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Abstract

Unemployment has a severe lasting effect on the subjective well-being of people. These negative effects of unemployment have been labeled as psychic costs, because the loss of income cannot explain these negative effects. In this paper we will contribute to the explanation of the negative effect of unemployment on happiness. We do so by arguing that the loss of self-esteem is the driving force of the reduction in well-being. Very recently economists (Almlund, Duckworth, Heckman, & Kautz, 2011; Borghans, Duckworth, Heckman, & Bas, 2008; Cunha, Heckman, & Schennach, 2010; Heckman, Stixrud, & Urzua, 2006) have paid attention to the effects of non-cognitive factors, like personality characteristics, on wages and happiness. In this paper we will argue that of these non-cognitive factors like personality traits and characteristics it is most likely that self-esteem helps to explain the negative effect of unemployment and so not much other non-cognitive factors like the big five personality traits. Empirically we will show that self-esteem affects happiness, that unemployment affects self-esteem and that self-esteem explains a big part of the effect of unemployment on subjective well-being.

In this study we use the LISS (the Dutch Longitudinal Internet Studies for the Social sciences) panel to test the main hypotheses. To test our hypotheses we use a variety of methods. We use different regression models, starting with simple OLS-regressions and ending with instrumental variables for panel-data models. We estimate two different equations, one with subjective well-being as the dependent variable and one with self-esteem as the dependent variable.

Happiness, unemployment and self-esteem

1 Introduction

Unemployment has a severe effect on the subjective well-being[1] of people. This has been shown over and over again (A. E. Clark & Oswald, 1994; Frey & Stutzer, 2002; Layard, 2005; Winkelmann & Winkelmann, 1998). An obvious reason for this drop in well-being is of course the loss of income. But that is not the major explanation as Winkelmann and Winkelmann (1998) already showed. The psychic costs of unemployment are much bigger than the loss of income. But worse than that: unemployment has lasting, scarring effects. That is, long term unemployed remain unhappy even if they find a job again. They feel and stay unhappy. This is remarkable because this differs from other major life events (A. E. Clark, Diener, Georgellis, & Lucas, 2008). People become unhappy if they divorce and if a loved one dies. But from these major life events people recover. After a few years their well-being has returned to the same level as before this life event. In case of marriage and child birth we see the opposite movement. First an increase in well-being and then after a while a decrease to the old base level. Only unemployment appears to have a lasting, scarring effect on the well-being of people. These results not only hold for Germany but are confirmed for Great Britain as well (A. E. Clark & Georgellis, 2013). The question arises why is this so? Why has unemployment such a major impact on the subjective well-being of people? This question is until now mainly unanswered and is at the heart of this paper.

To answer this question we start by summarizing research about the relation between (long term) unemployment and happiness. We know that unemployment generates financial and psychic costs and that of these two the psychic costs are much higher than the financial costs (Winkelmann & Winkelmann, 1998). Even when the unemployed get a generous unemployment benefit, they still feel unhappy. These are the psychic costs. Van der Meer (2014) explained these costs by a loss in comfort and social well-being. Frey (2008) would say that unemployed loose self-esteem, relatedness and commitment. These three, as well as the social well-being are heavily damaged by unemployment. In this paper we will argue that the loss of self-esteem explains this negative effect of unemployment on happiness.

We will argue that unemployment affects self-esteem and that self-esteem affects happiness. Self-esteem is the result of reflected appraisals, social comparison and self-attribution (Rosenberg, Schooler, & Schoenbach, 1989). Because having a job is such an important of life and is used as the basis of comparison with others, job loss causes a loss of self-esteem. Becoming unemployed lowers someone's reflected appraisal and reduces the outcome of the social comparison, thereby lowering

[1] In this paper we use the terms subjective well-being, happiness and well-being as synonyms. Subjective well-being is the encompassing term of both life satisfaction and happiness, but for the readability we mostly use the happiness or happy where we mean subjective well-being.

self-esteem. This lower self-esteem reduces happiness as it is part of subjective well-being as explained by Frey (2008). Becoming unemployed tells you something about yourself and that message is not always very positive, to say it mildly, and probably will have lasting effects on your self-esteem and thereby on your happiness. This argument is at the heart of this paper and will be tested in the empirical part.

In this paper we will contribute to the explanation of the negative effect of unemployment on happiness. We do so by arguing that the loss of self-esteem is the driving force of the reduction in well-being. Very recently economists (Almlund, Duckworth, Heckman, & Kautz, 2011; Borghans, Duckworth, Heckman, & Bas, 2008; Cunha, Heckman, & Schennach, 2010; Heckman, Stixrud, & Urzua, 2006) have paid attention to the effects of non-cognitive factors, like personality characteristics, on wages and happiness. In this paper we will argue that of these non-cognitive factors like personality traits and characteristics it is most likely that self-esteem helps to explain the negative effect of unemployment and so not much other non-cognitive factors like the big five personality traits. Empirically we will show that self-esteem affects happiness, that unemployment affects self-esteem and that self-esteem explains a big part of the effect of unemployment on subjective well-being.

In the next section we start with an overview of the stylized facts that needs to be explained. In section three we present a possible explanation of these stylized facts and formulate hypotheses that we will test in this paper. Section four contains a description of the data and methods that we use to test the hypotheses. In section five we present some descriptive statistics to show the differences on the main variables between employed and unemployed. In section six we present the results from different types of analyses that we did to test the hypotheses. In the final section we summarize and conclude the paper and make some suggestions for future research.

2 What we know about unemployment and happiness

The main basic finding of earlier research is that unemployed are unhappier than employed people, even if we control for all factors that affect happiness, even income (A. E. Clark & Oswald, 1994; Frey & Stutzer, 2002; Layard, 2005; Winkelmann & Winkelmann, 1998). This effect shows that unemployment comes with psychic costs. These same kinds of analyses show that the psychic costs of unemployment are much higher and much more severe than the financial costs. The psychic costs are best shown by the fact that reemployment in a dissatisfying job does not enhance psychological health relative to that of unemployed persons (O'Brien and Feather, 1990; Winefield, Tiggemann and Winefield, 1990). So reemployment only has a positive effect if the new job really is satisfying. It needs to give something extra to compensate the psychic costs of unemployment.

We know that voluntary unemployed are happier than involuntary unemployed (A. Clark, Georgellis, & Sanfey, 2001). Involuntary unemployed are (almost) as happy as the employed. We also know that first time job seekers, starters on the labour market, are as happy as employed people (Frey & Stutzer, 2002; A. E. Clark & Oswald, 1994; Pichler, 2006; Winkelmann & Winkelmann, 1998). The young persons who just left school, unemployed looking for a first job are not negatively affected by unemployment. They probably know or hope that they soon will find a job and will start their career on the labour market. They have not yet had the experience of a job and what this does to their happiness. They also did not have the experience of being fired and what that does to happiness. They simply do not know.

We also know that the elderly are less affected by unemployment (Frey & Stutzer, 2002; A. E. Clark & Oswald, 1994; Winkelmann & Winkelmann, 1998; Frey, 2008, p. 47). They know that they will retire soon and they prepare for (early) retirement. We also know that retired people are at least as happy as employed people (Blanchflower & Oswald, 2008; Lelkes, 2008)

These three findings, the voluntary unemployed, the school leavers and the almost retired, teach us that unemployment is mainly a problem for the middle-aged individuals who are (very) busy making a career and who experienced how a job or career affects happiness.

Next to the single effect of unemployment we know that the duration of unemployment has an additional effect on happiness. People who are unemployed for six month or longer are unhappier than people who have experienced unemployment of a shorter duration. In that sense we know that the negative effect of unemployment depends on the unemployment duration (A. Clark et al., 2001; Daly & Delaney, 2013; Gangl, 2004; Knabe & Rätzel, 2011). Long term unemployment has a lasting, scarring effect on happiness whereas a short period of unemployment only has a short term negative effect on happiness, but is as such not scarring. People return to their normal level of happiness after a short period of unemployment. This corresponds with the effect found by Clark (et al., 2008) that unemployed do not recover from unemployment. They only investigated the effect of unemployment on people who remained unemployed up to five years. They did not research what happened to the unemployed once they became employed again.

We furthermore know that becoming unemployed during an economic crisis is less damaging than becoming unemployed in an economic boom. To be more precise we know that the level of unemployment reduces the effect of unemployment. People living in regions or times with high levels of unemployment are happier than unemployed who live in regions or times with low levels of unemployment (A. Clark, 2003; Di Tella, MacCulloch, & Oswald, 2003). This is in line with the results of Stutzer and Lalive (2004) who find that social norms partly explain why unemployment has negative effects on well-being. Unemployed in Swiss kantons with stricter norms suffer more and have a shorter duration of unemployment. However one has to keep in mind that until recently unemployment rates were low in Switzerland.

3 Unemployment, self-esteem and happiness

What does explain these stylized facts? The main argument that we put forward is that unemployment, especially a long period of unemployment, comes with a loss in self-esteem (Goldsmith, Veum, & William Jr., 1996). Unemployment creates a loss in self-esteem, because losing your job implies that you have failed or that you see yourself as failing. Rosenberg (et al., 1989) write that among the principles of self-esteem are reflected appraisals, social comparison, and self-attribution. Self-esteem is thus viewed as a product of social interaction. Reflected appraisals are how people think they are viewed and seen by others. Becoming unemployed results in negative or lower reflected appraisals. The principal of social comparison holds that people judge themselves on the basis of comparisons with others. Self-attribution considers how naïve observers attribute motives, intentions etc. to themselves on the basis of their observation of their actions. Because having a job is such an important part of life results in reflected appraisals and is used as basis of comparison with others, job loss causes a severe loss in self-esteem (i.e. Leary & Baumeister, 2000).

Via self-attribution and reflected appraisals this loss in self-esteem is bigger if you have to blame yourself for becoming unemployed, than if you can blame someone, or something, else. If you are unable to perform at the level that is asked for, you are being fired because you underperform. This shows that you are a looser who is unable to deliver what is being asked for and you cannot uphold the norm. This will result in lower reflected appraisals and thereby in lower self-esteem. The fact that you have become unemployed shows to everyone what a looser you are, too. You are unable to take care of yourself and may be also of others who depend on you. If you are really to blame for your own unemployment this should have a severe negative effect on self-esteem and happiness, among other things. If you became unemployed due to other reasons the negative effect of unemployment on self-esteem and happiness should be smaller.

Self-esteem as a result of social comparison also explains the smaller effect of mass unemployment on happiness. If you become unemployed in an economic crisis you can blame your employer, the union, the economic crisis, the government that reduced their own budget, the competitor that put your employer out of business, the hedge funds that blew up your business, or anyone else that you can think of. You are not the only one who becomes unemployed. Of course compared to the employed you will lose some ground, but compared to all the others who become or are unemployed you lose nothing, making the effect of unemployment less severe. That is very different from becoming unemployed in an economic upturn. Then you are not able to blame an outsider. You have to blame yourself of not being able to keep your job. You have to blame yourself especially if you stay unemployed for a longer period. That really affects your self-esteem, because it shows that you are someone who is not fit for the labour market or for society. If you could accomplish something then you would have found a new job quickly in an economic upturn, when the

economy is booming. Then you really have no self-esteem and the effect of unemployment should be bigger. And that is what has been found.

A more permanent loss in self-esteem would also explain the scarring and scaring effect of long-term unemployment, especially if the loss of employment is the result of lower reflected appraisal. A permanent loss in self-esteem creates a scar which causes a permanent reduction in well-being. And this loss in self-esteem also causes a scaring effect because low self-esteem makes it more difficult to perform on the job and increases the probability of future job loss, if employment has been regained. That is also the reason why a job loss as a major life-event has a more permanent effect than other life-events as divorce, the loss of a friend, marriage and having children. These life-events probably have a much smaller impact on self-esteem. In this research we are able to compare the effects of having a partner and having children at home with the effect of unemployment on self-esteem.

A further prediction on basis of this idea would be that individuals who became redundant suffer less from unemployment than individuals who were fired. If you become redundant or are being laid-off in an economic crisis you can blame someone else for your unemployment. Also you are not the only one, so the social comparison is not that negative. Things differ if you were fired. That results in low social comparison and reflected appraisal. This second event therefore comes with a bigger loss in self-esteem and thus has bigger effects on happiness. If the blame is on yourself than it will become difficult to find a new job again, your future prospects are diminished (Knabe & Rätzel, 2011). Unfortunately at this moment we are unable to test this hypothesis.

The loss in self-esteem also explains why younger and older persons are less affected by unemployment than middle-aged persons. Young persons who are at the start of their career still have to find their way on the labour market. They are still searching for the right employer to work for. In that stadium being, or becoming unemployed is less harmful. It will hardly affect social comparison and reflected appraisal. A school leaver will hardly be affected by unemployment until the first job and may be less affected by the loss of his first job. He is still sure that he will find a second job and if unemployment is caused by the termination of a temporary contract the self-esteem of the young person is hardly damaged. A possible test would be to compare the self-esteem between unemployed school leavers and unemployed young persons who lost their job. We will not do this in this paper.

Someone at the end of his career will also be less affected. An older person knows what he is worth, because during his career he already showed what he can do and his self-esteem probably will stay intact. His reflected appraisal will hardly be affected. Unemployment will even be less harmful if he could leave the organization with a retirement bridge or other allowance (unemployment benefit that lasts until retirement), so that the drop in income is not too big. In that way his subjective income remains high until retirement, and he is able to keep up his way of life. Instead of becoming

unemployed he is forced into early retirement. That is less harmful than becoming unemployed. Again we will not test this prediction.

So a loss in self-esteem would explain the stylized facts presented in the previous section. Therefore we need to look at direct and indirect effects of unemployment on subjective well-being. The indirect would go via self-esteem, i.e. unemployment lowers self-esteem and thereby subjective well-being. Becoming unemployed would lower self-esteem, because in comparison with others one would be lower on the ladder when one becomes unemployed. In that sense would unemployment have a direct negative effect on self-esteem. In comparison with others one loses when one becomes unemployed.

We already have direct and indirect results that show that unemployment causes a loss of self-esteem. Oswald (1997) found that unemployed people are very unhappy. They are so unhappy that the suicide death rate among unemployed is higher than average. He found that unemployed have a twelve times greater-than-average chance of attempted suicide, and that the long-term unemployed are especially at risk. Unemployment appears to be the primary source of unhappiness. Frey (2008, p. 48) also shows that unemployment produces depression and anxiety and results in losses of self-esteem and of personal control. Unemployed have a higher death rate and are more likely to commit suicide. He also showed that individuals who have been unemployed before suffer less. So to some extent they become used to being unemployed.

According to Kassenboehmer and Haisken-DeNew (2009) unemployment has negative psychological effects because it leads to a substantial decrease in marital stability, increased mortality, suicide risk and crime rates. Overall effects of unemployment are large, significant and negative. Compared to men, women are additionally affected by being fired and company closures. It reduces their reemployment due to regional immobility. Men relocate to find new employment, women are attached to their men.

Ayllón (2013) reports a scaring effect of unemployment in Spain. She writes that 'scarring effect is known as genuine state dependence'. So unemployment in itself has not such a big effect on happiness, only because it is a cause of future unemployment. Unemployment increases the probability of future unemployment, so unemployment scares individuals and because of that we find the scarring effects of unemployment. The sources of this genuine state dependence may be due to disincentives effects of unemployment benefits, the decay of human capital, the decline in search intensity, discouragement of habituation and stigma effects. And these stigma effects might result in a loss of self-esteem.

Goldsmith (et al., 1996) find evidence on basis of the NLSY that unemployment affects self-esteem. They directly test and show that becoming unemployed lowers self-esteem. This is one of the rare researches which shows this direct connection between unemployment and self-esteem. However,

they did not look into a possible reverse effect, namely that a lower self-esteem lowers the probability of finding employment.

From recent research we know that self-esteem has a positive effect on wages (Drago, 2011; Heckman et al., 2006). De Araujo and Lagos (2013) tested the relation between self-esteem, educational attainment and wages. They estimated a three equation simultaneous equation model that treats self-esteem, educational attainment, and real wages as endogenous. They found that wages directly affect self-esteem, but self-esteem does not directly affect wages, only indirect through education.

We now also know that non-cognitive factors, like i.e. self-esteem have a bigger impact on employment than cognitive factors (Heckman et al., 2006). They report similar effects on work experience. Within this research economists have shown interest in the effects of personality characteristics on earnings and other labour market outcomes. Personality as measured by the big five[2] personality traits does have an impact on earnings (Fletcher, 2013). These big five personality traits appear to be stable and they cannot be linked to major life events (Cobb-Clark & Schurer, 2012; Lucas & Donnellan, 2011; Specht, Egloff, & Schmukle, 2011). But Becker, Deckers, Dohmen, Falk, and Kosse (2012), conclude, on basis of the GSOEP, that the big five explain, independent from other factors, life outcomes including unemployment.

Another personality trait that has been looked upon is locus of control. This trait refers to the extent to which individuals believe they can control events affecting themselves. Cobb-Clark and Schurer (2013) show that locus of control (inside or outside) is surprisingly stable over a four-year period, particular for those of working age. Changes in locus of control are unrelated to the demographic, labour market and health events that individuals experience. The intensity of negative employment life events (i.e. unemployment) is not associated with changes in men's and women's control tendencies. Locus of control is stable, but not time-invariant.

So of these personality traits self-esteem is the only one that is being affected by unemployment. Contrary to the big five and locus of control, self-esteem is not stable and does vary with time. So if we would like to test through which personality traits unemployment has an effect on subjective well-being we should look at self-esteem and not at the big five or locus of control. The big five can hardly be affected by unemployment because the big five are supposed to be stable over time. That is after a certain age personality has been formed and will not change much. Also locus of control has been shown to be surprisingly stable over time. Thus self-esteem is the only personality trait that is not by definition stable over time and is a.o., a product of social interaction and reflected appraisals, that will be affected by unemployment.

[2] Psychology has a long tradition of research into personality characteristics. It has resulted into what is known as the big five: openness to experience, conscientiousness, extraversion, agreeableness and neuroticism

4 Data and method

In this study we use the LISS (Longitudinal Internet Studies for the Social sciences) panel to test the main hypotheses. This panel is administered by CentERdata (Tilburg University, The Netherlands). The LISS panel data were collected by CentERdata through its MESS project funded by the Netherlands Organization for Scientific Research (NWO), see Scherpenzeel and Das (2010) for more information.

The LISS panel is a representative sample of Dutch individuals who participate in monthly internet surveys. The panel is based on a true probability sample of households drawn from the population register. Households that could not otherwise participate are provided with a computer and internet connection. A longitudinal survey is fielded in the panel every year, covering a large variety of domains including work, education, income, housing, time use, political views, values and personality. The use of this data is open to everyone. More information about the LISS panel can be found at: www.lissdata.nl. The first wave was held mainly throughout 2008. The sixth wave was held mainly throughout 2013. At the time of performing the analyses data from six waves were available. However in wave three and five the personality traits were only asked to twenty per cent of the respondents instead of all of them. Therefore we limit the analyses to four waves: wave one, two, four and six.

We chose the LISS panel because it contains measures of the main variables of interest and because it is a longitudinal data set which makes it possible to do causal analyses and to control for unmeasured characteristics.

The LISS panel contains two questions that are related to subjective well-being. The first question is about happiness: 'On the whole, how happy would you say you are?'. The second question is about life satisfaction: 'How satisfied are you with the life you lead at the moment?'. The reliability (chronbach's alpha) of these two questions combined is .90, in all separate waves. We therefore combine these two questions to measure subjective well-being. In doing so, we capture both the more cognitive evaluation of life as well as a more affective evaluation (Dolan, Peasgood, & White, 2008, p. 95). By combining the measures of happiness and life satisfaction we measure the overarching concept of subjective well-being.

We differentiate between employed and unemployed. The employment status is captured in the background variables of the study. Everyone in paid employment is employed, (belbezig = 1), everyone searching for a job is unemployed (belbezig = 4, 5 and 6). We do not have a reliable measure of the duration of unemployment. This is not asked in the questionnaire and is very difficult to construct. We can only see if respondents were unemployed in consecutive waves. We will miss a period of in between employment, but also a period of in between unemployment if one indicates to be employed in two consecutive waves.

The questionnaire includes a measure of self-esteem. Self-esteem is measured with the ten item scale of Rosenberg (et al., 1989). The reliabilities of this scale are: .89, .89, .90 and .90 in each of the waves. The scale is highly reliable.

The LISS panel also contains questions to measure the big five. The big five are measured with the fifty item version of the Preliminary IPIP Scales (ipip.ori.org). The five personality factors are: extraversion, agreeableness, conscientiousness, neuroticism and openness to experience. The reliabilities of extraversion are .86, .87, .87 and .87 in waves 1, 2, 4 and 6. The reliabilities of agreeableness are: .80, .81, .81 and .81. The reliabilities of conscientiousness are: .77, .79, .79 and .78. The reliabilities of neuroticism are: .88, .88, .88 and .88. The reliabilities of openness to experience are: .77, .77, .77 and .76 respectively. These reliabilities correspond with the published ones of the scales. The reliability of the openness to experience scale is somewhat, although not much lower than the published one. We do not have a measure of locus of control.

We control for gender, having a partner, children living at home, age and age square, educational level, subjective health, subjective income, satisfaction with leisure spend, satisfaction with social contacts, and home ownership. All of these variables are known to affect subjective well-being (cf. Layard, 2005).

We restrict the analyses to respondents older than nineteen years of age but not older than sixty years of age. Many respondents younger of age than twenty are still in education whereas many respondents older than sixty years of age have left the labour market for one reason or another. Appendix A contains the descriptive statistics of the variables for the four waves, including the coding. We see a steady decrease in subjective well-being between 2008 and 2013. We see a steady increase in unemployment as a result of the economic crisis in 2008, but overall unemployment stays low. We also see a decrease in self-esteem between 2008 and 2013. The big five seem to be more stable over time, although they do change somewhat. This could be an effect of attrition and additional sampling of the panel study. We see that the sample becomes smaller from wave to wave. Some respondents do not fill out every monthly questionnaire and commitment seems to decline overtime. We did not (yet) test for attrition effects.

Although the data set has particular strengths, it is the only one that we are off, that contains panel measures of personality traits it also comes with a weakness. The number of unemployed in this panel is quite low. This corresponds with the low level of unemployment in the Netherlands. Throughout the crisis and the panel we see an increase in unemployment, but the low numbers limit some of our analyses. We tried to estimate scarring effects of unemployment, but this proved to be unsuccessful, mainly due to do low level of unemployment.

To test our hypotheses we use a variety of methods. We start with simple descriptive statistics and t-tests of differences between employed and unemployed. In the next step we use different regression models, starting with simple OLS-regressions and ending with instrumental variables for

panel-data models. We use these different methods to check the robustness of the results. We estimate two different equations, one with subjective well-being as the dependent variable and one with self-esteem as the dependent variable. In the final models we combine these equations in an instrumental variables model because we hypothesize that self-esteem is affected by unemployment and both affect subjective well-being. Self-esteem affects subjective well-being endogenously, whereas both are affected by unemployment. We thus have a system of structural equations of both subjective well-being and self-esteem.

5 Results

Appendix B contains the means of the main variables for the employed and unemployed, for the separate waves. In this appendix we see that unemployed score lower on both subjective well-being and self-esteem in every wave. T-tests, corroborated by the correlations, show that these differences are significant in all the four waves. These results suggest that self-esteem is affected by unemployment and that subjective well-being is affected by unemployment and self-esteem. We also see that employed are more emotional stable (less neurotic) and more conscientiousness than unemployed. Furthermore, in most of the years employed and unemployed have the same level of extraversion, agreeableness and openness to experience. This corroborates the general finding that the big five are more stable than self-esteem. These descriptive analyses support our hypotheses about the relations between self-esteem, unemployment and happiness, even with the relative low numbers of unemployed.

Appendix C contains the correlations of the main variables of interest for the pooled data[3]. Only significant correlations are displayed. We see that unemployed are less happy than employed, that subjective well-being shows a strong correlation with neuroticism, self-esteem, satisfaction with social contacts, satisfaction with how leisure time is spend, subjective health and subjective income. Self-esteem shows somewhat lower correlations with these variables than subjective well-being. Unemployment does not show strong correlations. The biggest one is with subjective income (-.23). These correlations corroborate the t-tests on the differences between employed and unemployed.

Table 1 contains the results of regressions of subjective well-being on employment, self-esteem, the big five and the control variables. We first present the results of OLS-regression on the pooled data set. In the first model we estimate the raw effect of unemployment on subjective well-being. We see that the unemployed almost have a one full point (-.95) lower level of subjective well-being than the employed. In the second model we add self-esteem. We see that self-esteem positively affects subjective well-being and that it mediates the effect of unemployment. The effect of unemployment almost reduces with one third.

[3] Correlation tables for the separate waves are available upon request from the corresponding author.

In the third model we add the big five personality traits. The effects of the big five are mostly smaller than the effect of self-esteem, except for the effect of neuroticism. The big five do not alter the effect of unemployment. This corroborates our idea that unemployment does affect, or is mediated by, self-esteem but not the big five. The effect of self-esteem has decreased a little bit. In a next step we add the control variables. These control variables show familiar effects. Of the control variables we find significant and considerable effects of having a partner, satisfaction with social life, subjective health, and subjective income. In this model we see that the effect of unemployment has been reduced further, but still is negative, substantial and significant. The effect of self-esteem is hardly affected by the control variables. It is positive and significant and has the same size, but opposite sign as that of unemployment. Including fixed effects for the separate waves does not alter this picture, but we see that over time the level of subjective well-being decreases.

Table 2 presents the results for the regression of self-esteem on unemployment and the big five for the pooled data. We see that unemployment has a strong negative effect on self-esteem. This effect is reduced by about halve when we add the big five to the model. Neuroticism has a big negative effect on self-esteem and agreeableness shows to have the smallest effect on self-esteem. The control variables have only a minor effect on the effect of unemployment on self-esteem. It remains quite strong, negative and significant. Self-esteem increases with age and we find small positive effects of having a partner, satisfaction with social life, how leisure time is spend, subjective health and subjective income. As suggested in section three we find smaller effects of having a partner and having a child at home on self-esteem than the effect of unemployment. This supports the idea that the loss of self-esteem causes the scarring effect of unemployment. Adding fixed effects of the waves does not alter the other estimates, although we see that self-esteem is a bit lower in waves four and six than in the first wave. All in all we find the biggest effect from neuroticism. Neurotic individuals have the lowest self-esteem.

Because self-esteem depends on unemployment, we have reasons to estimate a simultaneous equation model with subjective well-being and self-esteem[4] as endogenous variables. In these models we used extraversion and conscientiousness as instruments for self-esteem. The OLS regression shows that they have a small or no effect on subjective well-being, but have strong significant effects on self-esteem[5]. The results are presented as the fourth model in table 1. We see that the results of the instrumental variables regression are similar to that of the OLS-regression. Unemployed show the same effect, whereas the effect of self-esteem has increased somewhat. Of the other variables only neuroticism and age change a little bit. Of the big five we see that neuroticism has the largest effect on subjective well-being. Having a partner shows a big effect. Furthermore we have strong effects of

[4] A formal test of endogeneity of self-esteem failed. The residuals of the OLS equation of self-esteem show no effect (t=1.11) in the OLS equation of subjective well-being.
[5] T-values are 15.35 and 16.43. A combined F-test (2, 7782) = 231.28 showing that they are useful instruments. A test of overidentifying restrictions failed (p=.119).

having a partner, subjective income, subjective health, and satisfaction with social life. We also see that women are happier than men. We find no wealth effects and we see a decrease over time in subjective well-being, which may be due to the economic crises that started in 2008.

We further check the robustness of the results by using the panel structure of the data. We estimate a fixed effects panel model[6]. This allows us to test more robustly for causality. In the fixed effects models we also control for time-invariant unmeasured variables. They simply drop out of the equation. In comparison to the OLS regressions we only miss the effect of gender, because this is a time-invariant variable. All other variables show enough variance over time to be included in the fixed effect model. So also the big five, who are thought to be stable over time show enough time variance to be included in the fixed effect panel models. The results are presented in table 3.

The results of the fixed effect panel models are very similar to that of the pooled estimates. We find a negative effect of unemployment that is partly explained by self-esteem, but not by the big five and furthermore by the control variables. The raw effect of unemployment in the first model is smaller than in the OLS-regression, but in the model including all the variables the effect has the same size. Again we see that self-esteem has a positive effect on subjective well-being that is partly explained by the big five. Of the big five neuroticism has the biggest effect on subjective well-being. This effect is even stronger than that of unemployment. Furthermore we find small effects of education, satisfaction with social life, satisfaction with leisure time spend and subjective income. We do no longer find an effect of subjective health.

The fixed effect panel model of self-esteem, as presented in table 4, shows a large effect of unemployment on self-esteem. This effect is smaller than in the OLS regression. The effect does not change when we include the big five into the model. Of the big five the effect of neuroticism is the biggest. Extraversion and conscientiousness have large effects, too. Agreeableness and openness to experience also show significant effects. The control variables hardly have any effect on the other estimates. Of the control variables we see that having a partner increases self-esteem. This effect has the same size as unemployment. Having a child living at home does not affect self-esteem. Satisfaction with social life increases self-esteem, as subjective income does.

Also these results justify the estimation of a simultaneous equation model of subjective well-being and self-esteem. Again we use agreeableness and conscientiousness as instruments for self-esteem. The result is shown in model four in table 3 that contains the fixed effect panel models. Again the results are similar to what we have found in the regular fixed effect panel model. We see a negative effect of unemployment and a positive effect of self-esteem on subjective well-being. The effect of unemployment has the same size as in the regular fixed effect model. That of self-esteem has become somewhat bigger. Of the big five neuroticism has the biggest effect on subjective well-being.

[6] The Hausman test of fixed versus random effects, prefers the fixed effect model (chi2(17) = 295.13, p=.000). The Breusch and Pagan Lagrangian multiplier test for random effects rejects the randomness of the data (chibar2(01) = 597.01, p=.000)

Of the control variables we find significant effects of satisfaction with social life, satisfaction with leisure time spend and subjective income. Again we find no wealth effect.

On bases of these analyses we can conclude that unemployment lowers both subjective well-being and self-esteem. We also showed that self-esteem explains to a large extend the effect of unemployment. The effect of unemployment is furthermore reduced once we include the control variables, but remains significant, as well as the effect of self-esteem. We find these effects irrespective of the specification of the models and are thus very robust. What we not yet did show are the scarring effects of unemployment and how this is affected by self-esteem. This proved to be one step beyond our possibilities. To test for the scarring effects of unemployment we estimated two series of models. The first series of models contained a lagged effect of unemployment in the fixed effects panel models. This formulation could show if past unemployment still has a negative effect on subjective well-being and self-esteem. The second series of models contains the unemployment frequency, i.e. the count of in how many spells a respondent had been unemployed.

The results of these models were that we are able to show a raw lagged effect of unemployment on subjective well-being. This effect is about -.4 (not shown), just a little bit smaller than the effect of unemployment. This effect remains significant once we add self-esteem and the big five to the models. Once we include the control variables the effect of lagged unemployment, or the frequency of earlier unemployment, becomes small and insignificant, see the last columns of tables 1 and 3. The only indication that we have is the size of the effect of lagged unemployment in the fixed effect panel model. The effect is -.134, but the estimate is imprecise and therefore not significant, see table 3. In all other models we do not find a persistent effect of unemployment on subjective well-being. So we cannot replicate the scarring effect of unemployment for the Netherlands.

The absence of a scarring effect of unemployment in the Netherlands can have several reasons. The first reason would be that in the Netherlands there is no such thing as a scarring effect of unemployment. But this seems unlikely given the research results by Clark (et al., 2008), Clark and Georgellis (2013), Clark (et al., 2001), Daly and Delaney (2013), Gangl (2004) and Knabe and Rätzel (2011). It also seems unlikely because we find sizeable raw effects of lagged unemployment. The reason that the effects disappear or become insignificant is that our data is rather thin. Although we have 3790 respondents, the number of unemployed and or lagged unemployed is rather low. Unemployment in the Netherlands was low in 2008 and despite the increase remained low in 2013. Furthermore, the timeline of spells of (un)employment in our data is incomplete. We miss two in between years because the big five were only asked to a small subset of respondents in these two years. Furthermore we miss within one year mobility, i.e. the change from job to unemployment to a job within one year. We only know what the respondent does at the time of interview, not the changes that occurred since the last time of interviewing.

Also, if we control for the number of past unemployment spell, just counting the number of spells, we see the same results. Current unemployment has a negative effect on subjective well-being, but the number of spells become insignificant, and the effect rather small once we control for the background variables. Removing self-esteem increases the effect a little bit, but not enough to make it significant.

6 Summary and Conclusions

In this paper we tried to answer the question why long-term unemployment is a scarring life event, as opposed to other major life events. Until now this question is mainly unanswered. We argue that long-term unemployment causes a permanent loss of self-esteem and that this loss of self-esteem explains the scarring effect of long-term unemployment on subjective well-being. The loss of self-esteem explains the stylized facts about unemployment and happiness. It explains why unemployment mainly causes unhappiness among the middle aged and much less among the young and old. It explains why long-term unemployment has a scarring effect and a short-term of unemployment not. It explains why becoming unemployed during an economic crisis is less damaging than becoming unemployed in an economic upturn. It also explains why unemployed are scared to become unemployed again once they have found a new job.

Of the personality characteristics that are recently used in the explanation of subjective well-being and wages, self-esteem is the only one that can explain the effect of unemployment. This is so because the big five: openness to experience, conscientiousness, extraversion, agreeableness and neuroticism, and locus of control are mostly time-invariant, i.e. they hardly change over time. Self-esteem changes over time because self-esteem is a product of social interaction based on reflected appraisals, social comparison and self-attribution.

This self-esteem is damaged when one becomes unemployed, whereas the other personality characteristics are not. Self-esteem is damaged by unemployment the more so when you have to blame yourself, instead of someone else, of becoming unemployed. One is being appraised as unfit and compared to others one ends up on the lowest sports of the social ladder. You really classify as a loser. Self-esteem is much less affected by other major life events, and that is why long-term unemployment has a scarring effect and other major life events not.

A unique Dutch data set, the LISS panel, allowed us to test this explanation. The panel contains information about subjective well-being, unemployment and self-esteem. On basis of OLS regressions and fixed effects panel models we found ample support for our claim that unemployment causes a loss in self-esteem and thereby of subjective well-being. We found that unemployment affects self-esteem and that both unemployment and self-esteem affect subjective well-being. We found the effects in single equation models and in instrumental variables models with subjective well-being and

self-esteem as endogenous variables. The results prove to be robust. All specifications that we used showed the same results.

We also found that having a partner and having children much less affect self-esteem than unemployment. This further supports our idea that the loss in self-esteem explains why of all major life events unemployment is scarring and the others, like marriage and having children, not.

Unfortunately we were not able to fully show the scarring effect of unemployment in our data. We did find effects of lagged unemployment on subjective well-being but these became small or insignificant once we include all control variables into the models. We think that we cannot replicate the scarring effect of unemployment because of the relatively low numbers of unemployed in our data set and the few waves that are available. In that sense our data are too thin. Next to the main strengths of our data set, a panel with enough respondents and repeated measures of subjective well-being, unemployment and personality characteristics, this is the main weakness of our data. Fortunately for the Dutch, but unfortunately for us, the rate of unemployment is low and remained relatively low despite of the economic crisis.

Our claim that the loss of self-esteem explains the scarring effect of long-term unemployment will be supported if future research shows that employees who are fired, due to underperformance, are unhappier than employees who are being laid-off, because they are redundant. Our claim will be supported further if it shown that other major life events, like the loss of a beloved one, a divorce, marriage and the birth of a child has no effect or a much smaller effect on self-esteem than unemployment. We found that having a partner or having a child at home has a smaller effect on subjective self-esteem than unemployment, but this needs further research.

Our results show that it is important for governments to actively combat unemployment, not only by activating long-term unemployed, but also by creating employment or helping private organisations to create jobs. Our results also show that governments should help long-term unemployed to regain self-esteem. This helps the long-term unemployed to regain employment and to improve subjective well-being.

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Table 1. Regression of subjective well-being on unemployment, self-esteem and lagged unemployment, all waves

	swballm1		swballm2		swballm3		swballm4		ivallm1		ivallm2	
	b	se	b	se	b	se	b	se	b	se	b	se
unemployed	-0.945*	(0.07)	-0.699*	(0.06)	-0.675*	(0.06)	-0.222*	(0.05)	-0.212*	(0.05)	-0.154	(0.08)
self-esteem			0.552*	(0.01)	0.368*	(0.02)	0.248*	(0.01)	0.315*	(0.06)	0.290*	(0.09)
extrav					0.099*	(0.02)	0.033	(0.02)				
agreee					0.167*	(0.03)	0.073*	(0.02)	0.074*	(0.02)	0.035	(0.03)
conscnt					0.081*	(0.02)	-0.003	(0.02)				
neuroticism					-0.394*	(0.02)	-0.248*	(0.02)	-0.208*	(0.04)	-0.168*	(0.07)
openness					-0.234*	(0.03)	-0.081*	(0.02)	-0.093*	(0.03)	-0.077	(0.04)
woman							0.118*	(0.02)	0.116*	(0.02)	0.120*	(0.03)
partner							0.338*	(0.03)	0.334*	(0.03)	0.288*	(0.04)
age/10							0.032	(0.08)	0.013	(0.08)	-0.105	(0.12)
age^2/100							-0.014	(0.01)	-0.013	(0.01)	0.003	(0.01)
Child home							-0.003	(0.02)	-0.004	(0.02)	0.031	(0.03)
education							-0.051*	(0.01)	-0.050*	(0.01)	-0.033*	(0.01)
stf soc cntcs							0.130*	(0.01)	0.128*	(0.01)	0.146*	(0.01)
stf leisure spend							0.082*	(0.01)	0.080*	(0.01)	0.066*	(0.01)
subjective health							0.161*	(0.01)	0.158*	(0.02)	0.164*	(0.02)
subjective incom							0.178*	(0.01)	0.175*	(0.01)	0.204*	(0.01)
home owner							-0.028	(0.03)	-0.03	(0.03)	-0.072*	(0.04)
lagged unemployment											0.033	(0.09)
Constant	7.623*	(0.01)	6.672*	(0.02)	7.521*	(0.07)	4.339*	(0.19)	4.309*	(0.19)	4.232*	(0.29)
N	7800		7800		7800		7800		7800		3790	
r2_a	0.03		0.22		0.27		0.45		0.45		0.47	
F	207.57		1111.6		405.47		351.83					
rmse	1.156		1.034		1.004		0.871		0.871		0.821	

Source: LISS panel, our calculations

Table 2. Regression of self-esteem on unemployment and lagged unemployment, all waves

	estallm1		estallm2		estallm3		estallm3g	
	b	se	b	se	b	se	b	se
unemployed	-0.447*	(0.05)	-0.231*	(0.04)	-0.136*	(0.04)	-0.104	(0.06)
extrav			0.237*	(0.01)	0.213*	(0.01)	0.185*	(0.02)
agreee			0.048*	(0.02)	0.019	(0.02)	0.019	(0.03)
conscnt			0.315*	(0.02)	0.275*	(0.02)	0.246*	(0.02)
neuroticism			-0.711*	(0.01)	-0.625*	(0.01)	-0.641*	(0.02)
openness			0.160*	(0.02)	0.209*	(0.02)	0.229*	(0.03)
woman					-0.014	(0.02)	0.001	(0.02)
partner					0.059*	(0.02)	0.082*	(0.03)
age/10					0.152*	(0.06)	0.071	(0.10)
age^2/100					-0.01	(0.01)	0	(0.01)
Child home					0.037*	(0.02)	0.026	(0.02)
education					-0.013*	(0.01)	-0.016	(0.01)
stf soc cntcs					0.055*	(0.01)	0.075*	(0.01)
stf leisure spend					0.025*	(0.01)	0.014	(0.01)
subjective health					0.028*	(0.01)	0.043*	(0.02)
subjective incom					0.032*	(0.01)	0.043*	(0.01)
home owner					0.025	(0.02)	0.007	(0.03)
lagged unemployment							0.041	(0.07)
Constant	1.723*	(0.01)	1.805*	(0.04)	0.346*	(0.15)	0.322	(0.24)
N	7800		7800		7800		3790	
r2_a	0.01		0.44		0.47		0.49	
F	70.24		1018.15		401.13		199.55	
rmse	0.94		0.707		0.69		0.676	

Source: LISS panel, our calculations

Table 3. Regression of subjective well-being on employment, self-esteem and lagged unemployment, fixed effects

	fem1		fem2		fem3		fem4		feivm1		feivm2	
	b	se	b	se	b	se	b	se	b	se	b	se
unemployed	-0.439*	(0.08)	-0.357*	(0.08)	-0.356*	(0.08)	-0.242*	(0.08)	-0.232*	(0.08)	-0.299*	(0.12)
self-esteem			0.388*	(0.02)	0.275*	(0.02)	0.242*	(0.02)	0.333*	(0.14)	0.21	(0.20)
extrav					0.092*	(0.04)	0.079	(0.04)				
agreee					-0.006	(0.05)	-0.012	(0.05)	-0.025	(0.05)	-0.07	(0.08)
conscnt					-0.061	(0.05)	-0.061	(0.05)				
neuroticism					-0.421*	(0.04)	-0.427*	(0.04)	-0.385*	(0.08)	-0.359*	(0.10)
openness					0.034	(0.05)	0.008	(0.05)	-0.016	(0.06)	-0.009	(0.09)
partner							0.118	(0.08)	0.103	(0.08)	0.103	(0.12)
age/10							-0.487	(0.28)	-0.479	(0.28)	-1.062*	(0.43)
age^2/100							0.016	(0.03)	0.016	(0.03)	0.087	(0.05)
Child home							-0.11	(0.07)	-0.109	(0.07)	-0.022	(0.09)
education							0.087*	(0.04)	0.084	(0.04)	0.095	(0.07)
stf soc cntcs							0.044*	(0.01)	0.040*	(0.01)	0.034	(0.02)
stf leisure spend							0.026*	(0.01)	0.026*	(0.01)	0.021	(0.02)
subjective health							0.022	(0.02)	0.02	(0.02)	0.072*	(0.03)
subjective incom							0.084*	(0.01)	0.082*	(0.01)	0.076*	(0.02)
home owner							0.102	(0.08)	0.1	(0.08)	-0.039	(0.12)
lagged unemployment											-0.134	(0.14)
Constant	7.602*	(0.01)	6.937*	(0.04)	7.686*	(0.12)	8.017*	(0.65)	7.837*	(0.70)	9.183*	(1.05)
N	7800		7800		7800		7800		7800		3790	
N_g	3784		3784		3784		3784		3784		2113	
r2_o	0.03		0.22		0.24		0.28		0.29		0.28	
F	29.12		174.99		73.6		39.59					
rmse	0.73		0.703		0.69		0.679					

sigma_u	1.103	0.985	0.953	0.935	0.925	0.928
sigma_e	0.73	0.703	0.69	0.679	0.681	0.61
rho	0.695	0.662	0.656	0.655	0.649	0.698

Source: LISS panel, our calculations

Table 4. Regression of self-esteem on unemployment, fixed effects

	estfem1		estfem3		estfem4		estfem5	
	b	se	b	se	b	se	b	se
unemployed	-0.213*	(0.06)	-0.200*	(0.05)	-0.160*	(0.05)	-0.242*	(0.08)
extrav			0.237*	(0.03)	0.225*	(0.03)	0.164*	(0.04)
agreee			0.127*	(0.03)	0.121*	(0.03)	0.108*	(0.05)
conscnt			0.213*	(0.03)	0.207*	(0.03)	0.287*	(0.05)
neuroticism			-0.472*	(0.02)	-0.471*	(0.02)	-0.401*	(0.04)
openness			0.190*	(0.03)	0.171*	(0.03)	0.202*	(0.05)
partner					0.153*	(0.05)	0.162*	(0.08)
age/10					-0.229	(0.18)	-0.372	(0.30)
age^2/100					0.008	(0.02)	0.027	(0.03)
Child home					-0.006	(0.04)	-0.068	(0.07)
education					0.04	(0.03)	0.077	(0.05)
stf soc cntcs					0.041*	(0.01)	0.041*	(0.01)
stf leisure spend					0	(0.01)	-0.01	(0.01)
subjective health					0.006	(0.02)	0.018	(0.02)
subjective incom					0.022*	(0.01)	0.028*	(0.01)
home owner					-0.037	(0.05)	0.008	(0.08)
lagged unemployment							-0.171	(0.10)
Constant	1.713*	(0.01)	1.463*	(0.08)	1.642*	(0.43)	1.513*	(0.72)
N	7800		7800		7800		3790	
N_g	3784		3784		3784		2113	
r2_o	0.01		0.43		0.36		0.36	
F	14.05		174.17		70.96		25.02	
rmse	0.51		0.456		0.452		0.442	
sigma_u	0.898		0.683		0.717		0.723	
sigma_e	0.51		0.456		0.452		0.442	
rho	0.756		0.692		0.716		0.728	

Source: LISS panel, our calculations

Appendix A. Descriptive statistics of the variables

	wave 1		wave 2		wave 4		wave 6			
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Min	Max
subjective well-being	7.67	1.19	7.61	1.15	7.49	1.15	7.51	1.19	1	10
employed	1.03	0.16	1.04	0.19	1.05	0.22	1.06	0.24	1	2
agreee	1.49	0.49	1.46	0.49	1.45	0.50	1.41	0.52	-0.8	2.6
neuroticism	1.33	0.65	1.33	0.65	1.29	0.67	1.26	0.70	-0.2	3.8
extrav	0.31	0.64	0.29	0.63	0.26	0.64	0.25	0.68	-1.9	2
conscnt	1.36	0.50	1.34	0.51	1.33	0.52	1.37	0.51	-0.7	2.6
openness	1.75	0.49	1.72	0.48	1.70	0.49	1.70	0.51	-0.4	3.2
self-esteem	1.75	0.93	1.71	0.93	1.63	0.95	1.70	0.97	-2.4	3
age/10	4.24	1.02	4.30	1.02	4.42	1.06	4.43	1.06	2	6
age^2 / 100	18.98	8.55	19.51	8.59	20.62	9.02	20.72	9.01	4	36
education	3.82	1.39	3.84	1.37	3.92	1.36	3.94	1.35	1	6
gender	1.51	0.50	1.51	0.50	1.52	0.50	1.50	0.50	1	2
partner	0.80	0.40	0.78	0.41	0.75	0.43	0.75	0.43	0	1
child at home	0.55	0.50	0.55	0.50	0.52	0.50	0.54	0.50	0	1
stf social contacts	7.19	1.66	7.18	1.55	7.08	1.52	7.21	1.54	0	10
stf leisure spend	6.93	1.68	6.89	1.64	6.79	1.60	6.84	1.66	0	10
subjective health	3.22	0.73	3.25	0.72	3.17	0.70	3.22	0.70	1	5
subjective income	6.76	1.59	6.86	1.62	6.77	1.69	6.73	1.67	0	10
home ownership	0.79	0.41	0.77	0.42	0.77	0.42	0.78	0.42	0	1
N	2410		2111		1744		1535			

Source: LISS panel, our calculations

Appendix B: differences between employed and unemployed

		wave 1		wave 2		wave 4		wave 6	
		Mean	Std. Err.	Mean	Std. Err.	Mean	Std. Err.	Mean	Std. Err.
subjective well-being	employed	7.71	0.02	7.64	0.02	7.52	0.03	7.57	0.03
	unemployed	6.34	0.23	6.64	0.2	6.95	0.19	6.67	0.17
self-esteem	employed	1.77	0.02	1.73	0.02	1.65	0.02	1.73	0.03
	unemployed	1.18	0.15	1.34	0.13	1.35	0.12	1.22	0.11
extrav	employed	0.31	0.01	0.29	0.01	0.26	0.02	0.25	0.02
	unemployed	0.14	0.08	0.2	0.07	0.28	0.07	0.28	0.07
agreee	employed	1.49	0.01	1.46	0.01	1.45	0.01	1.41	0.01
	unemployed	1.53	0.05	1.6	0.06	1.43	0.05	1.5	0.05
conscnt	employed	1.36	0.01	1.34	0.01	1.34	0.01	1.38	0.01
	unemployed	1.23	0.06	1.25	0.07	1.24	0.06	1.3	0.06
neuroticism	employed	1.32	0.01	1.33	0.01	1.28	0.02	1.24	0.02
	unemployed	1.68	0.1	1.58	0.1	1.43	0.08	1.54	0.08
openness	employed	1.75	0.01	1.72	0.01	1.7	0.01	1.7	0.01
	unemployed	1.78	0.06	1.76	0.05	1.72	0.05	1.7	0.06
N	employed	2348		2035		1656		1437	
	unemployed	62		76		88		98	

Source: LISS panel, our calculations

Appendix C: Significant correlations (p=.05) for all waves (N=7800)

	subjective well-beingb	unemployed	agreee	neuroticism	extrav	conscnt	openness	self-esteem	age/10	age^2 / 100	education	gender	partner	Child home	stf soc contact	stf leisure spend	subjective health	subjective income
unemployed	-0.16																	
agreee	0.13																	
neuroticism	-0.42	0.08	-0.05															
extrav	0.21		0.32	-0.26														
conscnt	0.18	-0.04	0.27	-0.20	0.08													
openness	0.07		0.26	-0.19	0.32	0.23												
self-esteem	0.46	-0.09	0.17	-0.60	0.34	0.31	0.28											
age/10		0.04	0.05	-0.08	-0.05	0.08	-0.05	0.12										
age^2 / 100		0.05	0.05	-0.08	-0.04	0.08	-0.05	0.11	0.99									
education	0.02	-0.03	0.04	-0.08	0.07	0.04	0.31	0.07	-0.15	-0.15								
gender	0.03		0.34	0.17		0.10	-0.07	-0.07	-0.08	-0.07								
partner	0.20	-0.07		-0.06	0.03	0.04	-0.08	0.09	0.03	0.03		-0.05						
child at home	0.05	-0.05		-0.03		-0.04	-0.04	0.03	-0.07	-0.10	0.03		0.32					
stf soc contacts	0.45	-0.07	0.18	-0.29	0.25	0.13	0.07	0.33				0.06	0.07					
stf leisure spend	0.41	-0.06	0.08	-0.28	0.14	0.13	0.03	0.29	0.08	0.09			0.06	-0.04	0.55			
subjective health	0.30	-0.09		-0.27	0.08	0.11	0.08	0.21	-0.13	-0.13	0.15	-0.04	0.05	0.04	0.19	0.20		
subjective	0.44	-0.23	0.05	-0.22	0.07	0.14	0.05	0.25	0.07	0.08	0.17		0.14		0.25	0.29	0.23	

income																		
home owners hip	0.16	-0.11	-0.02	-0.12	0.04	0.07	-0.03	0.12	0.06	0.05	0.09	-0.04	0.34	0.16	0.07	0.08	0.09	0.25

Source: LISS panel, our calculations

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