time (maximum of four years, see also Chapters 3 and 5 in this context).

Figure 4.1: Life satisfaction trajectories around the transition to unemployment

SOEP interview around the transition to unemployment
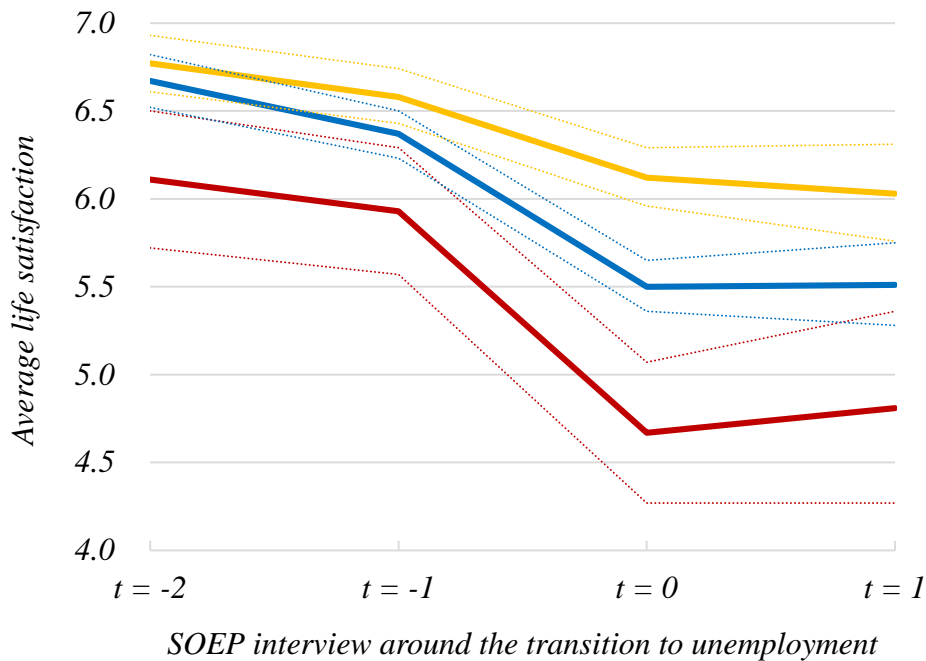
Source: SOEP 1984-2012.
Note: The diagram shows trajectories of life satisfaction around the transition from self-employment/dependent employment to unemployment. The transition happens between t = -1 and t = 0. Red lines denote self-employed people. Orange (blue) lines denote salaried workers who resign (lose their jobs due to plant closure). Dotted lines illustrate 95% confidence intervals.

The assumption that self-employed workers who terminate their jobs and become unemployed do not do this intentionally might be susceptible to criticism. In this context, it is interesting to note that this group suffers a greater loss in well-being than paid employees who terminate their jobs due to an exogenous trigger (plant closure) and that endogenous job terminations (resignations) show the most favourable progression. If the reasons for giving up self-employment and becoming unemployed were mostly endogenous, one would expect a trajectory similar to that of resignations of salaried workers rather than that of job losses due to plant closures.

Table 4.4 displays several characteristics of people who terminate work and become unemployed. The observations conform with the sample from which the main results of the second estimation approach are obtained (the results are described in the following two subsections). They are thus restricted to being standard paid employed or self-employed at $t = -1$ and to being unemployed at $t = 0$. The reasons for terminating work in the observations are ceased self-employment, plant closure, resignation, reaching the end date of a fixed-term contract and being dismissed. These reasons are consistently retrieved.

Table 4.4: Descriptive statistics – second approach

Reason for job loss	ceased self-employment	plant closure	dismissed	end date reached	resignation
Observations	100	657	2,125	860	425
Life satisfaction	4.7 (-1.4)	5.5 (-0.9)	5.7 (-0.7)	5.7 (-0.7)	6.1 (-0.4)
Monthly equivalence income at 2006 Euros	980 (-509)	1,095 (-99)	1,102 (-175)	1,103 (-163)	1,257 (-232)
Age	43.7	44.3	41.6	39.7	39.3
Unemployment experience in years	2.2	1.1	1.5	2.5	1.2
Share of being married	59% (-3%)	75% (1%)	63% (0%)	57% (0%)	63% (-1%)
Share of living with children in household	30% (-3%)	32% (-3%)	32% (-2%)	35% (-1%)	37% (-1%)
Share of people who own their home	35% (0%)	38% (1%)	34% (1%)	32% (0%)	34% (0%)
Share of women	34%	47%	42%	53%	60%

Source: SOEP 1991-1998 and 2001-2012.
Note: The figures describe characteristics at t = 0, the first interview after becoming
unemployed (changes to t = −1 in parentheses).

Besides life satisfaction at $t = 0$ and the change in life satisfaction between $t = -1$ and $t = 0$, two characteristics differ sharply between workers losing self-employment and all of the groups losing dependent employment. The former lose much more income and are less often female. A slight difference appears with regard to living with children in the same household, which is less prevalent when self-employed workers lose their work. Self-employment and a fixed-term contract prior to unemployment are less frequently associated with being married and more often with previous unemployment experience.

4.6.2 Multivariate analyses

As described in detail in Subsection 4.3.2, the second estimation approach is a multivariate analysis explaining the change in life satisfaction between $t = -1$ and $t = 0$. It includes reasons for job terminations and controls for changes in life between $t = -1$ and $t = 0$ (e.g. marriage) as well as for individual characteristics (e.g. female). The results are presented in Table 4.5. The first specification of the second identification strategy (I) includes reasons for job termination and the year of the interview ($t = 0$). At the beginning, the sample is not restricted to workers that are unemployed at $t = 0$. Transitions into new jobs (standard or non-standard dependent employment), into self-employment or into the status out of labour force are also possible. The 1st column of Table 4.5 displays the corresponding regression results. It turns out that the reason why work is terminated is strongly related to the simultaneous change in life satisfaction. Only resignations seem to increase well-being. Members of the reference group who lost their jobs involuntarily due to plant closures suffer from the termination of employment and do not differ considerably

from workers who reach the end date of their contract, are dismissed or cease self-employment. Although some self-employed workers may terminate voluntarily because they sell their business and retire or switch to a promising paid job, the average change in life satisfaction does not differ from the reference group, consisting of people who terminate employment involuntarily.

When the sample is restricted by excluding transitions to any kind of work (Table 4.5, 2nd column), self-employed and dismissed workers are again more or less comparable to the reference group of job losses due to plant closure. People who resign or, although less pronounced, reach the end date of their contract experience less sorrowful terminations of employment. Finally, we restrict the sample to workers who are unemployed at $t = 0$, expecting that this step disentangles voluntary from involuntary terminations of self-employment. Now, the change of life satisfaction that accompanies terminating self-employment is much more negative than that associated with transitions from employment to unemployment due to plant closures. In line with the findings from the first identification approach, losing work turns out to be a much more negative life event for the self-employed than for salaried workers.

Further controls influence the differences between the effects of people's reasons for terminating jobs only slightly (Table 4.5, Specifications (II), (III)). Introducing a control for the change in income causes the most remarkable change in the effect of ceased self-employment. Hence, monetary reasons may explain to some extent why the self-employed suffer much more from losing work than salaried workers, but non-pecuniary factors are likely to matter as well. The effect of terminated self-employment is lowered, but stays significantly negative even when controlling for changes in income. Alternative controls for income such as the relative income change compared to $t = -1$, levels of equivalence income at $t = 0$ or $t = -1$, being in debt at $t = 0$ as well as combinations of these measures do not lead to further insights.

Table 4.5: OLS regression results of the second estimation approach

Employment status in t = 0 Specification of (4.2)	all states (I)	not working (I)	unemployed (I)	unemployed (II)	unemployed (III)
Unemployed, ceased self-employment	-0.026 (0.112)	0.063 (0.155)	-0.665*** (0.240)	-0.615** (0.239)	-0.542** (0.239)
Unemployed, resigned	0.432*** (0.051)	0.557*** (0.085)	0.479*** (0.124)	0.518*** (0.125)	0.536*** (0.125)
Unemployed, dismissed	-0.05 (0.056)	0.026 (0.080)	0.138 (0.089)	0.175** (0.089)	0.173* (0.089)
Unemployed, reached end date of contract	0.015 (0.063)	0.152* (0.089)	0.212** (0.104)	0.242** (0.104)	0.233** (0.104)
Female				0.179*** (0.064)	0.163** (0.064)
Age, difference to 45 years				0.009*** (0.003)	0.009*** (0.003)
Marriage				0.487* (0.278)	0.467* (0.278)
Separation				-0.188 (0.300)	-0.167 (0.303)
Divorce				-0.075 (0.401)	-0.024 (0.401)
Death of spouse				-2.729*** (0.802)	-2.646*** (0.776)
Change in 'children in household: yes'				0.525** (0.220)	0.586*** (0.225)
Change in equivalence income, 2006 prices					0.214*** (0.075)
Change in home ownership					0.266 (0.170)
Year of t = 0	yes	yes	yes	yes	yes
Constant	-0.319*** (0.098)	-0.670*** (0.144)	-0.820*** (0.180)	-0.915*** (0.183)	-0.873*** (0.182)
Observations	12,605	6,041	4,167	4,167	4,167
Adjusted R²	0.020	0.018	0.018	0.027	0.030

Source: SOEP 1991-1998 and 2001-2012.
*Note: *p<0.1, **p<0.05 ***p<0.01. Robust standard errors in parentheses. The dependent variable is the change in life satisfaction between t = −1 and t = 0. The period between the two points in time covers approximately one year. At t = −1, all of the observations are either self-employed or paid employed. The hypothetical reference group (III) terminates its initial job due to plant closure between the 2005 and the 2006 SOEP interview, is 45 years old and male. It does not experience changes in equivalence income, home ownership, marital status, living with children in the same household between t = −1 and t = 0.*

4.6.3 Robustness and Reasons

The validity of the assumption that self-employed workers who become unemployed suffer from exogenous loss of work can be strengthened further. Following Chadi (2010) as well as Bonsang and Klein (2012), use is made of information from unemployed workers about their intentions to return to employment and restrict the sample to those people who state that they definitely intend to be reemployed in the future. In the end, the sample may only consist of workers who feel involuntarily unemployed. Specification (III) is re-estimated based on this subsample. The results are presented in Table 4.6 (Column 1). The differences between former self-employed and paid-employed workers are somewhat greater compared to the regressions based on the whole sample, which strengthens the interpretation of the findings documented up to here. The more plausible it is that self-employed workers lose their work involuntarily, the more the misery of losing work differs between self-employed and salaried workers.

Poor health might explain simultaneously why people give up running their own business and lose well-being between $t = -1$ and $t = 0$. Controls such as disability or overnight stays in hospital can only be tested using reduced samples as the respective information is not available for the whole investigation period. The corresponding regressions yield the same findings as before (Table 4.6, Columns 2 and 3). Columns 4 and 5 display separate estimation results for men and women based on Specification (III). It turns out that men in particular drive the finding that self-employed workers suffer a greater decline in well-being than salaried workers when losing work. This result corresponds to the respective subgroup analysis of the first estimation approach.

The self-employed often do not contribute to unemployment insurance. Thus they might be more likely to rely on social benefits when they become unemployed, unless they benefit more from other sources of income, such as spouses' earnings. In consequence, violating the social norm of making one's own living is a potential driver of a difference in the psychological cost of losing work between salaried and self-employed workers. A further control for being a welfare recipient at $t = 0$ is included in order to test this hypothesis (Table 4.6, Column 7). This analysis must be conducted on a reduced sample because information on social benefits is not available for the whole investigation period. It turns out that being a welfare recipient does not explain the negative effect of terminating self-employment.

Table 4.6: Further analyses based on the second estimation approach

	(1) whole sample	(2) willing to return to work	(3) poor health: disability	(4) poor health: recent hospital stay	(5) women	(6) men	(7) welfare recipient	(8) level of life satisfaction
Unemployed, ceased self-employment	-0.542** (0.239)	-0.711** (0.315)	-0.547** (0.244)	-0.541** (0.244)	-0.567 (0.394)	-0.551* (0.309)	-0.526** (0.260)	-0.008 (0.190)
Unemployed, resigned	0.536*** (0.125)	0.347** (0.156)	0.420*** (0.125)	0.427*** (0.126)	0.508*** (0.170)	0.515*** (0.190)	0.404*** (0.138)	0.212** (0.103)
Unemployed, dismissed	0.173* (0.089)	0.060 (0.106)	0.128 (0.092)	0.140 (0.092)	0.215 (0.131)	0.121 (0.122)	0.160 (0.100)	0.109 (0.073)
Unemployed, end date	0.233** (0.104)	0.137 (0.121)	0.201* (0.107)	0.214** (0.107)	0.233 (0.153)	0.194 (0.143)	0.238** (0.115)	0.183** (0.086)
Disability: yes			0.072 (0.136)					
Overnight stays in hospital: yes				-0.145 (0.105)				
Social benefits at $t = 0$: yes							-0.135 (0.117)	
Life satisfaction at $t = 0$								0.592*** (0.015)
Controls as in (III)	yes	yes	yes	yes	yes	yes	yes	yes
Year of $t = 0$	yes	yes	yes	yes	yes	yes	yes	yes
Constant	-0.873*** (0.182)	-1.007*** (0.216)	-0.841*** (0.184)	-0.834*** (0.184)	-0.832*** (0.268)	-0.757*** (0.245)	-0.824*** (0.189)	-4.191*** (0.171)
Observations	4,167	3,036	3,754	3,762	1,906	2,261	3,245	4,167
Adjusted R²	0.030	0.028	0.027	0.027	0.041	0.029	0.027	0.369

Source: SOEP 1991-1998 and 2001-2012.
Note: *p<0.1, **p<0.05, ***p<0.01. Robust standard errors in parentheses. The dependent variable is the change in life satisfaction between $t = -1$ and $t = 0$. The period between the two points in time covers approximately one year. All of the observations are either self-employed or standard paid employed at $t = -1$ and unemployed at $t = 0$. The hypothetical reference group terminates its initial job due to plant closure between the 2005 and the 2006 SOEP interview, is 45 years old and male (except [4]). It does not experience changes in equivalence income, home ownership, marital status, living with children in the same household between $t=-1$ and $t=0$. Moreover, they are not disabled in the case of (2), did not stay in hospital during the previous twelve months in the case of (3) and do not receive social benefits in the case of (6).

Finally, it is investigated whether either losing possible advantages of self-employment (e.g. more pleasant job characteristics) or the process of losing self-employment and being unemployed after self-employment (e.g. stronger feeling of personal failure) explains the difference in the misery of losing work. The mean comparison at the beginning of this section obviously supports the second conjecture. Losing work is more harmful for the self-employed although they start at a much lower level of life satisfaction already before they become unemployed. Indeed, additionally controlling for the level of life satisfaction

at $t = 0$ explains the whole negative effect of ceased self-employment on the change in well-being between $t = 0$ and $t = -1$ (Table 4.6, Column 7). Hence, the consequences of becoming unemployed might account for the extraordinary suffering of the self-employed.

4.7 Concluding remarks

Two complementary ways of comparing self-employment and dependent employment with respect to the misery of losing work are employed in this study. The results obtained from each clearly point in the same direction: Losing self-employment is suggested an even more harmful life event than losing dependent employment, which yields the following implications. Firstly, the extraordinary misery of losing work might deter people from becoming self-employed. However, this implication is limited by the descriptive finding that self-employed workers are less likely to lose work (see also Hundley 2001). As the total risk may be a function of both the likelihood of losing work and the welfare cost of losing work, it is a priori undetermined whether the hypothetical possibility of losing work, on average, speaks in favour of being self-employed or not.

This view leads to a second implication. It is often assumed that concerns about the security of work or satisfaction with the security of work reflect this total risk (e.g. Geishecker 2012). Under this assumption, it is possible to reconcile seemingly contradicting findings according to which self-employed workers, on average, report lower probabilities of losing work than salaried workers, but are less satisfied with the security of work (Millàn et al. 2013). If the latter is a function of both the probability of losing work and the utility loss of unemployment, the more harmful misery that the self-employed expect in the case of unemployment potentially outweighs the advantage of a lower likelihood of losing work compared to paid-employed workers. With respect to the first implication, the findings of Millàn et al. (2013) hence suggest that, on average, the total risk of losing self-employment is higher than the total risk of losing dependent employment.

Thirdly, the findings contribute one explanation why responses of well-being to increasing uncertainty about work and unemployment vary between individuals (as it has been discussed in regard to the latter by Gielen and van Ours 2014). Both self-employed workers and dependent employed workers suffer from an increase in the probability of losing work and lose life satisfaction considerably when they have lost work, but the

former are affected much more. Prior self-employment is hence a personal characteristic that boosts the individual welfare cost of insecurity and unemployment. Another is, for example, being male (e.g. Gerlach and Stephan 1996). It therefore comes as no surprise that both identification strategies suggest self-employed men suffer most of all.

A fourth implication is that former self-employed workers do not need to be forced by labour market policy to search for a new job. Overcoming the extraordinary misery of unemployment should be an incentive in itself (Clark 2003, Stutzer and Lalive 2004, Gielen and van Ours 2014). If the suffering of the former self-employed is accompanied by hopelessness and depression, which might hinder them from seeking work, the policy implication would be to provide psychological intervention and coaching rather than to force them to search.

Fifthly, the findings identify the contemporaneous probability of losing work as moderating the overall well-being difference between self-employment and dependent employment. The higher this likelihood is, the less promising running a business is. This result confirms the view of Binder and Coad (2013) that self-employment and dependent employment differ with respect to subjective well-being depending on other factors. In this context, there is, sixthly, a further explanation for the findings of Block and Koellinger (2009) as well as those of Binder and Coad (2013), who show that entrepreneurial happiness suffers from previous unemployment: Increasing insecurity at work is a scarring effect of past unemployment, reducing well-being (Knabe and Rätzel 2011b). According to the findings of the present study, this effect may particularly hurt the self-employed and can hence explain why prior unemployment does not lead to a positive well-being effect of self-employment compared to dependent employment while prior dependent employment yields such a difference.

Finally, the results shed some light on the reasons why the self-employed suffer so much from (expecting) the loss of work. They fall to a lower level of life satisfaction than salaried workers rather than starting from a higher one. Hence, the different consequences of losing work play a particular role. It is also shown that, in the process, monetary as well as non-monetary factors matter. In regard to the latter, neither higher prevalence of being needy nor the necessity to dismiss others has been identified as being of special importance. This prima facie speaks in favour of alternative explanations for the non-pecuniary part of the difference in the welfare cost of losing work. Stronger feelings of

personal failure associated with greater distance from one's ideal self as well as worse future employment and financial prospects may account for the extraordinary misery of losing self-employment compared to losing dependent employment.

Appendix of chapter 4

Table 4.A: Subgroup analyses for the first identification strategy

Subgroup	(1) whole sample	(2) age from 25 to 60	(3) no civil servants	(4) men	(5) women	(6) self-employed: employer	(7) self-employed: no employees	(8) self-employed: freelancer	(9) self-employed: owners	(10) self-employed: services	(11) self-employed: not services
Self-employed	0.176***	0.177***	0.171***	0.163**	0.184*	0.168*	0.342***	0.270**	0.194***	0.211**	0.177**
	(0.064)	(0.067)	(0.064)	(0.079)	(0.110)	(0.100)	(0.098)	(0.130)	(0.075)	(0.094)	(0.084)
Non-standard paid employed	-0.148***	-0.167***	-0.163***	-0.201	-0.114*	-0.149**	-0.159***	-0.142***	-0.152***	-0.140***	-0.150***
	(0.054)	(0.060)	(0.056)	(0.139)	(0.059)	(0.058)	(0.058)	(0.054)	(0.054)	(0.054)	(0.054)
Self-employed×(q/100)	-0.876***	-0.961***	-0.868***	-0.999***	-0.581**	-0.806***	-1.011***	-0.893***	-0.976***	-0.944***	-0.910***
	(0.146)	(0.155)	(0.147)	(0.171)	(0.267)	(0.247)	(0.214)	(0.249)	(0.189)	(0.226)	(0.204)
Standard paid employed×(q/100)	-0.530***	-0.574***	-0.547***	-0.579***	-0.476***	-0.500***	-0.507***	-0.522***	-0.526***	-0.521***	-0.529***
	(0.038)	(0.040)	(0.038)	(0.050)	(0.057)	(0.042)	(0.041)	(0.038)	(0.038)	(0.038)	(0.038)
Non-standard paid employed×(q/100)	-0.259**	-0.340**	-0.253**	-0.438*	-0.213*	-0.191	-0.185	-0.270**	-0.260**	-0.262**	-0.266**
	(0.112)	(0.132)	(0.115)	(0.264)	(0.124)	(0.122)	(0.121)	(0.112)	(0.112)	(0.112)	(0.112)
Age²	0.000**	0.000	0.000*	0.000**	0.000	0.000	0.000	0.000	0.000*	0.000	0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Divorced	0.043	0.046	0.016	0.065	0.026	0.034	0.026	0.049	0.052	0.044	0.043
	(0.058)	(0.059)	(0.059)	(0.078)	(0.085)	(0.066)	(0.067)	(0.061)	(0.058)	(0.059)	(0.059)
Separated	-0.283***	-0.290***	-0.291***	-0.441***	-0.112	-0.248***	-0.270***	-0.244***	-0.257***	-0.246***	-0.277***
	(0.070)	(0.071)	(0.073)	(0.097)	(0.100)	(0.078)	(0.079)	(0.073)	(0.071)	(0.071)	(0.073)
Widowed	-0.611***	-0.726***	-0.672***	-0.485**	-0.666**	-0.513**	-0.629**	-0.511**	-0.635***	-0.495**	-0.641***
	(0.207)	(0.235)	(0.220)	(0.247)	(0.282)	(0.244)	(0.268)	(0.209)	(0.213)	(0.207)	(0.212)
Unwed	-0.095**	-0.098**	-0.096**	-0.057	-0.143**	-0.040	-0.053	-0.082*	-0.086*	-0.084*	-0.083*
	(0.043)	(0.047)	(0.046)	(0.058)	(0.067)	(0.051)	(0.051)	(0.046)	(0.045)	(0.045)	(0.045)
Children in household	0.035	0.036	0.032	0.075**	-0.026	0.010	0.021	0.039	0.033	0.035	0.033
	(0.024)	(0.025)	(0.025)	(0.032)	(0.037)	(0.027)	(0.028)	(0.025)	(0.024)	(0.025)	(0.025)
Recent stays in hospital	-0.138***	-0.138***	-0.124***	-0.176***	-0.098***	-0.140***	-0.133***	-0.131***	-0.136***	-0.138***	-0.135***
	(0.025)	(0.027)	(0.027)	(0.035)	(0.036)	(0.027)	(0.027)	(0.026)	(0.026)	(0.026)	(0.026)
Disability: yes	-0.328***	-0.341***	-0.330***	-0.368***	-0.278***	-0.318***	-0.319***	-0.315***	-0.322***	-0.317***	-0.314***
	(0.059)	(0.062)	(0.063)	(0.080)	(0.086)	(0.065)	(0.066)	(0.060)	(0.060)	(0.060)	(0.060)
Years of unemployment experience	-0.004	0.004	-0.006	-0.063*	0.057	0.015	0.018	-0.007	-0.004	-0.007	-0.003
	(0.026)	(0.028)	(0.026)	(0.034)	(0.039)	(0.031)	(0.030)	(0.027)	(0.026)	(0.027)	(0.026)
New job	0.024	0.015	0.029	-0.053*	0.100***	0.034	0.027	0.023	0.023	0.022	0.023
	(0.022)	(0.024)	(0.023)	(0.031)	(0.032)	(0.025)	(0.025)	(0.023)	(0.023)	(0.023)	(0.023)
Tenure	-0.005	-0.007	-0.006	-0.006	-0.007	-0.004	-0.004	-0.007	-0.005	-0.006	-0.005
	(0.004)	(0.005)	(0.005)	(0.006)	(0.007)	(0.005)	(0.005)	(0.005)	(0.004)	(0.005)	(0.004)
Tenure²	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Daily working hours, difference to 8	-0.009*	-0.011*	-0.009*	-0.017**	-0.002	-0.012**	-0.009	-0.008	-0.008	-0.008	-0.009
	(0.005)	(0.005)	(0.005)	(0.008)	(0.007)	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)
Log. equivalence income, 2006 prices	0.341***	0.359***	0.350***	0.360***	0.337***	0.309***	0.313***	0.309***	0.334***	0.320***	0.330***
	(0.030)	(0.032)	(0.031)	(0.040)	(0.046)	(0.035)	(0.035)	(0.032)	(0.031)	(0.031)	(0.031)
Home ownership	0.074**	0.088***	0.061**	0.103***	0.033	0.099***	0.114***	0.092***	0.080***	0.087***	0.081***
	(0.029)	(0.030)	(0.030)	(0.037)	(0.045)	(0.033)	(0.033)	(0.029)	(0.029)	(0.029)	(0.030)
Time fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Individual fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Constant	3.995***	4.145***	3.975***	3.483***	4.496***	4.546***	4.509***	4.366***	4.055***	4.273***	4.097***
	(0.369)	(0.426)	(0.381)	(0.497)	(0.553)	(0.429)	(0.430)	(0.385)	(0.377)	(0.380)	(0.379)
Observations	56,397	51,589	51,821	30,507	25,860	47,188	47,516	52,986	54,702	53,766	54,229
Number of persons	19,436	17,746	18,056	10,200	9,236	17,646	17,689	18,564	19,014	18,751	18,901
Adjusted R²	0.038	0.041	0.039	0.046	0.034	0.035	0.033	0.036	0.038	0.036	0.038

Source: SOEP 1999 (except [5] and [6]), 2001, 2003, 2005, 2007, 2009.

Note: *p<0.1, **p<0.05 ***p<0.01. Robust standard errors in parentheses. The table displays subgroup analyses using the methodology of the first estimation approach (Specification (4)). The dependent variable is life satisfaction. The first column displays the results obtained from the whole sample. In contrast, the subsamples include (2) no workers younger than 25 or older than 60 years, (3) no civil servants, (4) men only, (5) women only, self-employed workers only who (6) employ others, (7) do not employ others, (8) are freelancers with an academic degree, (9) are other business owners, (10) provide services, (11) do not provide services. The hypothetical reference group is standard paid employed, reports 0% probability of losing work, is 0 years old, married, not living with children in household, not disabled, did not stay overnight in hospital during the previous 12 months, experienced 0 years of unemployment so far, is longer paid employed or self-employed than since the previous interview, reports 0 years of tenure, works 8 hours a day, was interviewed in 2009, receives no equivalence income and does not own its home.

Chapter Five

Flexibilisation without Hesitation –
Temporary Contracts and Job Satisfaction

5.1 Introduction

During the past few decades many countries have tried to improve the employment prospects of involuntarily unemployed people by mitigating employment protection legislation. The recent economic crisis in Europe has revitalised claims for such flexibilisation policies, despite the fact that effects of flexible labour markets on (un-)employment are controversial among policy makers and economists (e.g. OECD 2004, 2011). Besides this ongoing debate, research has also started to investigate welfare in the context of employment protection legislation by analysing well-being data (e.g. Becchetti et al. 2010, Ochsen and Welsch 2012). One policy instrument in this respect is discouraging firms from employing workers on fixed-term contracts. Policy makers may hope that the security induced would benefit workers' welfare. Indeed, being on a temporary contract increases job insecurity, i.e. worrying about losing one's current job (e.g. Green et al. 2000, Clark and Postel-Vinay 2009), which is negatively related to well-being (e.g. Sverke et al. 2002, Knabe and Rätzel 2010). Remarkably, however, the previous empirical research on the relationship between being on a limited contract and job satisfaction does not reveal a clear pattern. Reviews characterise the evidence as "mixed" (Jahn et al. 2012, p. F116) or "inconsistent and inconclusive" (de Cuyper et al. 2008, p. 26). Numerous articles on this issue show no significant effect from being on a fixed-term contract on job satisfaction (e.g. Booth et al. 2002, Bardasi and Francesconi 2004, Wooden and Warren 2004, Green et al. 2010, Green and Heywood 2011, de Graaf-Zijl 2012). The only exceptions are analyses that do not separately consider inferior forms of employment (e.g. agency work), which, however, are likely to reflect other negative aspects rather than the effect of the fixed-term contract itself. In the following, we present novel evidence from German panel data and identify job changes as a crucial aspect in this context.

Perceived job security provided by a permanent contract might benefit satisfaction with work due to at least two reasons. First, workers may not fear losing their job, which previous research has identified as an extremely detrimental event (see, e.g., Clark and Oswald 1994, Winkelmann and Winkelmann 1998 as well as Section 1.2). Second, they benefit from an option value through the opportunity to stay in the firm, enlarging their set of choices which increases autonomy (e.g. Deci and Ryan 2000). But job security is not necessarily the only reason why being on a limited contract may affect job satisfaction. Firms might use flexible working contracts to create an incentive scheme and sorting

mechanism (e.g. Boockmann and Hagen 2008). In effect, fixed-term employees work more overtime without payment when employers use fixed-term contracts to screen potential candidates for permanent jobs (Engellandt and Riphahn 2005). Working more long hours might thus explain why fixed-term workers are less satisfied than permanent workers (Rätzel 2012). Moreover, short tenures are accompanied by weak incentives to invest in good relations with others at the workplace, which is why the use of limited contracts could affect the working climate in a negative way (Gallagher and McLean Parks 2001).

In sum, previous research on various topics in the context of fixed-term work suggests a negative relationship with job satisfaction, in contrast to actual empirical evidence. This inconsistency raises some scepticism among researchers towards the usefulness of subjective evaluations as outcome measures of welfare effects from temporary contracts (Pouliakis and Theodossiou 2010). Green et al. (2010), for instance, find no significant differences between the job satisfaction of permanent and fixed-term employees, but go on to include objective job factors in their comparative analysis. Based on a combined job quality index, they come to the conclusion that being on a temporary contract lowers work-related welfare compared to a permanent contract.

We complement the research on fixed-term work and job satisfaction by investigating several potential reasons why clear patterns could not yet have been established. Using data from the German Socio-Economic Panel study, we employ different cross-sectional as well as longitudinal analyses to test whether factors such as personality traits, socio-demographic and job characteristics influence the effect of temporary contracts on work-related well-being. Many of these aspects appear to be hardly relevant, but recent job switching turns out to be of special importance. When controlling for the "honeymoon effect" of a new job (e.g. Boswell et al. 2005), our testing procedures lead to a clearly negative relationship between being on a temporary contract and job satisfaction. The fact that fixed-term workers are more likely to be observed in the extraordinarily happy period right after switching than permanent workers explains why the two groups do not differ regarding job satisfaction at first glance.

Neglecting the higher prevalence of being new in a job among workers on fixed-term contracts may be the reason why previous studies could not establish a negative relationship of fixed-term employment and job satisfaction. As our main contribution, we show that taking this aspect into account reveals a negative effect of being on a temporary

contract. It is subject to discussion whether the link between frequent honeymoons and being a fixed-term employee is inevitable and, in consequence, an advantage of temporary contracts, or if it represents a selection effect of endogenously-chosen types of employment. Assuming the latter, our results deter the recommendation of flexibilisation without hesitation.

With respect to potential flexibility-induced utility losses, studies in the context of *Flexicurity* policies analyse compensation measures (e.g. de Cuyper et al. 2009, Origo and Pagani 2009, Green 2011). The concept combines *flexi* bility with se*curity* in that it mitigates employment protection legislation, but provides substantial public assistance to the unemployed (e.g. van Vliet and Nijboer 2012). This help can consist of financial support (e.g. generous unemployment benefits) and active labour market policies. The latter is taken up by the European Union, which recommends combining flexible labour markets with measures supporting the employment prospects of job-seekers (e.g. Council of the EU 2008). The underlying assumption is that higher chances of finding a new job can improve the situation of workers. Because of the impact job security has on job satisfaction, employment security may influence job satisfaction as well (see also Section 1.2 in this respect). The more the current job is easily replaced, the less any uncertainty about it may matter for its subjective evaluation. We test this argument in regard to flexibility-induced dissatisfaction and find weak evidence that perceived employment security can weaken the suggested negative effect of temporary contracts.

Further tests reveal job insecurity as the main reason why people might suffer from fixed-term work, whereas working overtime and internal relations hardly contribute beyond that. The study proceeds as follows: first we describe the data as well as the empirical identification strategy (Section 5.2). Section 5.3 presents the results of our study. It describes mean comparisons of temporary and permanent workers with special emphasis on job changes. Afterwards, the results of multivariate methods applied to cross-section and panel data shed light on how several factors affect the relationship between being on a temporary contract and job satisfaction. The section ends with our findings concerning *Flexicurity* and transmission channels from fixed-term work to job satisfaction. Finally, we conclude and discuss our results (Section 5.4).

5.2 Data and methodology

5.2.1 Background

In order to analyse the relationship between fixed-term employment and job satisfaction, we employ cross-section and longitudinal regression analyses using data from the German Socio-Economic Panel study (SOEP, see Wagner et al. 2007). The SOEP is a representative survey of the population of Germany. Each year, several thousand people are interviewed and provide information on their well-being, income, employment status, job characteristics, and much more. To ensure the same legal conditions over the whole investigation period, we restrict our analysis to the waves from 2001 to 2010. In this period, the German Act on part-time and fixed-term work ("*Teilzeit- und Befristungsgesetz (TzBfG)*") regulates the use of temporary contracts in Germany. In general, firms are allowed to employ workers on fixed-term contracts for two years (§14 TzBfG).[16] In addition, employing somebody on a fixed-term contract is possible if the firm can name an objective reason why this is necessary (e.g. the firm needs the worker's service only for a certain time). Hence, successive fixed-term contracts allow firms to employ people temporarily for many years.

A key advantage of using German data for our research purpose is §4 of the TzBfG Act. It contributes to the comparability of temporary and permanent employees by prohibiting any kind of discrimination. Both types of workers have to be treated exactly the same with respect to pay and working conditions. The time limit of the contract remains the only systematic difference from the legal point of view. In general, this also applies to employer-employee agreements over dismissal protection during the period of employment (Däubler 2011). In case such an arrangement does not exist, fixed-term workers are even protected minimally more than permanent workers (§15(3) TzBfG).

5.2.2 Data sample

We analyse two samples, one that is based on the 2001 SOEP wave and a panel with data from 2001 to 2010. The cross-sectional analysis is conducted with the particular motivation to investigate the role of work characteristics for the difference in job satisfaction between permanent and fixed-term employment. By far the richest set of information on job

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[16] A time limit of four years is possible if the firm is not older than four years. Five years are allowed if the worker has been unemployed for at least four months and is at least 52 years old.

attributes for our period of investigation is available in the 2001 wave. The panel makes it possible to control for all time-invariant characteristics.

We consider typical German working-age people who are at least 20 years old, but not older than 65 years. In order to isolate the pure effect of fixed-term work, we exclude inferior jobs such as agency workers, workers who take part in workfare schemes, employees working below 15 hours a week and so-called "Mini-Jobs". As these jobs are always temporary and entail many exceptional attributes, they are not comparable to permanent jobs. We consider the exclusion of such employment forms as an important difference to some of the previous studies and as necessary to reveal the effect of the temporary contract itself. Moreover, we exclude apprentices, those who are self-employed, and individuals in other forms of occupational education or retraining. Some observations drop out since they do not provide all of the characteristics which we consider in the empirical analyses.

We identify temporary and permanent employees by a SOEP question on workers' contract type ("Is your contract of employment for an unlimited or limited period?"). Altogether, we receive a basic sample of 5,769 workers based on the SOEP wave of 2001, which constitutes the basis for the first part of the analysis. 328 (5,441) of them work on a temporary contract (permanent contract). The sample for the longitudinal analysis relies on the same restrictions. It includes 68,286 observations (4,179 fixed-term contracts, 64,107 unlimited contracts) from 15,080 respondents. This number is substantially higher compared to the 2001 sample due to several reasons such as survey expansions.

5.2.3 Job satisfaction and perceived security

The SOEP includes questions on satisfaction with different life domains. One of them measures job satisfaction as follows: "Please answer by using the following scale: 0 means 'completely dissatisfied', 10 means 'completely satisfied'. How satisfied are you with your job?" We assume cardinality and translate the answers directly into a variable for the econometric analysis ranging from zero to ten. This is in line with previous investigations of well-being on the basis of panel data and relies on the findings of Ferrer-i-Carbonell and Frijters (2004).[17]

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[17] Robustness checks address this assumption by employing ordered logit (cross-section) and conditional logit (panel) methods. They do not yield other qualitative findings to those we present in the following.

In order to shed light on the role of job security in the relationship between contract type and job satisfaction, we use the question: "Are you concerned about your job security?". People answer "very concerned", "somewhat concerned" or "not concerned at all". Information about employment security is obtained from the question "If you lost your job today, would it be easy, difficult, or almost impossible for you to find a new position which is at least as good as your current one?".

5.2.4 Empirical model

Making use of cross-section data, we control for personality traits to cast light on how they influence the relationship between fixed-term contract and satisfaction with work. The *Big Five* concept approximates someone's whole personality by extraversion, openness to experience, conscientiousness, neuroticism and agreeableness (e.g. McCrae and Costa 1987). In our investigation period, data on these five factors is available for the first time in 2005. We assume that personality traits are stable over a four year period and transfer the *Big Five* measures from 2005 to 2001.[18] Each trait is measured by three statements, and respondents assess how much the statements apply to themselves on a seven-point-scale (from 1 to 7). We build the mean of the three answers linked to one trait as the trait's manifestation. Based on these scores, we develop binary variables for relatively strong/middle/low manifestations of a trait. Contrariwise, our panel estimations take time-invariant characteristics like personality into account by applying individual fixed effects. In both analyses, we also consider a lot of socio-demographic characteristics, including partnership status, age, gender, and many more. Selection into a specific contract type might also be caused by equalising differences, for instance, when earnings and other preferred job characteristics compensate flexibility-induced job insecurity (Feldman et al. 1995, Ellingson et al. 1998, Green and Heywood 2011). The 2001 SOEP wave includes task variety, learning opportunities, and many further relevant aspects. The longitudinal analysis makes use of a subset of these job characteristics which includes basic attributes such as wage, firm size, and sector of industry.

It is a widely unknown phenomenon in labour market research that voluntary job changes make workers extraordinarily happy, although only for a short time (Chadi and Hetschko 2014). Boswell et al. (2005) name this pattern the "honeymoon-hangover" effect

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[18] This assumption relies on research done by Specht et al. (2011) as well as Lucas and Donnellan (2011) indicating that the stability assumption holds for people aged as they are in our sample.

of a new job. As fixed-term workers are more likely to be observed at the beginning of a new job than permanent workers, this pattern might concern our analysis in particular. Hence, we account for both the event of a recent job change and workers' tenure in order to disentangle the effect of being on a limited contract from potential honeymoon-hangover experiences. People who have a 'new job' experienced a job change no longer than approximately one year ago. 'Tenure' is defined as the period of time the respondent works for the same employer.

For analysing cross-section data, we model the job satisfaction (JS_i) of a worker i by contract type (temporary: $TEMP_i = 1$, permanent: $TEMP_i = 0$) and a vector of the *Big Five* personality traits (P). Two further vectors account for socio-demographic characteristics (S) and job characteristics (W), including recent job change, tenure, tenure squared and several other attributes, while ε_i is the individual error term. The constant α displays the average job satisfaction of the reference group.

$$JS_i = \alpha + \beta TEMP_i + \gamma' P_i + \delta' S_i + \phi' W_i + \varepsilon_i \qquad (5.1)$$

The panel analysis estimates the effect of fixed-term work on job satisfaction based on within-worker variation. The second model modifies (5.1) as follows. It considers t as the year of the observation, a year fixed effect μ_t and an individual-specific fixed effect τ_i.

$$JS_{it} = \alpha + \beta TEMP_{it} + \delta' S_{it} + \phi' W_{it} + \tau_i + \mu_t + \varepsilon_{it} \qquad (5.2)$$

5.3 Contract type and job satisfaction: results

5.3.1 Mean comparisons

In the following, we cast light on general differences between employees with limited contracts and unlimited contracts. Table 5.1 provides descriptive statistics for the basic sample of 2001. The average scores confirm that people being on flexible contracts do not differ significantly from permanent workers in regard to job satisfaction levels (7.16 to 7.19). This result is in line with previous findings (see Section 5.1). However, fixed-term employees report significantly lower job security and higher self-assessed employment security compared to permanent workers.[19]

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[19] Here and in the following, we report differences only when they are statistically significant at least at the 5% level.

Table 5.1: Descriptive statistics

	Scale	Temporary Contract		Permanent Contract		Difference
Number of observations:		328		5,441		
		mean/ share	standard deviation	mean/ share	standard deviation	temp-perm
Well-being and security						
Job satisfaction (mean)	0 - 10	7.16	2.05	7.19	1.92	-0.03
Job security (mean)	1 - 3	2.05	0.75	2.39	0.67	-0.34***
Employment security (mean)	1 - 3	2.16	0.57	2.04	0.64	0.12***
Personality						
Openness to experiences (mean)	1 - 7	4.59	1.15	4.45	1.16	0.13**
Extraversion (mean)	1 - 7	4.89	1.14	4.81	1.10	0.08
Agreeableness (mean)	1 - 7	5.42	0.93	5.41	0.97	0.01
Neuroticism (mean)	1 - 7	3.92	1.16	3.87	1.17	0.05
Conscientiousness (mean)	1 - 7	5.92	0.91	6.06	0.83	-0.13***
Socio-demographic characteristics						
Cohabiting (share)		81.1%		85.8%		-4.73%***
Migration background (share)		17.4%		16.9%		0.50%
Women (share)		50.0%		43.1%		6.90%***
Handicap (share)		4.9%		5.7%		-0.78%
Educational level	1 - 3	2.28	0.61	2.19	0.62	0.09***
Age in years (mean)		35.60	10.17	41.56	9.96	-5.95***
Years of unemployment (mean)		0.96	1.75	0.38	1.05	0.58***
Years of employment (mean)		11.51	9.63	18.89	10.34	-7.35***
Job characteristics						
Promotion probability (mean)		0.22	0.29	0.18	0.25	0.04***
Monthly net wage in Euro (mean)		1220.53	556.13	1506.64	702.45	-286.1***
Weekly work hours (mean)		35.42	7.68	36.40	6.32	-0.98**
Overtime hours per week (mean)		4.27	6.65	3.88	5.59	0.39
Tenure in years (mean)		2.85	5.06	11.27	9.63	-8.42***
New job (share)		56.4%		12.5%		43.94%***
Company size (mean)	1 - 3	2.08	0.65	2.03	0.67	0.05
Level of occupational autonomy (mean)	1 - 5	2.54	1.09	2.68	1.02	-0.14**
Financial sector (share)		1.5%		4.5%		-2.94%***
Transport (share)		4.2%		5.2%		-0.93%
Trade (share)		11.3%		13.6%		-2.34%
Agriculture (share)		2.1%		1.0%		1.08%**
Energy (share)		0.0%		0.5%		0.50%
Mining (share)		0.9%		1.3%		0.37%
Manufacturing (share)		17.7%		22.2%		-4.56%**
Construction (share)		10.1%		15.2%		-5.10%***
Education sector (share)		14.3%		6.2%		8.09%***
Public administration (share)		12.8%		9.5%		3.32%*
Health and social services (share)		15.6%		10.4%		5.15%***
Other services (share)		9.5%		10.4%		-0.91%
Task variety (mean)	1 - 3	2.55	0.57	2.58	0.58	-0.03
Manual labour (mean)	1 - 3	1.71	0.76	1.65	0.74	0.06
Independence in carrying out tasks (mean)	1 - 3	2.14	0.71	2.22	0.69	-0.08**
Performance control (mean)	1 - 3	1.89	0.75	1.77	0.70	0.12***
Shift work (mean)	1 - 3	1.51	0.82	1.43	0.78	0.07*
Frequency of conflicts with superiors (mean)	1 - 3	1.28	0.52	1.29	0.51	-0.01
Quality of relations with colleagues (mean)	1 - 3	2.75	0.49	2.78	0.48	-0.03
Learning opportunities (mean)	1 - 3	2.33	0.73	2.19	0.71	0.14***
Environmental burden (mean)	1 - 3	1.56	0.75	1.59	0.77	-0.03
Stress at work (mean)	1 - 3	2.00	0.74	2.12	0.68	-0.12***
Risk at work (mean)	1 - 3	1.53	0.73	1.49	0.69	0.04

Source: SOEP 2001, 2005 (Personality).
*Note: *denotes significance at the 10% level, **at the 5% level and ***at the 1% level.*

Fixed-term employment and permanent employment vary with respect to personality traits, socio-demographic and job characteristics, which speaks in favour of employing further multivariate analyses. More precisely, fixed-term employees are more open to new experiences, but less conscientious. Permanently employed workers are older, more often cohabiting, less often female, less educated, report more years of employment experience and less years of unemployment experience. They receive higher net wages, are in higher occupational positions, have agreed by contract to work more hours and are longer employed in the same firm, whereas fixed-term workers state that they are more likely to be promoted in the future. The shares of permanent workers in the construction industry, the manufacturing industry and the financial sector are higher than the shares of fixed-term employees in these sectors. The opposite applies to the health and social services sector, the education sector as well as the agricultural sector. Finally, the work of fixed-term employees is monitored more strictly and they are less independent in carrying out tasks. At the same time, being on a temporary contract is on average associated with better learning opportunities and less stress.

5.3.2 Contract type and the honeymoon-hangover effect of a new job

People being on limited and unlimited contracts are different with respect to their tenure and, even more so, with respect to recent job mobility. In fact, more than half of fixed-term employees report having a new job. To get an impression of the role job switching plays in our context, we compare the honeymoon-hangover pattern for temporary and permanent workers graphically. As for our large sample, we use all SOEP data waves within the investigation period from 2001 to 2010 and apply the same restrictions with respect to age and atypical employment. We follow respondents when they move from one job to another. Around this event, we define three points in time: $t = -1$ as the last SOEP interview in the previous job, $t = 0$ as the first interview in the new job and $t = 1$ as the second interview in the new job. The time interval between two interviews is approximately one year.

We compare the average job satisfaction of two groups in Figure 5.1. The first group (red) moves from any contract into a temporary one (243 observations). The second group (blue) changes from any contract into a permanent one (1,909 observations). The type of contract does not change between $t = 0$ and $t = 1$. The average job satisfaction of all observations in the sample gives a reference level (green), allowing for a graphical illustration of potential honeymoon effects of newly started jobs.

Figure 5.1: Contract type and the honeymoon-hangover effect of a new job

Year around job change

In line with previous research (e.g. Clark et al. 1998), individuals report very low levels of job satisfaction prior to job termination. Hence, between $t = -1$ and $t = 0$, the satisfaction with work increases considerably. However, overcoming the negative situation of the old job would imply that satisfaction reaches its mean level in $t = 0$. Instead, job satisfaction far exceeds the average in $t = 0$ which is the above-mentioned honeymoon-effect as an above-average satisfaction peak. Afterwards, from $t = 0$ to $t = 1$ there is a decline, i.e. the hangover effect. Most importantly for our study here is that the two groups do not differ with respect to the very positive start in the new work environment. Accordingly, the honeymoon phenomenon might bias the difference in job satisfaction between temporary and permanent workers as soon as one of the two groups is simply observed more often right after switching than at other points in time. Clearly, fixed-term workers appear to be that group (see Table 5.1).

5.3.3 Cross-section regression analysis

In the following, we present the main results from our investigation of SOEP 2001 data. This wave enables us to test both the effects of fixed-term work on job satisfaction and the impact of important sets of control variables on this relation. The first step of our

econometric analysis is an ordinary least squares (OLS) estimation of job satisfaction based on the whole sample of the 2001 SOEP wave. The results are summarised in Table 5.2 and reported as a whole in the appendix of this chapter, Table 5.A. We specify the model (equation (5.1)) in five steps. In its simplest form (Specification (1)), it includes being on a temporary contract and personality traits. Fixed-term work is not related to job satisfaction here. Table 5.A reveals that personality traits correlate similarly to job satisfaction as in previous studies (e.g. Judge et al. 2002). This supports our strategy to use the measures of 2005 as proxies of personality traits in 2001.

The second step (Specification (2)) adds socio-demographic characteristics as controls. The regression coefficient of temporary contract remains slightly negative and insignificant. The results so far do not differ qualitatively from the mean comparison. Hence, self-selection due to personality traits and socio-demographic characteristics seems to be of minor importance for the identification of the fixed-term work effect. This finding does not depend on whether we add whole vectors to the econometric model or each variable one by one. The regression coefficient of the temporary contract variable becomes more negative when we enlarge the model by job characteristics, such as the wage level, although the effect remains insignificant (Specification (3)). Hence, we find weak evidence that work-related and firm-related factors play a role in this context. The step from the second to the third specification increases the explanatory power of the model notably (R^2 increases from about 4% to 15%), confirming that job characteristics are strongly related to job satisfaction. We discuss other job characteristics such as job security, working overtime and internal relations later in Subsection 5.3.6, when we shed light on the reasons for the effect of fixed-term work.

The negative effect of temporary contract on job satisfaction becomes weakly significant when we take tenure and tenure squared into account (Specification (4)). This estimation illustrates a relationship between tenure and job satisfaction that is u-shaped, as shown by Theodossiou and Zangelidis (2009). It also captures some of the influence that the exceptionally happy first period in a new job might have. To take a further step in this direction, we add a binary variable for recent job changes (Specification (5)). The results show that a new job is linked to high levels of job satisfaction, whereas the tenure u-shape loses most of its significance. Meanwhile, the effect of temporary contract on job satisfaction turns out to be significantly negative.

Table 5.2: Summarised results of the cross-section analysis (OLS estimates)

Model specification:	(1)	(2)	(3)	(4)	(5)
Temporary contract	-0.006 (0.115)	-0.037 (0.117)	-0.122 (0.114)	-0.196* (0.116)	-0.235** (0.117)
Tenure				-0.027*** (0.009)	-0.017* (0.010)
Tenure²				0.001** (0.000)	0.000 (0.000)
New job					0.184** (0.082)
Personality	yes	yes	yes	yes	yes
Socio-demographic characteristics		yes	yes	yes	yes
Job characteristics			yes	yes	yes
Constant	7.180*** (0.037)	7.179*** (0.128)	6.552*** (0.205)	6.635*** (0.208)	6.546*** (0.211)
Observations	5,769	5,769	5,769	5,769	5,769
Adjusted R²	0.031	0.037	0.150	0.152	0.152

Source: SOEP 2001, 2005 (Personality).
Note: *denotes significance at the 10% level, **at the 5% level and ***at the 1% level. Robust standard errors are in parentheses. The dependent variable is job satisfaction. Personality includes openness to experience, conscientiousness, extraversion, agreeableness and neuroticism. Socio-demographic characteristics include gender, age, migration background, single, educational levels, handicap, unemployment experience and employment experience. Job characteristics include firm size, occupational autonomy, industry sector, wage, working hours, promotion probability, task variety, hard manual labour, independence in carrying out tasks, performance control, shift work, learning opportunities and environmental burden. Complete results are presented in Table 5.A in the appendix of this chapter.

The combination of the new job dummy with all other controls, including tenure and tenure squared, leads to the clearest pattern. Variations of the tests presented in Table 5.2 reveal that the new job dummy has the strongest influence on the relationship between temporary contract and job satisfaction. For instance, a specification including new job as the only control variable leads already to an effect of the temporary contract of around -0.199 (significant at the 10% level). As fixed-term workers are more likely to be observed in the exceptionally happy period right after a job change than permanent workers, the honeymoon effect increases the estimate of the temporary contract.

5.3.4 Propensity Score Matching Techniques

The descriptive statistics (Subsection 5.3.1) reveal considerable worker differences related to the two contract types. Depending on age, personality or labour market experience, some of the permanent workers in our sample might be extremely unlikely to ever work on a limited contract. The same could apply vice versa to fixed-term employees. Perhaps, these people do not consider their contract type and its consequences when evaluating job

satisfaction. The fact that they are members of the conceived treatment (temporary contract) or control group (permanent contract) could thus bias our results. A similar issue might result from heterogeneous treatment and control groups. Both high-level managers and low-skilled workers are likely to work on temporary contracts, although their overall situations may differ quite strongly.

While a first move in this direction is the exclusion of inferior jobs from the samples, we address comparability issues further by applying propensity score matching techniques. Propensity scores of a fixed-term contract (q) are calculated using pre-treatment information (see the probit estimation results in Table 5.B in the appendix of this chapter). As a first step to make treatment and control group more comparable, we trim the initial sample by considering only those people who are at least one per cent likely to be a fixed-term employee and at least one per cent likely to be permanently employed ($q > 0.01$ and $q < 0.99$). Thereby, we lose 6.1% of the entire population. Afterwards, we run the same regressions as before, which does not yield different qualitative findings as before.

As a further step, we apply Epanechnikov kernel matching (EKM), which is a widely-used propensity score matching algorithm.[20] In so doing, we improve the comparability of treatment and control group further and remove the linearity assumption of the methods applied so far. EKM allows us to calculate bootstrapped standard errors to test the significance of the effects. The algorithm compares job satisfaction levels of fixed-term employees (treated units) with weighted sums of job satisfaction levels of permanent employees (untreated units). The weight of each untreated unit depends on its similarity to the treated unit as measured by propensity scores. Hence, EKM requires that the sample provides permanent employees with similar propensity scores for each fixed-term employee (overlap assumption). Figure 5.A and Figure 5.B in the appendix of this chapter illustrate that this condition is fulfilled.

The average treatment effects on the treated are shown in Table 5.C in the appendix of this chapter. For the basic sample, EKM leads to a relatively small and statistically insignificant negative effect of being on a fixed-term contract on job satisfaction. To consider the honeymoon effect of a new job, we repeat the procedure based on a sample without people who changed jobs recently. In this case, the effect appears to be strongly

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[20] Caliendo and Kopeinig (2008) provide a guide on propensity score matching and describe different techniques. EKM is applied, inter alia, by Böckerman and Ilmakunnas (2009) as well as by Caliendo and Künn (2011).

negative. Both findings are robust to different bandwidths. Thus, when applying EKM, we find the same pattern as in the above regressions: a significantly negative effect of fixed-term work on job satisfaction is identified only when the empirical procedure takes into account the honeymoon effect of a new job.

5.3.5 Changing the contract type: the longitudinal analysis

Thanks to the panel structure of our data, we can perform analyses in which we control for all the time-invariant characteristics of a person through individual fixed effects. We proceed in a manner similar to the cross-section data insofar as we add controls step-by-step in the same order. The respective sets of variables are smaller because some information is not observed each year. In line with the cross-sectional findings on the influence of personality traits, introducing individual fixed effects matters little regarding the effect of temporary contract on job satisfaction. The results are summarised in Table 5.3 and presented in detail in Table 5.D in the appendix of this chapter. The first specification (1) includes only the binary variable of temporary contract, individual fixed effects and time fixed effects. Afterwards, socio-demographic characteristics (Specification (2)), the set of job characteristics (Specification (3)), tenure and tenure squared (Specification (4)) are added. Similar patterns appear to those in the cross-sectional analysis. The more characteristics are taken into account, the more negatively being on a limited contract is related to job satisfaction. Adding variables one by one does not reveal a singular factor of special importance.

Specification (5) adds a binary variable for being in the first year of a new job to control for the considerable peak in job satisfaction. In consequence, the effect of fixed-term employment contract on job satisfaction is more negative compared to the previous specifications and turns out to be significant. Whereas the clearest pattern emerges again when the full set of controls is included, we find further evidence that the new job shapes the effect of the temporary contract more than any other control variable.

Regarding the role of fixed effects, which constitute the main difference between cross-section and panel analysis, it is interesting that we again find no evidence for a strong role of stable person characteristics such as personality traits in our context. Finally, we investigate whether the results depend on previous employment status. Testing the role of lagged employment status variables in our analyses does not lead to other findings in any of our estimations.

Table 5.3: Summarised results of the panel analysis (OLS fixed effects estimates)

Model Specification:	(1)	(2)	(3)	(4)	(5)
Temporary contract	0.065 (0.046)	0.029 (0.046)	0.046 (0.046)	-0.065 (0.046)	-0.121*** (0.046)
Tenure				-0.093*** (0.006)	-0.076*** (0.007)
Tenure²				0.001*** (0.000)	0.001*** (0.000)
New job					0.243*** (0.028)
Individual and time fixed effects	yes	yes	yes	yes	yes
Socio-demographic characteristics		yes	yes	yes	yes
Job characteristics			yes	yes	yes
Constant	7.358*** (0.020)	8.209*** (0.469)	7.955*** (0.478)	8.232*** (0.473)	8.009*** (0.474)
Observations	68,286	68,286	68,286	68,286	68,286
Number of persons	15,080	15,080	15,080	15,080	15,080
Adjusted R²	0.013	0.017	0.021	0.030	0.032

Source: SOEP 2001-2010.
Note: *denotes significance at the 10% level, **at the 5% level and ***at the 1% level. Robust standard errors are in parentheses. The dependent variable is job satisfaction. Socio-demographic characteristics include age, single, educational levels, handicap, unemployment experience and employment experience. Job characteristics include firm size, occupational autonomy, industry sector, wage and working hours. Complete results are presented in Table 5.D in the appendix of this chapter.

5.3.6 Flexicurity and potential transmission channels

Thus far, our results reveal that being on a limited contract reduces job satisfaction significantly when recent job switching is controlled for. In the following, we analyse the role of further factors in the relationship between fixed-term work and job satisfaction. Before we test potential channels which might explain why people being on a temporary contract seem to suffer, we shed some light on the *Flexicurity* idea to compensate disadvantages from flexible labour markets with perceived employment security.

As mentioned above, one variant of *Flexicurity* recommends compensating flexibility-induced disutility with active labour market policies aimed at providing employment security. We use the information about perceived employment security, i.e. the self-assessed ability to find a new job in case of job loss in order to test whether this factor plays a role for utility derived from working. The information is available over the whole investigation period, allowing us to analyse both cross-section and panel data. The estimations are based on each of the fifth specifications presented in Tables 5.2 and 5.3. We add binary variables accounting for low and high self-assessed employment security,

while the reference category is medium employment security. Table 5.4 presents the corresponding results (Specifications (6) and (6')).

Perceived employment security seems to affect workers' job satisfaction. In particular, the outcome for low perceived employment security suggests substantially reduced satisfaction with work. To calculate the effect of 'flexicure' employment, we estimate the sum of the coefficients of temporary contract and high employment security. The result is -0.124 (not significant) in the cross-section analysis as well as -0.097 in the panel analysis (significant at the 10% level). Having alternative working opportunities thus weakens the potential cost of flexible employment, although this result should not be overemphasised against the background of the very slight compensation which high employment security seems to provide according to the panel analysis. Adding job security dummies to the cross-section and panel regressions (Specifications (7) and (7')) reveals that this factor is the main reason why being on a temporary contract seems to affect job satisfaction negatively. Remarkably, the negative effect of the temporary contract almost disappears when controlling for job security. This finding supports the theoretical expectation that the job security added by a permanent contract increases welfare derived from working.

We want to take a step forward in this context and approach the subject of job insecurity among fixed-term workers using more objective information. This is in line with research which discusses bias issues of estimations regressing subjective outcomes, such as job satisfaction, on subjective evaluations, such as perceived job insecurity (Geishecker 2012). In so doing, we furthermore improve the identification of the impact of having a flexible contract, which does not necessarily concern each fixed-term employee in a partly regulated labour market. The panel structure of our data enables us to observe subsequent job terminations that happen because employees reach the end of their contract. We exploit information from the subsequent SOEP interview to divide all observations of temporary jobs in two subgroups, represented by interaction terms in the panel regression. The first group of workers' jobs terminate because the contract limit is reached and they are therefore forced out. We consider it plausible that people in this group are likely to experience exogenously induced flexibility. All other fixed-term workers are in the second group. In the next SOEP interview, these workers are either in the same flexible job or they have changed it or lost it due to reasons other than having reached the time limit defined by their contract.

Sample:	2001			2001-2010		
Model specification:	(6)	(7)	(8)	(6')	(7')	(8')
Temporary contract	-0.231** (0.117)	-0.039 (0.116)	0.000 (0.108)	-0.121*** (0.046)	-0.008 (0.046)	
× termination due to contract limit						-0.396*** (0.094)
× no termination due to contract limit						-0.004 (0.056)
High employment security	0.106* (0.060)			0.023 (0.026)		
Low employment security	-0.194*** (0.075)			-0.104*** (0.023)		
High job security		0.485*** (0.053)	0.398*** (0.050)		0.331*** (0.019)	
Low job security		-0.690*** (0.095)	-0.661*** (0.089)		-0.574*** (0.028)	
Overtime (log)			-0.130*** (0.026)			
Good relations with colleagues			0.445*** (0.064)			
Bad relations with colleagues			0.163 (0.171)			
No conflicts with superiors			0.947*** (0.060)			
Frequent conflicts with superiors			-0.943*** (0.186)			
Tenure, Tenure², New job	yes	yes	yes	yes	yes	yes
Personality	yes	yes	yes			
Socio-demographic characteristics	yes	yes	yes	yes	yes	yes
Job characteristics	yes	yes	yes	yes	yes	yes
Individual and time fixed effects				yes	yes	yes
Constant	6.503*** (0.211)	6.453*** (0.208)	5.699*** (0.208)	8.003*** (0.474)	7.932*** (0.469)	7.932*** (0.469)
Observations	5,769	5,769	5,769	68,286	68,286	54,548
Adjusted R²	0.154	0.184	0.258	0.033	0.055	0.033

Source: SOEP 2001-2010.
*Note: *denotes significance at the 10% level, **at the 5% level and ***at the 1% level. Robust standard errors are in parentheses. The dependent variable is job satisfaction. The controls are listed in detail in the notes of the Tables 5.2 (2001 sample) and 5.3 (2001-2010 sample).*

The results of the respective fixed effect regression are presented by Specification (8') on the right-hand side of Table 5.4. Those who state in the next interview that the previous employment relationship ended because of contract limitation are substantially less satisfied than all other fixed-term employees. A significantly negative effect of the fixed-term contract only appears in the former case. The magnitude of the effect is substantially larger compared to the average effect of fixed-term work (see Table 5.3), which is not

driven by differences in compositions of the samples. We conclude that the use of more objective information also leads to the same basic finding. It is the security added by the permanent contract that increases job satisfaction.

To investigate the role of further factors that may explain the relationship between being on a limited contract and job satisfaction, we expand our set of variables included in the cross-section analysis by adding overtime as well as relations with colleagues and superiors (Specification (8), left-hand side of Table 5.4). The overtime variable is the natural logarithm of the positive differences between actual and agreed-upon working hours. Conflicts with superiors are represented by two binary variables (often having conflicts and difficulties with the boss: applies completely vs. not at all; reference category: it applies partly). In the same manner, the binary variables constituting relations with colleagues are generated (getting along well with colleagues: applies completely vs. not at all; reference category: it applies partly). The information about internal relations is, in our investigation period, only available for the SOEP wave of 2001. The results based on the cross-section estimation show that the negative impact of fixed-term work disappears completely as soon as all potential transmission channels discussed in Section 5.1 are considered in the model besides perceived job insecurity. However, the shift caused by controlling for overtime and internal relations is much less substantial than in the case of job security.

5.4 Discussion

Numerous studies have investigated the effects of flexible employment contracts on job satisfaction, but they could not identify clear patterns (de Cuyper et al. 2008). This absence of conclusive evidence could speak in favour of promoting fixed-term work politically. It is interesting to note that researchers in the past have been very reluctant to interpret their findings in such a way. This scepticism might come from the sharp contrast between theoretical expectations and empirical findings.

We aim at reconciling these contradicting views using representative German panel data. In contrast to previous research, we explicitly account for the extraordinary new job effect that turns out to be highly relevant for the relationship between fixed-term work and job satisfaction. The neglect of this phenomenon may be responsible for the inconclusive evidence provided so far by similar studies. Likewise, other researchers who analyse job

satisfaction as an outcome or as a predictor of behaviour should be aware of the honeymoon-hangover pattern. Our validation of Boswell et al.'s (2005) findings from data of US high-level managers demands a deeper analysis of generalizability and causality of the new job effect. Such a first comprehensive investigation on the basis of SOEP data is provided by Chadi and Hetschko (2014).

In addition to the new job effect, we also analyse several other factors that are expected to play a role in the relationship between contract type and job satisfaction. In fact, we are among the first who make use of the *Big Five* measures to control for differences in personality traits in a direct way. Against the background of cross-sectional results and of the findings from panel analyses that consider personality indirectly via individual fixed effects, we find that frequently-unobserved individual characteristics and resulting selection issues seem to be of minor importance for our research objective. This finding is remarkable because empirical researchers are typically very concerned about this aspect. Similarly, socio-demographic characteristics and equalising differences through earnings and other job characteristics may be relevant to some extent, but may bias the effect of being on a fixed-term contract on job satisfaction much less than the honeymoon effect of a new job. We also address potential transmission channels which might explain why temporary contracts are related to workers' well-being. The negative effect measured disappears almost completely when perceived individual job security is controlled for.

Further likely channels such as relations with colleagues and supervisors as well as working long hours hardly contribute beyond this. In regard to the causal effect of being on a fixed-term contract on job satisfaction, we attempt to come as close as possible to what an exogenously-enforced treatment effect could look like. As the interpretation of our findings depends crucially on the new job effect, one might ask whether honeymoon experiences constitute an inherent advantage of fixed-term work. However, flexible jobs in our data may often be chosen voluntarily. Positive new job effects can originate from any specific aspect that motivated workers to change willingly to the temporary job. If the same phenomenon appears when people needed to switch from one temporary job to another because they reached the time limit of the initial contract is questionable. They might conceive such a change as involuntary which according to recent findings prevents honeymoon experiences in the new job (Chadi and Hetschko 2014).

To shed more light on this issue, we isolate cases of job terminations due to contract limit. We find a particularly strong negative effect for this group of workers for whom we can assume that some individuals suffer from an exogenously-given insecurity at the end of their tenure. That this subgroup is hurt from the flexibility induced by the temporary contract is arguably so. A deeper inspection of the actual magnitude of this effect might consider selection issues further, despite the difficulty of providing an adequate research environment for such an objective. Nevertheless, our step in this direction speaks in favour of the expected negative impact from flexibility on workers' job satisfaction. In consequence, we tend to answer the question raised in the title of the present study with 'No'. In so doing, we provide one argument of many that need to be considered in a comprehensive cost benefit analysis of flexibilisation that would, e.g., take into account implications for unemployed individuals (see e.g. de Graaf-Zijl et al. 2011). As an argument in support of flexible labour markets, increased turnover may lead to more opportunities for voluntary job switching, fostering honeymoon experiences.

As another interesting topic, we follow previous research on job satisfaction and test the idea of the Flexicurity concept, which attempts to compensate effects of flexible employment by providing employment security. In particular the cross-sectional analysis suggests that high perceived employment security weakens the negative effects of flexible contracts. It is obvious that job satisfaction can merely shed some light on this issue because it may not reflect all benefits of feeling secure about future employment prospects. On this account and against the background of our novel findings, it seems worthwhile to analyse temporary contracts further with respect to other outcomes.

Appendix of chapter 5

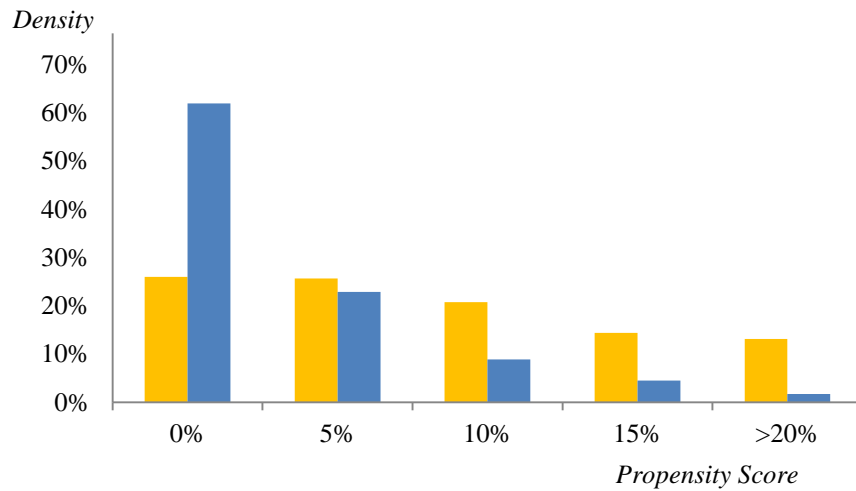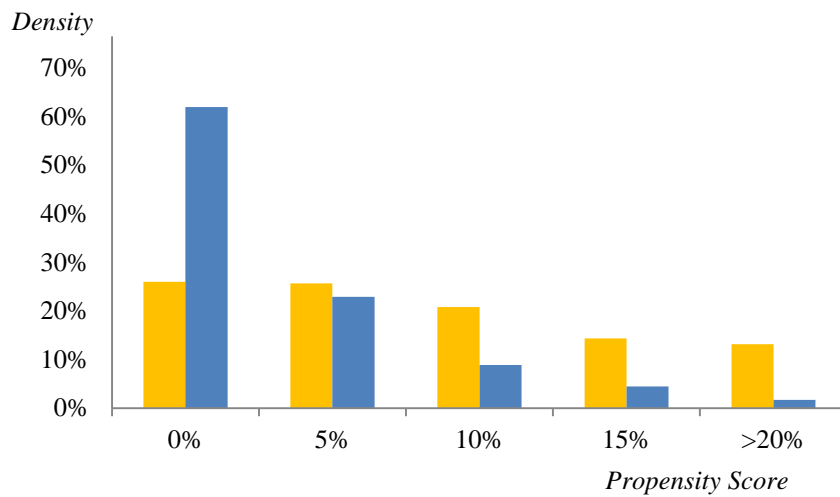*Figure 5.A: Overlap, basic sample*

Figure 5.B: Overlap, sample without new workers

Source: SOEP 2001, 2005 (Personality).
Note: Orange bars denote the density of temporary contracts, blue bars denote the density of permanent contracts.

Table 5.A: Results of the linear regression (basic sample, OLS estimates)

Model specification:	(1)	(2)	(3)	(4)	(5)	(6)
Temporary contract	-0.035	-0.006	-0.037	-0.122	-0.196*	-0.235**
	(0.116)	(0.115)	(0.117)	(0.114)	(0.116)	(0.117)
High openness to experience		0.169**	0.179**	0.106	0.102	0.099
		(0.081)	(0.081)	(0.077)	(0.077)	(0.077)
Low openness to experience		-0.011	-0.004	0.131*	0.133*	0.137*
		(0.078)	(0.077)	(0.073)	(0.073)	(0.073)
High neuroticism		-0.498***	-0.461***	-0.313***	-0.323***	-0.326***
		(0.109)	(0.109)	(0.102)	(0.102)	(0.101)
Low neuroticism		0.558***	0.534***	0.379***	0.382***	0.380***
		(0.072)	(0.072)	(0.070)	(0.070)	(0.070)
High agreeableness		0.197**	0.210***	0.219***	0.226***	0.222***
		(0.078)	(0.077)	(0.074)	(0.074)	(0.074)
Low agreeableness		-0.258***	-0.275***	-0.244***	-0.246***	-0.245***
		(0.087)	(0.087)	(0.082)	(0.082)	(0.082)
High conscientiousness		0.207***	0.224***	0.201***	0.195***	0.198***
		(0.067)	(0.067)	(0.063)	(0.063)	(0.063)
Low conscientiousness		-0.284***	-0.277***	-0.244***	-0.238***	-0.237***
		(0.091)	(0.091)	(0.087)	(0.087)	(0.087)
High extraversion		-0.150*	-0.155*	-0.121	-0.121	-0.123
		(0.084)	(0.085)	(0.078)	(0.078)	(0.078)
Low extraversion		-0.287***	-0.277***	-0.252***	-0.247***	-0.250***
		(0.085)	(0.085)	(0.081)	(0.081)	(0.081)
Education, primary level			-0.212**	-0.067	-0.058	-0.059
			(0.088)	(0.087)	(0.087)	(0.087)
Education, tertiary level			0.006	-0.238***	-0.258***	-0.256***
			(0.058)	(0.066)	(0.066)	(0.066)
Handicap			-0.448***	-0.411***	-0.403***	-0.401***
			(0.130)	(0.121)	(0.121)	(0.121)
Single			-0.010	0.004	0.011	0.006
			(0.075)	(0.071)	(0.071)	(0.071)
Migration background			0.122*	0.254***	0.252***	0.254***
			(0.070)	(0.071)	(0.071)	(0.071)
Female			-0.066	-0.000	0.006	0.006
			(0.053)	(0.065)	(0.065)	(0.065)
Age, difference to 40 years			-0.010	-0.015**	-0.014**	-0.014**
			(0.006)	(0.006)	(0.006)	(0.006)
Age, difference to 40 years, squared			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Years of unemployment			-0.037*	0.001	-0.014	-0.015
			(0.022)	(0.021)	(0.021)	(0.021)
Years of employment			0.003	0.010*	0.014**	0.014**
			(0.006)	(0.006)	(0.006)	(0.006)
Promotion probability 0%				-0.157**	-0.142**	-0.130*
				(0.071)	(0.071)	(0.071)
Promotion prob. >0% but ≤ 30%				-0.150**	-0.143**	-0.137**
				(0.069)	(0.069)	(0.069)
Promotion probability ≥70%				0.268***	0.264***	0.266***
				(0.100)	(0.100)	(0.100)
Small company				0.065	0.046	0.043
				(0.067)	(0.067)	(0.067)
Big company				0.004	0.022	0.020
				(0.060)	(0.060)	(0.060)
Occupational autonomy, level 2				-0.007	0.005	0.010
				(0.092)	(0.092)	(0.092)
Occupational autonomy, level 3				-0.172*	-0.152	-0.149
				(0.104)	(0.105)	(0.105)
Occupational autonomy, level 4				-0.088	-0.073	-0.070
				(0.120)	(0.121)	(0.121)
Occupational autonomy, level 5				-0.012	0.007	0.021
				(0.195)	(0.195)	(0.195)
log net wage				0.186**	0.228***	0.224***
				(0.082)	(0.083)	(0.084)

To be continued on the next page!

Model specification:	(1)	(2)	(3)	(4)	(5)	(6)
Work hours, difference to 40				-0.005	-0.006	-0.006
				(0.005)	(0.005)	(0.005)
Banking and insurance				-0.131	-0.099	-0.099
				(0.137)	(0.138)	(0.138)
Transport				0.154	0.171	0.168
				(0.140)	(0.139)	(0.139)
Trade				-0.159	-0.155	-0.155
				(0.106)	(0.106)	(0.106)
Agriculture				0.532**	0.560**	0.567**
				(0.235)	(0.237)	(0.237)
Mining				0.050	0.094	0.091
				(0.225)	(0.225)	(0.226)
Energy				-0.190	-0.122	-0.132
				(0.420)	(0.422)	(0.422)
Manufacturing				0.169*	0.185*	0.184*
				(0.096)	(0.097)	(0.097)
Construction				0.169*	0.181*	0.183*
				(0.101)	(0.101)	(0.101)
Education				0.312**	0.351***	0.346***
				(0.122)	(0.122)	(0.122)
Public administration				0.271**	0.312***	0.311***
				(0.109)	(0.110)	(0.110)
Health and social services				0.212*	0.243**	0.246**
				(0.113)	(0.113)	(0.113)
High task variety				0.529***	0.520***	0.517***
				(0.057)	(0.057)	(0.057)
Low task variety				-0.533***	-0.537***	-0.538***
				(0.159)	(0.158)	(0.159)
Very hard manual labour				-0.386***	-0.394***	-0.393***
				(0.083)	(0.083)	(0.083)
No hard manual labour				0.013	0.007	0.005
				(0.065)	(0.065)	(0.065)
High independence				0.310***	0.311***	0.311***
				(0.053)	(0.053)	(0.053)
Low independence				0.218***	0.210**	0.209**
				(0.084)	(0.084)	(0.084)
Strong performance control				-0.200***	-0.200***	-0.204***
				(0.077)	(0.077)	(0.077)
Weak performance control				0.183***	0.188***	0.188***
				(0.053)	(0.053)	(0.053)
Frequent shift work				0.034	0.043	0.042
				(0.108)	(0.108)	(0.108)
No shift work				-0.049	-0.045	-0.044
				(0.095)	(0.095)	(0.095)
Good learning opportunities				0.416***	0.408***	0.405***
				(0.054)	(0.054)	(0.054)
No learning opportunities				-0.364***	-0.362***	-0.362***
				(0.084)	(0.084)	(0.084)
High environmental burden at work				-0.127	-0.126	-0.129
				(0.087)	(0.087)	(0.087)
No environmental burden at work				0.189***	0.182***	0.178***
				(0.068)	(0.068)	(0.068)
Very annoying tasks				-0.547***	-0.541***	-0.538***
				(0.060)	(0.060)	(0.060)
Not annoying tasks				0.366***	0.363***	0.357***
				(0.068)	(0.068)	(0.068)
High risk at work				-0.006	-0.003	-0.004
				(0.101)	(0.101)	(0.100)
No risk at work				-0.013	-0.013	-0.012
				(0.069)	(0.069)	(0.068)

To be continued on the next page!

Model specification:	(1)	(2)	(3)	(4)	(5)	(6)
Tenure					-0.027***	-0.017*
					(0.009)	(0.010)
Tenure²					0.001**	0.000
					(0.000)	(0.000)
New job						0.184**
						(0.082)
Constant	7.193***	7.180***	7.179***	6.552***	6.635***	6.546***
	(0.026)	(0.037)	(0.128)	(0.205)	(0.208)	(0.211)
Observations	5,769	5,769	5,769	5,769	5,769	5,769
Adjusted R²	0.000	0.031	0.037	0.150	0.152	0.152

Table 5.B: Propensity score estimations (probit)

Sample:	basic		without newcomers	
	coefficient	standard error	coefficient	standard error
High openness to experience	0.099	(0.087)	0.038	(0.124)
Low openness to experience	-0.092	(0.094)	-0.055	(0.122)
High neuroticism	0.035	(0.102)	-0.057	(0.151)
Low neuroticism	-0.170*	(0.096)	-0.153	(0.132)
High agreeableness	0.051	(0.087)	-0.203	(0.138)
Low agreeableness	-0.160	(0.102)	-0.166	(0.138)
High conscientiousness	-0.062	(0.080)	-0.116	(0.114)
Low conscientiousness	0.135	(0.095)	-0.014	(0.131)
High extraversion	0.101	(0.086)	0.054	(0.125)
Low extraversion	0.025	(0.093)	0.147	(0.118)
Years of unemployment	0.150***	(0.020)	0.073**	(0.034)
Years of employment	-0.038***	(0.007)	-0.035***	(0.010)
Education, primary level	-0.155	(0.105)	-0.278*	(0.167)
Education, tertiary level	0.153**	(0.065)	0.217**	(0.087)
Handicap	0.137	(0.132)	0.312**	(0.159)
Single	-0.012	(0.078)	0.081	(0.104)
Migration background	-0.090	(0.078)	-0.203*	(0.116)
Female	0.041	(0.059)	0.041	(0.080)
Age, difference to 40	0.002	(0.007)	-0.003	(0.010)
Age, difference to 40, squared	0.001***	(0.000)	0.002***	(0.000)
Constant	-1.248***	(0.144)	-1.525***	(0.199)
Observations	5,769		4,906	

Table 5.C: Average treatment effects on the treated (Kernel matching)

Outcome variable: Job satisfaction

Sample:	Basic	Did not change jobs recently
Treated (temporary contract)	[n = 328]	[n = 143]
Controls (permanent contract)	[n = 5,219]	[n = 4,348]
Epanechnikov kernel,	-0.031	-0.350**
bandwidth 0.06	(0.114)	(0.163)
Epanechnikov kernel,	-0.049	-0.346**
alternative bandwidth 0.03	(0.121)	(0.169)
Epanechnikov kernel,	-0.057	-0.334*
alternative bandwidth 0.01	(0.120)	(0.181)

Source: SOEP 2001, 2005 (Personality).
Notes: Average treatment effects on the treated show differences in job satisfaction levels between temporary and permanent workers. *denotes significance at the 10% level, **at the 5% level and ***at the 1% level. Bootstrapped standard errors are based on 150 replications and are in round brackets.

Table 5.D: Complete results of the panel analysis (OLS fixed effects estimates)

Model specification:	(1)	(2)	(3)	(4)	(5)
Temporary contract	0.065	0.029	0.046	-0.065	-0.121***
	(0.046)	(0.046)	(0.046)	(0.046)	(0.046)
Year 2002	-0.147***	-0.094**	-0.098**	-0.091**	-0.096**
	(0.024)	(0.038)	(0.038)	(0.038)	(0.038)
Year 2003	-0.167***	-0.060	-0.064	-0.043	-0.052
	(0.025)	(0.065)	(0.065)	(0.065)	(0.065)
Year 2004	-0.291***	-0.129	-0.133	-0.099	-0.116
	(0.027)	(0.093)	(0.094)	(0.093)	(0.093)
Year 2005	-0.349***	-0.133	-0.140	-0.088	-0.112
	(0.028)	(0.123)	(0.124)	(0.123)	(0.123)
Year 2006	-0.406***	-0.134	-0.138	-0.068	-0.099
	(0.029)	(0.152)	(0.153)	(0.152)	(0.152)
Year 2007	-0.453***	-0.125	-0.129	-0.047	-0.090
	(0.029)	(0.181)	(0.182)	(0.181)	(0.181)
Year 2008	-0.484***	-0.098	-0.105	-0.018	-0.068
	(0.030)	(0.212)	(0.213)	(0.212)	(0.212)
Year 2009	-0.561***	-0.120	-0.130	-0.034	-0.091
	(0.032)	(0.241)	(0.243)	(0.241)	(0.241)
Year 2010	-0.592***	-0.094	-0.111	-0.004	-0.061
	(0.033)	(0.272)	(0.274)	(0.272)	(0.272)
Education, primary level		-0.427*	-0.363	-0.360	-0.355
		(0.226)	(0.223)	(0.225)	(0.225)
Education, tertiary level		-0.075	-0.154	-0.187*	-0.201*
		(0.104)	(0.102)	(0.104)	(0.104)
Handicap		-0.201***	-0.198***	-0.194***	-0.195***
		(0.066)	(0.065)	(0.065)	(0.065)
Single		0.155***	0.158***	0.158***	0.155***
		(0.037)	(0.037)	(0.036)	(0.036)
Age, difference to 40, squared		-0.000	0.000	-0.000**	-0.000**
		(0.000)	(0.000)	(0.000)	(0.000)
Years of unemployment		0.325***	0.345***	0.132**	0.138**
		(0.065)	(0.064)	(0.065)	(0.064)
Years of employment		-0.059**	-0.070**	-0.042	-0.037
		(0.030)	(0.030)	(0.030)	(0.030)
Banking and insurance			0.155	0.193	0.189
			(0.130)	(0.130)	(0.130)
Transport			0.016	0.029	0.030
			(0.097)	(0.096)	(0.095)
Trade			-0.161**	-0.118*	-0.116*
			(0.072)	(0.070)	(0.070)
Agriculture			0.248	0.215	0.208
			(0.171)	(0.171)	(0.171)
Mining			0.322**	0.347**	0.348**
			(0.158)	(0.156)	(0.156)
Energy			-0.079	-0.083	-0.091
			(0.291)	(0.288)	(0.290)
Manufacturing			-0.012	0.016	0.016
			(0.064)	(0.063)	(0.063)
Construction			-0.044	-0.002	-0.004
			(0.068)	(0.067)	(0.067)
Education Sector			0.277***	0.287***	0.287***
			(0.101)	(0.098)	(0.098)
Public administration			0.179**	0.184**	0.186**
			(0.080)	(0.078)	(0.078)
Health and social services			0.129	0.131	0.132
			(0.085)	(0.084)	(0.084)

To be continued on the next page!

Model specification:	(1)	(2)	(3)	(4)	(5)
Small company			-0.127*** (0.044)	-0.143*** (0.043)	-0.150*** (0.043)
Big company			0.071** (0.033)	0.083** (0.032)	0.086*** (0.032)
Occupational autonomy, level 2			0.175*** (0.046)	0.193*** (0.046)	0.193*** (0.046)
Occupational autonomy, level 3			0.339*** (0.054)	0.361*** (0.054)	0.362*** (0.053)
Occupational autonomy, level 4			0.460*** (0.061)	0.492*** (0.061)	0.489*** (0.061)
Occupational autonomy, level 5			0.655*** (0.082)	0.686*** (0.081)	0.682*** (0.081)
Log net wage			0.352*** (0.044)	0.371*** (0.044)	0.379*** (0.044)
Work hours, difference to 40			-0.007** (0.003)	-0.007** (0.003)	-0.007** (0.003)
Tenure				-0.093*** (0.006)	-0.076*** (0.007)
Tenure²				0.001*** (0.000)	0.001*** (0.000)
New job					0.243*** (0.028)
Individual fixed effects	yes	yes	yes	yes	yes
Constant	7.358*** (0.020)	8.209*** (0.469)	7.955*** (0.478)	8.232*** (0.473)	8.009*** (0.474)
Observations	68,286	68,286	68,286	68,286	68,286
Number of persons	15,080	15,080	15,080	15,080	15,080
Adjusted R²	0.013	0.017	0.021	0.030	0.032

Source: SOEP 2001-2010.
*Note: * denotes significance at the 10% level, ** at the 5% level and *** at the 1% level. Robust standard errors are in parentheses. The dependent variable is job satisfaction.*

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Deutsche Kurzzusammenfassung

Arbeitslosigkeit hat große volkswirtschaftliche und wirtschaftspolitische Bedeutung. Sie ist ein inhärentes Phänomen von modernen Marktwirtschaften; ihre Reduktion ist ein häufig avisiertes politisches Ziel. Um die Folgen von Arbeitslosigkeit zu verstehen und optimale Politiken zu ihrer Bekämpfung zu entwickeln, muss erforscht werden, wer, in welchem Umfang unter Arbeitslosigkeit leidet und welche Gründe dazu führen. Diesen Fragen widmet sich die ökonomische Glücksforschung. Die vorliegende Arbeit dokumentiert vier Untersuchungen, die auf dem Stand der Forschung zum Zusammenhang zwischen Arbeitslosigkeit und Wohlbefinden aufbauen und offene Fragen beantworten. Sie nutzt dabei stets deutsche Daten des Sozio-ökonomischen Panels.

Bisherige Studien zeigen einhellig, dass kaum ein anderes Lebensereignis derartig unglücklich macht wie der Eintritt in die Arbeitslosigkeit. Bereits die Gefahr einer Arbeitslosigkeit in der nahen Zukunft macht Beschäftigte unzufrieden. Dabei leiden Männer wesentlich stärker als Frauen. Ferner kann der Einkommensverlust den Verlust an Wohlbefinden durch Arbeitslosigkeit allein nicht erklären. Ein erster Beitrag der vorliegenden Arbeit untersucht daher den Verlust an Identität als eine weitere Ursache für das Unglück der Arbeitslosen. Es wird empirisch gezeigt, dass Arbeitslose einen enormen Zugewinn an Lebenszufriedenheit erfahren, wenn sie in Rente gehen. Anhand von theoretischen Überlegungen und Datenanalysen wird argumentiert, dass der Renteneintritt einen Identitätsverlust behebt, der von der Arbeitslosigkeit verursacht wird. Während von Menschen im Alter von Erwerbstätigen erwartet wird, dass sie arbeiten, können sich Rentner zur Ruhe setzen. Da diese sozialen Normen das eigene Identitätsempfinden beeinflussen, profitieren Arbeitslose vom Renteneintritt.

Allerdings erreichen die Arbeitslosen auch nach Renteneintritt nicht das Wohlbefinden derjenigen Arbeitnehmer, die vor dem Renteneintritt beschäftigt waren. Hierfür könnte ein sogenannter „Vernarbungseffekt" der Arbeitslosigkeit verantwortlich sein. Bisherige Studien dokumentieren, dass Arbeitslosigkeit die Lebenszufriedenheit unabhängig von Auswirkungen auf das Arbeitseinkommen auch nach der Rückkehr in Beschäftigung noch negativ beeinflusst. Allerdings sind Ursachen solcher nicht-monetärer Vernarbungseffekte bislang nur auf Aspekte des Arbeitslebens reduziert worden, d.h. auf verschlechterte

Arbeitsbedingungen und arbeitsmarktbezogene Zukunftsaussichten. Im zweiten Beitrag der Doktorarbeit wird empirisch untersucht, ob nicht-monetäre Vernarbungseffekte auch noch nach Renteneintritt auftreten und damit über Ursachen, die für das Arbeitsleben relevant sind, hinausgehen. Es zeigt sich, dass eine Arbeitslosigkeitserfahrung vor Renteneintritt nur dann die Lebenszufriedenheit unabhängig von monetären Ursachen über das Arbeitsleben hinaus reduziert, wenn sie die allererste Arbeitslosigkeitserfahrung einer Person ist. Dies legt nahe, dass nur die allererste Arbeitslosigkeitserfahrung einer Person nicht-monetäre Narben hinterlässt, die über Aspekte der Beschäftigung hinausgehen.

Der dritte Beitrag widmet sich der Frage, ob Selbstständige oder abhängig Beschäftigte stärker unter dem Verlust ihrer Arbeit leiden. Empirisch wird gezeigt, dass ein Anstieg der Wahrscheinlichkeit des Verlustes der Beschäftigung die Lebenszufriedenheit der Selbstständigen stärker senkt als die Lebenszufriedenheit der abhängig Beschäftigten. Weitere Tests deuten daraufhin, dass der Eintritt in die Arbeitslosigkeit nach Aufgabe der Selbstständigkeit das Wohlbefinden stärker reduziert als der Verlust der abhängigen Beschäftigung. Dieser Unterschied kann durch monetäre und nicht-monetäre Gründe erklärt werden. Ferner ist es nicht der Verlust an Vorteilen der Selbstständigkeit, der den stärkeren Rückgang ihres Wohlbefindens erklärt, sondern die niedrigere Zufriedenheit nach Eintritt in die Arbeitslosigkeit.

Auf Grund der massiven Beeinträchtigungen des Wohlbefindens durch Arbeitslosigkeit und Arbeitsplatzunsicherheit verwundert es sehr, dass der befristeten Beschäftigung im Vergleich zu einer unbefristeten Beschäftigung in empirischen Untersuchungen bislang keine negative Wirkung auf die Arbeitszufriedenheit attestiert werden konnte. Als abschließenden Beitrag untersucht die vorliegende Dissertation Gründe für diesen überraschenden Befund. Dabei kann ein wesentlicher Aspekt identifiziert werden, der den statistischen Zusammenhang zwischen befristeter Beschäftigung und Arbeitszufriedenheit positiv beeinflusst. Befristet Beschäftigte werden häufiger unmittelbar nach einem Arbeitsplatzwechsel beobachtet als unbefristet Beschäftigte. Erstere profitieren daher eher von der mit außerordentlich hohen Arbeitszufriedenheitswerten verbundenen Zeit unmittelbar nach einem Arbeitsplatzwechsel. Tatsächlich erweist sich die Befristung empirisch als nachteilig, wenn für die erste Zeit in einem neuen Arbeitsverhältnis kontrolliert wird. Dieser negative Effekt kann durch Arbeitsplatzunsicherheit erklärt werden.

English short summary

Unemployment is a major issue for economics and economic policy. It persists in modern market economies; its reduction is a frequently targeted policy goal. Information about who suffers from unemployment, to what extent people suffer and why they suffer is crucial for understanding the consequences of unemployment and for developing optimal policies fighting unemployment. The economics of happiness is a way to research these aspects. The present doctoral thesis describes four studies that answer open questions in the context of unemployment and well-being. In all of the investigations, use is made of data of the German Socio-Economic Panel study.

Research so far shows that hardly any other life event reduces well-being as drastically as unemployment. Expecting unemployment in the near future already reduces employees' welfare. It turns also out that men suffer more than women and that the loss of income cannot totally explain the well-being effect of unemployment. As a first contribution, the present thesis identifies a further reason accounting for the suffering of the unemployed. It is shown that unemployed people report a substantial increase in their life satisfaction upon retirement. Based on theoretical considerations and empirical tests, it is argued that retirement restores an unemployed workers' identity utility that has been lost due to becoming unemployed. While people of working age should be employed, the norm for the retired does not contain such expectations. As these norms affect individual feelings of identity, retirement benefits the well-being of the unemployed.

Although unemployed workers gain life satisfaction upon retirement, they do not catch up completely with workers who have been employed prior to retirement. This might be caused by "unemployment scarring". Previous studies find that past unemployment reduces life satisfaction even after reemployment for non-monetary reasons. It is not clear, however, whether this 'scarring' is only caused by employment-related factors, such as worsened working conditions, or increased future uncertainty regarding income and employment. Another study presented in this thesis analyses non-employment-related scarring by examining the transition of unemployed people to retirement as a life event after which employment-related scarring does not matter anymore. Non-employment-related non-monetary unemployment scarring of an unemployment spell prior to

retirement is found for people who have never been unemployed before this final spell, but not for people who experienced earlier unemployment spells. Hence, the first unemployment experience in life may leave non-employment-related non-monetary scars only.

The next contribution of the present thesis questions whether self-employed workers or paid employed workers suffer more from losing work. It turns out that the decrease in life satisfaction caused by an increase in the probability of losing work is higher when self-employed than when paid employed. Further estimations reveal that becoming unemployed reduces self-employed workers' satisfaction considerably more than salaried workers' satisfaction. These results indicate that losing self-employment is an even more harmful life event than losing dependent employment. Monetary and non-monetary reasons seem to account for the difference between the two types of work. Moreover, it originates from the process of losing self-employment and the consequences of unemployment rather than from advantages of self-employment.

Because of the huge negative impact of unemployment and job insecurity on workers' well-being, it seems very likely that being on a fixed-term contract lowers job satisfaction compared to being on a permanent contract. However, empirical research does not identify such a difference so far. The final part of the thesis aims at identifying reasons for this contradiction. The empirical analysis finds an aspect that influences the statistical relationship of contract limitation and job satisfaction positively. Fixed-term employees are more likely to be observed in the extraordinarily happy time right after changing jobs than permanent employees. Actually, a negative job satisfaction effect of fixed-term employment emerges when controlling for recent switching. It is also shown that this negative effect is explained by job insecurity.

Vorveröffentlichungen

Anmerkung des Autors

Die folgende Liste enthält alle Vorveröffentlichungen. Darunter sind auch Versionen der Kapitel, die zum Teil stark überarbeitet wurden, bevor sie Eingang in die vorliegende Dissertation fanden.

Kapitel 2: Changing identity: retiring from unemployment (mit Andreas Knabe und Ronnie Schöb)

- The Economic Journal, 124(575), S. 149-166
- CESifo Working Paper, Nr. 3540
- SOEPpaper, Nr. 399
- School of Business and Economics Discussion Paper, Freie Universität Berlin, Nr. 11/2011
- FEMM Working Paper, Nr. 17/2011

Kapitel 3: Looking back in anger? Retirement and unemployment scarring (mit Andreas Knabe und Ronnie Schöb)

- CESifo Working Paper, Nr. 4784
- SOEPpaper, Nr. 652
- School of Business and Economics Discussion Paper, Freie Universität Berlin, Nr. 11/2014

Kapitel 5: Flexibilisation without hesitation? Temporary contracts and workers' satisfaction (mit Adrian Chadi)

- School of Business and Economics Discussion Paper, Freie Universität Berlin, Nr. 3/2013
- IAAEU Discussion Paper, Nr. 4/2013