

Job Market Paper

A Theory of Unemployment and Unhappiness: The Fixed Cost of Living and Its Applications

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ABSTRACT. This paper proposes a theory of fixed cost of living, F , to explain various paradoxes in the literature of happiness and unemployment. Three testable hypotheses are identified and verified: (1) Most, if not all, of the happiness decrease is due to pecuniary cost. (2) There exists an F in the utility function. (3) The marginal utility of leisure is positive for those employed, while negative for those unemployed. Finally, a critical review is provided, showing how the proposed theory is the root cause why the unemployed are so unhappy.

JEL Codes: J20, J30

Key Words: fixed cost of living, unemployment, happiness, psychological effects, pecuniary cost

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I. Introduction

There are several correlated paradoxes in the literature of unemployment and self-reported happiness. Unemployment is associated with significant decreases in life satisfaction¹, even after controlling for income (Winkelmann and Winkelmann 1998, Ferrer-i-Carbonell and Frijters 2004, Kassenboehmer and Haisken-DeNew 2009, Baetschmann 2012, Baetschmann, Staub, and Winkelmann 2015). This paradox could be expressed in other forms. First, is work a burden? For example, Frey and Stutzer (2002) write, “Another paradox is that, since ancient times, work has been considered a burden for individuals to bear, but empirical research on happiness strongly suggests that being unemployed, even when receiving the same income as when employed, depresses people's well-being markedly” (p. 403). Second, is any job better than no job? The literature generally finds that having a job is better than no job, even if the job quality is low (Theodossiou 1998, Hassall, Muller, and Hasall 2004, Layard 2004, Grün, Hauser, and Rhein 2010). Standard utility functions can not capture this subjective well-being (SWB) decrease. The literature implies that this decrease is a non-pecuniary cost.

This implication raises another two groups of paradoxes. First, does the basic principle of neoclassical economics, in which people balance leisure and consumption,² hold in the happiness research? And do we have to include a non-pecuniary term in the standard utility function? Second, if the cost is non-pecuniary, why is there plenty of evidence that large numbers of rich people or those inheriting wealth do not work, while their SWB are considered higher than those who are not rich?³

This paper proposes a fixed cost of living and a corresponding utility function to explain the above paradoxes in a neoclassical framework. Under this theory, the loss from unemployment is a pecuniary cost; work is a burden for those employed but NOT for those unemployed. Generally, any job is better than no job.

The fixed cost of living is the sum of unavoidable expenses, such as food, clothing, utility bills, medical bills, etc. The most salient example is housing-related expenses, such as annual

¹ The terms life satisfaction, subjective well-being (SWB), and (self-reported) happiness are interchangeable in this paper.

² Thereafter the neoclassical theory refers to the idea where people always balance with leisure and consumption, for example, $u(c, l) = c^\alpha l^\beta$ where c is consumption and l is leisure

³ Here I assume their SWB are the same between choosing not to work voluntarily and being unemployed. If this assumption is relaxed (i.e., treating them as not in labor force), the proposed theory shows more explanation power: it explains why unemployment or not in labor force is associated with large happiness decrease.

property tax, utility bills, and maintenance costs for homeowners and monthly rental for renters. An individual balances consumption and leisure only after his/her fixed cost of living is satisfied. Accordingly, the proposed utility function⁴ is

$$u(c, l) = (c^\alpha - F^\alpha)l^\beta$$

where c is consumption, l is leisure, and F is the fixed cost of living. Consumption comes from labor income wL , where w is the wage rate and L denotes labor hours. Denote total time available for work and leisure as a constant: $T = l + L$.

An individual chooses his/her living style and associated F so that $c > F$.⁵ This theory and utility function are thus compatible with neoclassical theory. Assume $F = \theta c$, where θ is a constant and $0 < \theta < 1$. The utility function then becomes $u(c, l) = (1 - \theta^\alpha)c^\alpha l^\beta$, a standard Cobb-Douglas function. Thus, most neoclassical economics literature still holds.

However, there are two groups of people with $c < F$.⁶ Applying neoclassical utility and theory on them without considering the F will probably result in inconsistency. The first group includes those with very low incomes, such as in-work benefit recipients. Traditional neoclassical theory predicts that this benefit reduces labor supply on intensive margin⁷, but Luo (2015) empirically finds that an in-work benefit has no negative effects on intensive margin. He uses the same theory and utility function to explain his finding: assuming F is substantial, low income earners who meet $c < F$ will continue to choose corner solution leisure $l = 0$, i.e., small tax refunds will not alter a labor supply decision. He also finds that the wage income elasticities are opposite in sign during in-work benefit decreases and expansion periods, which cannot be explained by neoclassical approach while is compatible with the proposed theory. He further shows that, under this theory, the in-work benefit should be part of an optimal income tax schedule because the non-negative marginal tax rate in Mirrlees (1971) does not hold. However, Luo cannot formally estimate the level of F based on his data.

⁴ Initially I use $u(c, l) = (c - F)^\alpha l^\beta$. I thank Peter Morgan for pointing out that $\partial u / \partial c$ has no meaning if $c - F < 0$ and suggesting the current one.

⁵ For example, an individual will not buy a \$2m house and pay \$10,000 mortgage monthly if her monthly income is \$5,000. Instead, she will choose a house which makes her house related expenses well below \$5,000.

⁶ If $c < F$, the result is "back utility bills are the most common forms of outstanding debt, followed by medical bills" (Romich and Weisner 2000, pp.1253, living conditions of in-work benefit recipients).

⁷ Normally in-work benefits schedule includes 3 regions: phase-in, constant, and phase-out. Traditional theory predicts ambiguous effects on phase-in region, negative on constant, and negative on phase-out. Since more than 50% recipients are located on constant and phase-out regions, it is believed that the total effects are negative.

The second group is those unemployed, which is the focus of this paper. Suppose a person is employed whose utility is $u(c, l) = (c - F)l$.⁸ If the individual becomes unemployed, F cannot immediately be altered; with $c = 0$ ⁹ the utility decreases to $u(c, l) = -F(l + L)$. $-cl$, the gap between $(c - F)l$ and $-Fl$, measures the utility loss associated with an income decrease. And $-FL$, the gap between $-Fl$ and $-F(l + L)$, is able to capture the utility decrease, when controlling for income. Thus, the utility function explains why the unemployed are so unhappy and why any job is better than no job. Empirical literature regards this gap, $-FL$, as non-pecuniary cost of unemployment. My proposed theory, however, shows how this decrease is actually caused by income. Moreover, marginal utility of leisure is $\frac{\partial u}{\partial l} = c - F$. This resolves the paradox that whether work is a burden: work is not a burden for those unemployed ($c < F$ and $\frac{\partial u}{\partial l} < 0$), while it is for those employed ($c > F$ and $\frac{\partial u}{\partial l} > 0$). Thus, generally any job is better than no job.

This theory and explanation raise three testable hypotheses:

1. *Most, or even all, of the happiness decrease is due to a pecuniary cost.*
2. *There exists an F in the utility function.*
3. *The marginal utility of leisure is positive for those employed, while negative for those unemployed.*

This paper uses the German Socio-Economic Panel (GSOEP) from 1984 to 2012 to test and verify these hypotheses. This panel is one of the most frequently used datasets in the happiness literature, because it contains abundant demographical characteristics. For the first hypothesis, I start by replicating the literature. In the traditional approach, the coefficient of unemployment dummy is large, negative and significant, indicating there are large unexplained negative effects. However, after the variable, how a person worries about his financial situation, is included in the regression equation, the coefficient of unemployment becomes small and insignificant. This evidence shows that financial worry alone is able to explain the negative effects, indicating the costs are pecuniary.

For the second hypothesis, this paper demonstrates that the fixed cost of living F is correlated with median income or previous income. This is evidence of income adaptation and a potential

⁸ Thereafter I use $u(c, l) = (c - F)l$ for simplicity.

⁹ I assume $c = 0$ for those unemployed for simplicity. Actually consumption will not decrease to zero due to unemployment benefits and income from household members.

explanation to Easterlin's (1974) paradox: why, as time goes by, incomes increase but SWB does not? If both median income and previous income are considered, F is correlated with median income only and is substantial in its value. This estimation of F shows why individuals do not adapt to unemployment (because the fixed cost of living is substantial) and provides empirical support for Luo (2015).

For the third hypothesis, this paper evidences the marginal utility of working hours is positive for those unemployed while negative for those employed. This supports the assertion that work is not a burden for those unemployed while it is for those employed.

After verifying the three hypotheses, I further provide a critical review of the various potential explanations in the literature. Those explanations can be categorized into three groups. The first group is innately deficient and has limited explanatory power, which can be modified to be compatible with the pecuniary cost. The second group includes those with limited explanatory power while compatible with the pecuniary cost. And the third are those not able to explain the SWB decrease associated with unemployment but may moderate the negative effects. This review shows that the proposed theory is the root cause why the unemployed are so unhappy.

This paper makes four contributions. First, it resolves the long-standing paradoxes in the literature, showing how negative effects of unemployment derive from pecuniary cost. Second, it provides evidence that work is a burden for those employed but is not for those unemployed. Third, it critically reviews the literature and demonstrates that pecuniary cost is the root cause why the unemployed are so unhappy. Fourth, it estimates the fixed cost of living, F , thereby providing empirical evidence for Luo (2015).

The paper proceeds as follows. Section II provides background and a brief summary of the GSOEP dataset. Section III verifies the three testable hypotheses. Section IV provides a critical review and section V a conclusion.

II. Background and Data

1. A Very Brief Review

Much of the psychology and economics literature finds that unemployment is associated with a large decrease in psychological well-being or life satisfaction (See, for example, Clark and Oswald 1994, Darity and Goldsmith 1996). Since ancient times, work has been regarded as a burden (the marginal utility of leisure is positive). But why are the unemployed so unhappy, even when controlling for the loss in their income? This paradox could be stated in other forms. First,

is work a burden? Second, is any job better than no job? The paradoxes have stimulated research in unemployment and happiness, making it one of the mainstreams in the literature of happiness.¹⁰

Research on unemployment and happiness has focused on two main topics. The first aims to consistently estimate the effects of unemployment on subjective well-being. Dealing with omitted variable biases and heterogeneity in personal characteristics requires a fixed effects model. Self-reported satisfaction is an ordinal variable, so various fixed effects logit models are developed, such as those in Winkelmann and Winkelmann (1998), Das and van Soest (1999), Ferrer-i-Carbonell and Frijters (2004), Baetschmann et al. (2015). Baetschmann et al. (2015) and Dickerson, Hole, and Munford (2014) provide more details of those models. This paper uses the fixed effects ordinary least squares (OLS) method since it is much easier to interpret the coefficients in the OLS model. Moreover, Ferrer-i-Carbonell and Frijters (2004) and Baetschmann et al. (2015) find that, as long as fixed effects are considered, the OLS and logit models give similar results. The estimation results of the ordered logit model, using the method developed in Baetschmann et al. (2015), are also provided as a robustness check.¹¹

The second topic explains why unemployment is associated with a large subjective well-being decrease, after controlling for income. The most established explanations include violation of social norms, reduction in social capital, worsened expectations, psychological destruction, etc. (See Winkelmann 2014 for a review.) More details of those explanations are provided in the review section. The consensus is that such decrease in SWB is a non-pecuniary cost (e.g., Rätzel 2012). However, this paper will show that this decrease is mostly a pecuniary cost.

2. Data and Preliminary Result

This paper uses the German Socio-Economic Panel (GSOEP) from 1984 to 2012. The survey is conducted annually, so the data contains 29 waves. The dependent variable, self-reported life satisfaction, is based on individuals' answers to the question: "In conclusion, we would like to ask you about your satisfaction with your life in general. Please answer on a scale from 0 to 10, where 0 means completely dissatisfied and 10 means completely satisfied. How satisfied are you

¹⁰ Another mainstream is why, as time goes by, real income increases but happiness of the population does not increase or even decreases (See Frey and Stutzer 2002 for a survey).

¹¹ I thank Kevin E. Staub for providing me the computer program of Baetschmann et al. (2015) so that I can use this method directly.

with your life, all things considered?" The appendix contains more details of the variable definitions. As with previous research, this paper assumes that the sample attrition or sample selection does not significantly affect the results. In 1990 Germany was reunited, and the data report responses from East Germany from then onwards. This paper uses observations from West Germany only. Female respondents are excluded in this analysis since females and males have different structure of happiness (e.g., Booth and Van Ours 2008). I further restrict the age from 21 to 64, inclusively. Incomes are adjusted by CPI data, expressed in EUROS, with 2006 as the base year.

Table I lists the summary statistics of four groups: all, employed (Emp), unemployed (Unemp), and not in labor force (NLF). In the GSOEP survey, the unemployed are defined as those registered in the official unemployment register. In this paper, NLF refers to those who are not in either of the Emp and Unemp groups. Those unemployed are generally less happy. The Total Household Income, which is the sum of Individual Labor Income and Other Household Income, of the NLF group is between the incomes of the Emp group and the Unemp group. The happiness of NLF group is also in the middle. This is weak evidence for the proposed hypothesis that subjective well-being decrease is driven by a pecuniary cost.

The variable Financial Worry comes from the answer to the question "How concerned are you about your own economic situation?" In this paper, all psychological category variables are recoded, if necessary, so that a higher number represents more negative feeling. For the variable Financial Worry, 1 represents "not concerned at all", 2 "somewhat concerned", and 3 "very concerned". Table I shows that 58% of the Unemp group feel "very concerned" for their economic situation, compared to only 23% of the NLF group and 17% of Emp.

Moreover, the literature finds that, although unemployment is generally associated with a big SWB decrease, there is substantial heterogeneity. Table II Panel (A) demonstrates the relationship between SWB change and Financial Worry. The sample includes those who are unemployed in a current year while employed in the previous year. SWB change is calculated by subtracting last year's SWB from the current SWB. As in the literature, 46% of the sample experience either no change or an increase in SWB after they are unemployed. Among those who feel a SWB decrease, 68% of them are "very concerned" about their financial situation.

Panel (B) illustrates the correlation between a SWB change and a Financial Worry change. Again there is substantial heterogeneity. About half of those who become unemployed maintain the same level of worry. Among those whose happiness decreases, about half become more

concerned about their financial status while, for those whose happiness does not decrease, 27% feel more concerned and 17% feel less concerned.

The data shows that unemployment is likely to make people more concerned about their financial status, and that such worries decrease SWB. And the heterogeneity in worries explains the heterogeneity in SWB change. The next section presents formal regression results.

III. Three Testable Hypotheses

1. Hypothesis 1: Most, perhaps all, of the happiness decrease is due to pecuniary cost.

I first replicate the literature using the traditional model

$$Happiness_{it} = \alpha_1 + \beta_1 Unemp_{it} + \beta_2 NLF_{it} + X_{it} \theta + \varepsilon_{it} \quad (1)$$

where $Happiness_{it}$ represents the SWB score of individual i at year t .¹² X_{it} is a list of demographic characteristics, including Individual Labor Income, Other Household Income, Married, Disability, age square, year dummies, state dummies, and 7 dummy variables categorizing the number of household members aged 0-1, 2-4, 5-7, 8-10, 11-12, 13-15, and 16-18 years.

Columns (1) and (2) of table III show the OLS and ordered logit model regression results. All regressions in this paper are fixed effects, and the standard error is clustered at the individual level. As in the previous literature, the coefficient of the Unemp dummy is large, negative and significant, while that of NLF is negative, significant but not so large. Income, marriage, and good health (measured by non-disability) have positive and significant effects on SWB. The positive coefficient of age squared is consistent with the finding in literature that happiness is U-shaped in age. One point to note is that this paper separates income from individual labor from other household member income or public transfers (including unemployment benefits). The coefficient of individual labor income is much larger. There are several potential explanations. First, an individual may have different shares of different sources of income (Donni and Chiappori 2011 provides a review). So he derives different utility from different incomes. Second,

¹² In regression the SWB score is added by 1 to fit the ordered logit method proposed by Baetschmann et al. (2015). This recoding will not change the coefficients of the OLS method.

an individual may be more proud of his own labor earnings. Third, unemployment benefits may have stigma effects.

To verify the hypothesis, I include the category variable Financial Worry and its interaction term with employment status, using

$$Happiness_{it} = \alpha_1 + \beta_1 Unemp_{it} + \beta_2 NLF_{it} + \beta_3 Worry_{it} + \beta_4 Unemp_{it} \times Worry_{it} + \beta_5 NLF_{it} \times Worry_{it} + X_{it}\theta + \varepsilon_{it}. \quad (2)$$

Column (3) of table III shows the results. The coefficients of Unemp and NLF both become small and insignificant, while those of Financial Worry are large, negative and significant. The more concerning is the financial situation, the more negative are the coefficients. The coefficient of the interaction term of Financial Worry and employment status is also large, negative and significant. The regression result shows that labor status itself, such as unemployment or not in labor force, does not result in a happiness decrease. Concern about the economic situation is the reason for SWB loss. The correlation between Unemp and Financial Worry is 0.22 ($p=0.0000$), denying collinearity.

Various robustness tests are conducted. Column (4) uses the ordered logit model. Column (5) uses the OLS model without fixed effects. In both regressions, the coefficient of Unemp becomes significant. But, compared with the negative effects of financial concern (the coefficients of Financial Worry and the interaction term), the effect of unemployment is less substantial. Column (6) again uses the OLS fixed effects model, adding the traditional control of health, measured by whether there is an overnight hospital stay. This variable is not available in 1990 and 1993, so observations in these two years are dropped. The results are qualitatively the same as before. The weighted regression provides qualitatively similar results (not reported here) and this paper will continue to use OLS regression.

A further question arises: whether unemployment makes people more concerned about their financial status. For this regression, I use equation (1) as the functional form with $Happiness_{it}$ replaced by Financial Worry;

$$Worry_{it} = \alpha_1 + \beta_1 Unemp_{it} + \beta_2 NLF_{it} + X_{it}\theta + \varepsilon_{it}. \quad (3)$$

Column (7) shows the result that the coefficient of Unemp, 0.295, is significant. That means unemployment is likely to make people more worried. However, note that there is large heterogeneity. If a person becomes more concerned, his $Worry_{it}$ increases at least one (e.g., from [1] not concerned at all, to [2] somewhat concerned). So there is a large percentage of

individuals (about 50% in this sample) who do not become more concerned. Column (8), the result from the ordered logit model, confirms the significant effects.

This subsection provides clear evidence that unemployment is likely to cause concern about financial status and that such concern is the main reason for a SWB decrease. Thus, most costs associated with unemployment are pecuniary.

2. Hypothesis 2: There exists an F in the utility function.

This subsection provides a reduced form estimation of F . To simplify, I assume $\alpha = \beta = 1$ in $u(c, l) = (c^\alpha - F^\alpha)l^\beta$, so that $u(c, l) = cl - Fl$. And $c = W + O$, where W is individual labor earning and O is other household income. Intuitively, F could be correlated with the median income of the sample because the median income may determine the average living standard of the society (median income varies by year, state of region, and subsample). Moreover, F could be correlated with previous income, because higher income may make people upgrade his living standard. So denote $F = \beta_1 \bar{W} + \beta_2 \bar{O} + \beta_3 W_{-1} + \beta_4 O_{-1}$, where \bar{W} and \bar{O} denote the sample median of W and O , and W_{-1} and O_{-1} denote W and O last year. The functional form is

$$Happiness_{it} = \alpha_1 + \alpha_2 u_{it}(c_{it}, l_{it}) + X_{it}\theta + \varepsilon_{it}.$$

Plug the equations of c and F inside, using different coefficient γ for O to allow for different sharing rules or that individuals derive different utilities from different sources of income, as shown in last subsection. The functional form becomes

$$Happiness_{it} = \alpha_1 + \alpha_2 W_{it}l_{it} + \alpha_2\gamma O_{it}l_{it} - \alpha_2\beta_1 \bar{W}_t l_{it} - \alpha_2\beta_2 \bar{O}_t l_{it} - \alpha_2\beta_3 W_{i,t-1}l_{it} - \alpha_2\beta_4 O_{i,t-1}l_{it} + X_{it}\theta + \varepsilon_{it}. \quad (4)$$

Denote leisure $l = T - h$, where h is weekly working hours and T is total hours available.

Assume $T = 10 \times 5 = 50$ because Krueger and Mueller (2012) find that a working individual generally spends totally 9.6 hours in work and leisure in a weekday. After regression, we can normalize the coefficient of individual labor income to one and evaluate F by

$$F = \beta_1 \bar{W}_t + \beta_2 \bar{O}_t + \beta_3 W_{i,t-1} + \beta_4 O_{i,t-1}. \quad (5)$$

Table IV column (1) shows the regression results, using only the median incomes \bar{W}_t and \bar{O}_t in F . As expected, the coefficients of $\bar{W}_t l_{it}$ and $\bar{O}_t l_{it}$ are both negative and significant. The corresponding F is 2207 EURO. Column (2) shows the regression using previous income. Again the coefficients of $W_{i,t-1}l_{it}$ and $O_{i,t-1}l_{it}$ are both negative and significant, with F equal to 1138 EURO. Column (3) uses both median income and previous income. The coefficients of $W_{i,t-1}l_{it}$

and $O_{i,t-1}l_{it}$ become insignificant because the correlation among those four terms of F is high, (e.g., the correlation between $\bar{O}_t l_{it}$ and $O_{i,t-1}l_{it}$ is 0.67) resulting in a collinearity problem. The corresponding estimate of F is 2177 EURO.

The regression results show the connection between the proposed theory and the literature of income and happiness, another mainstream research in happiness. Easterlin (1974) finds that, over time, SWB in the US does not increase, even though income rises substantially and consistently. But income and happiness are positively correlated in a given time. (For example, almost all of the literature of happiness and unemployment shows a positive coefficient for income, regressed on SWB.) The most established explanations are relative income and income adaptation. More detail is provided by Clark, Frijters, and Shields (2008), and Di Tella, Haisken-De New, and MacCulloch (2010). In empirical studies of this literature, regressed on happiness, the coefficients of comparison income or previous income are generally negative and significant. The proposed theory thus identifies a cause for those findings. First, the median income may correlate with the price level of a region. For example, compared to a region with \$2/hamburger, a region with \$4/hamburger has a higher price level. So maintaining the same living standard requires more income, i.e., given an individual's income, the higher the median income, the lower his utility. Second, an individual with a higher income in year $t - 1$ is more likely to upgrade his living standard to a larger F , e.g., a larger house. So that in year t his utility, with the same income, will be less; i.e., given an individual's current income, the higher the previous income, the lower the current utility.

I then restrict the sample to those who change between Unemp and Emp (Unemp in year $t - 1$ and Emp in t , or Emp in year $t - 1$ and Unemp in t). If a person is unemployed, with a substantial reduction in income, he must reduce his consumption, so that the estimated F could be closer to the fixed and unavoidable expenses. A natural hypothesis is that their fixed costs of living F would be substantial. The regression results in column (4) confirm this hypothesis, with a monthly F of 1095 EURO. This result supports Luo (2015), which suggests a substantial F to explain several puzzles in the literature of in-work benefit and labor supply. However, he is not able to estimate the value of F . Note that the coefficients of $\bar{O}_t l_{it}$ and $O_{i,t-1}l_{it}$ become insignificant. The potential explanations are, first, that the unemployment benefit or support from other family members could result in feeling of stigma and, second, that the substantial reduction from labor income to unemployment benefit may cause unhappiness.

Two robustness checks are performed. The first specification uses the ordered logit model and obtains a similar result, as shown in column (5). To avoid comparison within different regression methods, F is not calculated. The second specification uses a different value of total time available, $T = 10 \times 7 = 70$. The result, in column (6), is similar, with $F = 1356$ EURO.

A caveat to this estimation is that the estimated F for the whole sample is large. A potential improvement is to allow for heterogeneity in the components of F and in the total time available T .

3. Hypothesis 3: The marginal utility of leisure is positive for those employed, while negative for those unemployed.

To verify this hypothesis, I need to show that marginal utility of working hours is negative for those employed, while positive for those unemployed. Individuals not in the labor force are excluded in this test, because those people may have different happiness structures with respect to working hours. The control group includes those who are employed in both year $t - 1$ and t , while the treatment group includes those who change between unemployment and employment; i.e., being unemployed in year $t - 1$ and employed in t , or being employed in year $t - 1$ and unemployed in t . The functional form is

$$Happiness_{it} = \alpha_1 + \alpha_2 I + \beta_1 h_{it} + \beta_2 h_{it} \times I + X_{it}\theta + \varepsilon_{it} \quad (6)$$

where h is working hours, $I = 1$ for the treatment, and 0 for the control group. The marginal utility of a working hour is β_1 for the employed, and is $\beta_1 + \beta_2$ for those change between employment and unemployment. In this specification, the unemployment dummy $Unemp$ cannot be added; otherwise $Unemp$ and treatment dummy I will result in collinearity and destroy the identification.

Table V column (1) shows the result for this basic specification. β_1 is negative and significant. This finding is consistent with the literature. For example, Hamermesh, Kawaguchi, and Lee (2014) find that an hours reduction mandated by legislation increases workers' life satisfaction. And Golden and Wiens-Tuers (2006) find that overtime reduces worker well-being even when the benefit from additional income is taken into account. For the unemployed, a Wald test confirms that $\beta_1 + \beta_2$ is positive and significant ($p = 0.000$). Hypothesis 3 is confirmed. The ordered logit model provides a similar result; see column (2) of table V.

IV. The Explanation and a Critical Review

1. More about the proposed theory

The theory's basic idea is that people have unavoidable expenses due to earlier choices resulting in long-term financial commitment. Luo (2015) and this paper use this theory and the corresponding utility functions $u(c, l) = (c - F)l$ to explain the behavior of both in-work benefit recipients and the unemployed. The detailed components of F and its evolution are left for future study. For example, this utility function implies that the lower the F , the higher the utility obtained. However, it is not likely that a billionaire would like to stay in a very small house, paying a low F for that house while obtaining high level of utility. To account for that, a simple modification of the utility function would be $u(c, l, F) = (c^\alpha - F^\alpha)l^\beta F^\gamma$, where $F \in [\underline{f}, c)$ and the minimum value \underline{f} is positive and substantial, to capture the reality that as people become rich they would like to upgrade his living standard.¹³

This theory has connections with several theories in the literature. First, the hierarchy of needs, proposed by Maslow (1943), separates the basic needs of humans into five sets, in a hierarchy of prepotency. They are physiological, safety, love, esteem, and self-actualization needs, with the most prepotent goal listed first. Only once individuals satisfy (not necessarily 100 percent) the more prepotent one (e.g., physiological) does the less prepotent one emerges (e.g., safety). The fixed cost of living is analogous to the physiological needs (e.g., having basic foods) and safety needs (e.g., living in a warm house in cold winter). Only after those needs are satisfied does an individual pursue other desires, such as love and esteem.

Second, Herzberg's (1964, 1968) motivation-hygiene theory argues that factors correlated with job satisfaction are different from those with job dissatisfaction. He called the former motivators, such as job advancement, and the latter hygiene factors, such as work conditions. The fixed cost of living is analogous to the hygiene factors. Without satisfying F , the utility level would be negative.

¹³ A more complicated dynamic model is also applicable.

2. Other explanations in literature: a critical review

Numerous explanations in the literature attempt to answer why unemployment is associated with large SWB decrease. Thanks to the abundant variables and measurements in the GSOEP dataset, most of these explanations can be tested. This subsection provides a critical review of these explanations and shows that they are less credible than the theory proposed in this paper. Specifically, these explanations suffer from two issues. First, they have less explanatory power (thereafter LESS POWER). When the explanation variables are included in regression equation, the coefficient of unemployment dummy is still negative and significant. Second, they are *ad hoc* (thereafter *AD HOC*). There is plenty of evidence that many rich people or those inheriting wealth do not work, and their SWB is considered higher than those who are not rich.¹⁴ Moreover, as noted in previous section, there is huge heterogeneity—nearly half of those unemployed do not experience SWB decrease. My proposed theory, by contrast, is able to address the above issues.

For each explanation, a suitable variable (denoted as EXP) will be chosen from the dataset and a formal test conducted. Most of the EXP variables are categorical variables. The original scale of the categorical variables is retained. Each categorical variable is coded so that the larger is its value, the more harmful it is to the unemployed. Thus, we can interpret coefficients easily and consistently.

The formal test follows three steps. First, the literature is replicated (thereafter REPLICATE test) using the functional form

$$Happiness_{it} = \alpha_1 + \beta_1 Unemp_{it} + \beta_2 EXP_{it} + \beta_3 Unemp_{it} \times EXP_{it} + \beta_4 NLF_{it} + \beta_5 NLF_{it} \times EXP_{it} + X_{it}\theta + \varepsilon_{it}. \quad (7)$$

The most important coefficient is β_1 , showing whether the variable *EXP* is able to fully explain the negative effects of unemployment.

Second, the variable Financial Worry *Worry_{it}* and its interactions are added (thereafter PROPOSE test), using

$$Happiness_{it} = \alpha_1 + \beta_1 Unemp_{it} + \beta_2 EXP_{it} + \beta_3 Unemp_{it} \times EXP_{it} + \beta_4 NLF_{it} + \beta_5 NLF_{it} \times EXP_{it} + \beta_6 Worry_{it} + \beta_7 Unemp_{it} \times Worry_{it} + \beta_8 NLF_{it} \times Worry_{it} + \theta X_{it} + \varepsilon_{it}. \quad (8)$$

¹⁴ See footnote 3.

In this step, I am interested in if β_1 will become small and insignificant; i.e., whether worry about a financial situation explains the unexplained part of unemployment's negative effects.

Comparing the negative effects of the EXP (β_2 and β_3) to the financial worries (β_6 and β_7) clarifies which has more explanatory power.

Third, the function form

$$EXP_{it} = \alpha_1 + \beta_1 Unemp_{it} + \beta_2 Worry_{it} + \beta_3 Unemp_{it} \times Worry_{it} + \beta_4 NLF_{it} + \beta_5 NLF_{it} \times Worry_{it} + X_{it}\theta + \varepsilon_{it} \quad (9)$$

is used to test the causes (thereafter CAUSE test) why the variable EXP changes. The value of β_1 , β_2 , and β_3 determine whether it is unemployment, financial worries, or both, that result in EXP changes. The coefficients correlated with those not in the labor force NLF will neither be shown nor discussed. But the conclusion for $Unemp$ generally applies to NLF .

Work as a social norm

A well-established explanation is that work is a social norm. (E.g., Clark 2003, Stutzer and Lalive 2004, Hetschko, Knabe, and Schöb 2014, Van Hoorn and Maseland 2013, and Boyce, Wood, and Brown 2010. Refer to Winkelmann 2014 for a brief survey, including criticisms to this explanation.) However, this explanation suffers from LESS POWER and *AD HOC* issues.

My proposed theory, however, implies another social norm: a man should be able to provide financial support to his family. Thus, an unemployed individual does not necessarily experience SWB decrease if he has no economic concerns. A direct extension to family level is that an individual should be able to support his/her family. This extension has two direct applications. First, since in a couple men generally earn more than women, naturally men should provide more income and women pay more attention in housework. So generally unemployment has less harmful effects on women (See, for example, Clark 2003). Second, if a woman in a couple is able to earn more, then the man could handle more housework. So, as women's income increase, there are more and more househusbands. This also provides explanation why half of the unemployed men do not feel SWB decrease: he could switch to househusband, if his wife is able to earn substantial income for this family.

I use two specifications to test social work norms. The first specification is as Clark (2003), which uses reference group unemployment rate (at the regional, partner, and household level) as

a proxy of social work norm. I replicate his paper in Table VI column (1). For simplicity, I use only state level unemployment rate.¹⁵ Similar to his paper, negative coefficient of unemployment rate shows that others' unemployment negatively affects those in work. The positive coefficient of the interaction term, between unemployment rate and the Unemp dummy, is evidence that others' unemployment positively affects those unemployed. However, as in Clark (2003), the large detrimental effects of unemployment, indicated by the large, negative, and significant coefficient of the Unemp dummy, remained unexplained.

Column (2) shows the result of PROPOSE test. The coefficient of Unemp dummy becomes small and insignificant. Instead, worry about financial situation is associated large SWB decrease. This confirms the proposed theory that the negative effects of unemployment are due to pecuniary cost. Moreover, the proposed theory implies that, since a higher unemployment rate decreases median income and so the average living standard of the society, it has positive effects on those unemployed.

The second specification is as Winkelmann (2014) and similar to Boyce et al. (2010). Variable Important Career is used as a proxy for work norm. The variable comes from the question "How important a successful career is for your satisfaction?", with 1 represents very unimportant, 2 less important, 3 important, and 4 very important. This variable is available only in 1990, 1991, 1994, 1998 and 1999. Therefore, many sample observations are dropped.

Similar results are obtained for this specification. As column (3) shows, a person with strong work norms suffer from unemployment (indicated by negative and significant coefficient of the interaction term, especially when Important Career equals 4). Unemployment itself has large, negative effects that are unexplained (indicated by negative coefficient of the dummy variable Unemp). This coefficient is not significant, but this insignificance may be the result of largely reduced sample size (from 97519 in first specification to 8609 in this specification). As variable Financial Worry added in column (4), the unexplained negative effects become small.

Two points are worth noting about the interaction term of unemployment and Important Career. First, unemployment hurts most for those eager for career success. This is different with Clark (2003), where reference group's unemployment has positive effects on those unemployed,

¹⁵ The data is available at Federal Employment Agency in Germany. The url is http://statistik.arbeitsagentur.de/nn_31892/SiteGlobals/Forms/Rubrikensuche/Rubrikensuche_Form.html?view=processForm&resourceId=210368&input_=&pageLocale=de&topicId=17588&year_month=aktuell&year_month.GROUP=1&search=Suchen, accessed on Jul 14, 2015. I thank Raik Wernicke from Deutsche Bundesbank for pointing out the dataset to me.

but similar to Boyce et al. (2010), where unemployment hurts more for those who are most conscientious but unemployed. Second, the coefficient of $Unemp \times Important\ Career (= 4)$ is negative and large. But generally not many people hold the opinion that career success is very important for life satisfaction. Instead, nearly half of people clustered at $Important\ Career = 3$, as they feel career success is important. So most of the negative effects of unemployment are attributed to concerns about financial situation.

Column (5) shows the results of CAUSE test. Intuitively, the social norm should not be affected by a single person. And a person's eagerness for success is more like an innate characteristic and will not be affected by his labor status. The results confirm this intuition.

The above two specifications show that traditional social work norm is not able to explain all the negative effects of unemployment. On the contrary, those negative effects have to be explained by the proposed theory and the proposed new social norm. Since the new social norm is compatible with the proposed theory, the SWB decrease is due to pecuniary cost.

Social capital

Social capital, with a broad definition of effects of social networks, is found to be positively correlated with SWB. (For example, Helliwell and Putnam 2004 provide a survey.) Winkelmann (2009) further tests whether social capital is able to mitigate the harmful effects of unemployment. He finds no evidence that social capital moderates the negative effects, although it is an important predictor of SWB. This explanation suffers from LESS POWER and *AD HOC* issues.

The variable Gather, which is available for 14 years, is used as a proxy for social capital in this test. It is the respondent's answer to the question: "How often do you meet with friends, relatives or neighbors?" Answer 1 represents "at least once a week", 2 "at least once a month", 3 "less often", and 4 "never".

Table VII column (1) demonstrates the REPLICATE test. As in Winkelmann (2009), individuals attending more social events are happier, but large negative effects of unemployment are still unexplained. The coefficients of the interaction term of unemployment and social gathering is small and insignificant, showing that unemployment may not reduce social events. Column (2) provides the results of PROPOSE test. As expected, the negative effects of unemployment disappear. The coefficients of attending social events are almost the same. Column (3) shows that neither unemployment itself nor worries about financial situation changes

the social gathering behavior. Although the coefficients of Finance Worry are significant, they are very small.

Expectation

The literature shows that expectation affects SWB (e.g., Clark et al. 2008). Clark, Georgellis, and Sanfey (2001) find that past unemployment history reduces current SWB level and name it the scarring effect. However, Knabe and Rätzel (2011) find that the scar operates through worsened expectations of future employment prospect and argue that the scarring effect is a better explanation.

In this review, I use variable Job Prospect to proxy the future expectation. This variable, available for 26 years, comes from the question: “If you were currently looking for a new job, it is or it would be easy, difficult, or almost impossible to find an appropriate position?” Answer 1 is for easy, 2 for difficult, and 3 for almost impossible. Note that the regression results should be interpreted very carefully; the question is restricted to those who are currently looking for a job. Because those who are employed are excluded, the sample size is greatly reduced and there is sample selection bias.

Table VIII column (1) gives the REPLICATE results. Symbol “-” means that the variable is omitted due to collinearity. The coefficients of Job Prospect are negative, substantial and significant, demonstrating that bad expectation reduces SWB. The coefficient of unemployment is small and insignificant. Again, note that those employed are excluded in this sample. The coefficient of Unemp is a comparison with those not in the labor force, rather than a comparison with those employed in previous subsections. Therefore, the result should be interpreted carefully.

Column (2) provides the PROPOSE results. The negative effects of financial worry are once again substantial. Since more than half of the unemployed are very concerned (Financial Worry =3), it is obvious that the effects of financial worry are more negative than that of job prospect (-1.054 vs. -0.491). Thus, concern about financial situation has more explanatory power. Column (3) shows the CAUSE results. Both unemployment and financial worry make individuals more pessimistic about their future job prospects.

The above results show that expectation as an explanation suffers from LESS POWER and *AD HOC* issues. Moreover, those two explanations may intertwine. It is likely that individuals take into account their future job prospect when they consider their financial status. Also, the

financial worry could be the reason why bad job prospect is associated with large SWB decrease: they need the income from the jobs to support the basic living. So utility could be expressed as

$$u(c, l) = E\left[\sum_t \delta^t (c_t^\alpha - F_t^\alpha) l_t^\beta\right]$$

where $E[.]$ represents the expectation value and δ is time-discounting factor. Therefore, the utility loss comes from current and expected pecuniary cost.

Less structured day

It is argued that less structured days, a consequence of unemployment, is the result of SWB loss. For example, Jahoda (1979) proposes that time structure during the waking day is one of the latent benefits of employment. Various papers analyze the time allocation of those unemployed. For example, Knabe et al. (2010), using GSOEP data, and Krueger and Mueller (2012), using US data, compare the time use of the employed to those unemployed. They both find that those unemployed spend less time working and more time sleeping, in leisure (such as watching TV and socializing), childcare, and housework. There is no evidence that their daily life structures are chaotic. Moreover, this explanation suffers from *AD HOC* issue. In sum, this explanation is unlikely to be a suitable cause.

Psychology effects

There has been a great deal of literature about destructive psychological well-being and unemployment. (For example, McKee-Ryan et al. 2005 provides a survey.) Commonly identified linking mechanisms include less money, feelings social norm violation, fewer social contacts, worsened expectations, less structured days, more worries, lower self-esteem, loss of control, more depression, more anxiety, and more alienation (Goldsmith, Veum, and William Jr. 1996, Darity and Goldsmith 1996, and Winkelmann 2014). The first five mechanisms were reviewed previously; the last six will be reviewed in this subsection.

Various proxies are chosen for this review. The proxy variables are reasonable measures of those mechanisms. They must be available for at least three years to perform fixed effects OLS. 12 variables are selected, separated in 3 groups: The first group (worry, anxiety, and depression) includes variables Melancholy, Well-balanced, Worried, Sad. The second group (self-esteem and alienation) includes Afford, Fulfil (one's potential), Confidence (about future), Not able (to cope

with things). The third group (control) includes Control (over own life), Success plan, Unforeseen (things happen), and Different (outcomes). The appendix lists more details about these variables. They are available for different years. Therefore, they are tested separately and are unable to be constructed into indexes. (For example, Goldsmith et al. 1996 use 10 questions to construct an index for self-esteem and argue that this index includes three components of self-esteem: anxiety, alienation and depression.)

Routine regressions are then performed and the results are listed in Table IX, X and XI. To simplify, Table XII summarizes the interpretation. For REPLICATE test, my interpretation focuses on two questions. (i) Is coefficient of Unemp large, negative and significant? (ii) Are the effects of EXP variable significant? If yes, are they smaller or larger compared to Unemp? Use the first EXP variable Melancholy as an example. In the regression result, the coefficient of Unemp is -0.635 ($p=0.000$). Thus, the answer to the first question is yes. For the effects of Melancholy, since 36% of unemployed people answer Sometimes (Melancholy=3, coefficient is -0.550 and significant), the effects are similar.

For PROPOSE test, I focus on two additional questions. (i) Is the coefficient of Unemp still large and significant? (ii) Is the coefficient of EXP variable still significant? If yes, are the effects are smaller, similar, or larger than effects of financial worry? For Melancholy, the first answer is no, because the coefficient of Unemp becomes insignificant. The coefficients are -0.594 for Financial Worry=3 (More than 60% of unemployed choose this answer) and -0.492 for Melancholy=3. So the effects of Financial Worry and Melancholy are similar.

CAUSE test answers the question: which worsens the EXP variable? Unemployment, or worry about financial situation, or both, or interaction, or none? In the regression with Melancholy as dependent variable, the coefficients of Financial Worry are large, positive and significant, whereas those of Unemp and their interaction terms are not significant. Therefore, Financial Worry itself results in melancholy.

In the summary table XII, REPLICATE test illustrates that most of the explanation itself cannot explain all the utility loss from unemployment. PROPOSE test demonstrates that, after financial worry is accounted for, the coefficient of unemployment becomes insignificant for all regressions. Moreover, in all regressions the negative effects of Financial Worry are no less than the explanatory variables. CAUSE test finds that in most regressions, unemployment itself has no explanatory power of the explanatory variable change. Instead, most of the changes are caused by worry about financial situation.

Moreover, those psychological explanations suffer from *AD HOC* issue. As such, the explanation of pecuniary cost is the root cause since it not only solves the LESS POWER and *AD HOC* issues, but also is compatible with those psychological variables. For example, if a person worries about his financial situation, surely it causes melancholy.

Stigma

Most of the previously reviewed factors are compatible with stigma effects. For example, if a person worries about whether he is able to financially support his family (financial worry and newly proposed social norm), and he expect such difficulty may be long lasting due to bad job prospects (expectation), this concern surely results in stigma effects. Moreover, the destructive psychological well-being (e.g., more melancholy), caused by unemployment, may be symbiotic with stigma effects. So that stigma effects are compatible with financial worry. Finally, the stigma effects itself suffers from *AD HOC* issue. In sum, the pecuniary cost as an explanation is more suitable.

Work as utility

Traditionally, work has been regarded as a burden. (For example, Spencer 2009 provides a survey.) But, due to the paradox of why those unemployed are so unhappy and the notion of work satisfaction, various papers propose to regard work as a source of utility (e.g., Lane 1992, and Spencer 2014). The work satisfaction, for example in GSOEP, comes from the question: how satisfied are you today with your job? The respondent is only able to choose the answer from 0 to 10. Most of the answers are positive. However, this question is essentially different with the question: do you obtain utility or disutility from your job? We cannot treat the positive answer as a positive marginal utility of working hours. Moreover, work as utility cannot explain why reduced working hours increases SWB (For example, Hamermesh, Kawaguchi, and Lee 2014, and Golden and Wiens-Tuers 2006) and why this paper finds the negative marginal utility of working hours. In sum, work understood as utility is less likely to hold as an explanation.

Diminishing return to income

A potential explanation why the coefficient of Unemp is large and negative in traditional approach is the diminishing return to income. For example, in $u(c, l) = c^\alpha l^\beta$, where $0 < \alpha < 1$ and $0 < \beta < 1$, utility decrease from \$2000 consumption loss is more than $2000 \times MU$, where

MU is the marginal utility of the 2000th dollar. The coefficient of unemployment is still negative even after we control the \$2000 in regression. However, this explanation and traditional utility function cannot explain why in this paper the marginal utility of working hours for those unemployed is positive. So this explanation has less explanatory power.

Other factors

There are still several factors related to the SWB of those unemployed, but which are verified as unable to explain the negative effects. First, Clark et al. (2008) find that individuals adapt to various life events such as marriage, but there is no adaptation to unemployment. This paper also provides explanation: the existence of substantial fixed cost of living makes adapting to unemployment impossible. Second, Wulfgramm (2014) finds that labor market policy is unable to explain the negative effect of unemployment but can nonetheless moderate this effect: generous unemployment benefits make SWB decrease less. This paper confirms the pecuniary mechanism of this moderation effects. Third, the effects of unemployment duration on SWB change is ambiguous (e.g., Clark 2006), but the duration itself is not the cause of large SWB decrease of unemployment.

Brief summary

In this subsection, most factors correlating with SWB changes in unemployment are reviewed. They can be categorized into three groups. First, there are those with innate deficiency and limited explanatory power but that can be modified to be compatible with the proposed theory of this paper. This group includes only one factor: social work norm. This paper proposes to modify the traditional work norm to the norm that an individual should be able to support his/her own life and his/her family. Second, there are those with limited explanatory power while compatible with the proposed theory of this paper. This group includes expectation, most psychology effects, stigma, and diminishing return to income. Third, there are those found unable to explain the SWB decrease associated with unemployment, but which may moderate the negative effects. This group includes social capital, structured day, other psychology effects, work as utility, adaptation, labor market policy, and unemployment duration.

According to the above findings, together with the evidence that financial worry itself is able to explain the SWB loss, I conclude that the negative effects of unemployment are due to pecuniary cost and that the fixed cost of living is the root cause.

In fact, Maslow's (1943) hierarchy of needs theory itself implies the costs are pecuniary. According to Maslow's theory, individuals satisfy the more prepotent one first (not necessarily 100%) before a less prepotent one emerges. Thus, when people are unable to satisfy their fixed cost of living, they pay less attention to the higher level needs such as self-esteem or social capital. The psychological effects (e.g., melancholy, depression, etc.) are caused by the worry that how to satisfy this basic living standard; i.e., by pecuniary costs.

V. Conclusion

This paper proposes the theory of fixed cost of living and a corresponding utility function $u(c, l) = (c^\alpha - F^\alpha)l^\beta$ to explain various paradoxes examined in happiness literature. According to this theory, the SWB decrease is due to pecuniary cost, work is a burden for those employed while is not for those unemployed, and generally any job is better than no job. Three testable hypotheses are identified and verified. (1) Most, or even all, of the happiness decrease is due to pecuniary cost. (2) There exists an F in the utility function. (3) The marginal utility of leisure is positive for those employed, while negative for those unemployed. Finally, a critical review is provided to verify the proposed theory and pecuniary cost are root causes why the unemployed are so unhappy.

This paper provides empirical support to Luo (2015). Luo uses the same theory and utility function to explain various paradoxes in the literature of in-work benefit, labor supply and optimal labor income taxation. His paper is based on the hypothesis that F is substantial (because EITC does not result in reduced labor supply), but because of the limitations of his dataset he cannot formally estimate the value of F .

This paper and Luo (2015) analyze the labor supply and happiness of those with low incomes and show that they may not always balance leisure and consumption. This finding has some implications for those policies correlated with low income earners. For example, this paper implies that the government creating jobs for those unemployed (such as "New Deal" in Roosevelt administration) is better than providing unemployment benefits, in the sense that it increases welfare (the income from salary has more positive effects than that from benefits). This income is actually analogue to in-work benefits.

Finally, it is worth noting that this paper and Luo (2015) use only limited properties of the proposed utility function. Some other properties, such as the formation of F and how F 's evolution affects consumption and saving, are left for future research.

Appendix

This Appendix contains detailed definitions of variables.

Happiness: answer to the question: "In conclusion, we would like to ask you about your satisfaction with your life in general. Please answer on a scale from 0 to 10, where 0 means completely dissatisfied and 10 means completely satisfied. How satisfied are you with your life, all things considered?"

Emp: individuals whose employment status is "employed".

Unemp: individuals whose employment status is "unemployed". They formally registered in the official unemployment register.

NLF: those whose employment status is neither "employed" nor "unemployed".

Total Household Income: net monthly income, which means income after deductions for taxes and social security. It includes regular income such as pensions, housing allowances, child benefits, grants for higher education, maintenance payments, etc.

Individual Labor Income: net monthly income, which means income after deduction of taxes, social security, and unemployment and health insurance.

Other Household Income: equals to Total Household Income minus Individual Labor Income.

Weekly Working Hours: general working hours per week including any overtime.

Married: dummy variable, equals 1 if a person is married, and 0 otherwise.

Disability: dummy variable, equals 1 if a person is disabled and 0 otherwise.

Financial Worry: category variable. "How concerned are you about your own economic situation?" [1] Not Concerned At All, [2] Somewhat Concerned, [3] Very Concerned.

Overnight Hospital Stay: dummy variable, equals 1 if a person has overnight hospital stay, and 0 otherwise.

Important Career: category variable. "How important is a successful career for your satisfaction?" [1] Very Unimportant, [2] Less Important, [3] Important, [4] Very Important.

Social Gather: category variable. "How often do you meet with friends, relatives or neighbors?" [1] At least once a week, [2] At least once a month, [3] Less often, [4] Never.

Job Prospect: category variable. "If you were currently looking for a new job, would it be easy, difficult, or almost impossible to find an appropriate position?" [1] Easy, [2] Difficult, [3] Almost Impossible.

Melancholy: category variable and available for 6 years. "During the last four weeks, how often did you feel down and gloomy?" [1] Never, [2] Almost never, [3] Sometimes, [4] Often, [5] Always.

Well-balanced: category variable and available for 6 years. "During the last four weeks, how often did you feel calm and relaxed?" [1] Always, [2] Often, [3] Sometimes, [4] Almost never, [5] Never.

Worried: category variable and available for 6 years. “In the last four weeks, how often have you felt worried?” [1] Very rarely, [2] Rarely, [3] Sometimes, [4] Often, [5] Very often.

Sad: category variable and available for 6 years. “In the last four weeks, how often have you felt sad?” [1] Very rarely, [2] Rarely, [3] Sometimes, [4] Often, [5] Very often.

Afford: category variable and available for 6 years. “How important is it to you that you are able to afford things for yourself?” [1] Unimportant, [2] Less Important, [3] Important, [4] Very Important.

Fulfil (one’s potential): category variable and available for 6 years. “How important is it to you that being personally fulfilled?” [1] Unimportant, [2] Less Important, [3] Important, [4] Very Important.

Confidence (about future): category variable and available for 8 years. “To what extent does the following statement apply to you? When I think about the future, I’m actually quite optimistic.” [1] Applies Completely, [2] Probably Applies, [3] Applies Slightly Less, [4] Does Not Apply.

Not able (to cope with things): category variable and available for 8 years. “To what extent does the following statement apply to you? Things have become so complicated that I almost can’t manage anymore.” [1] Does Not Apply, [2] Slightly Less, [3] Applies Probably Applies, [4] Applies Completely.

Control (over own life): category variable and available for 3 years. “The following statement indicates different attitudes towards life and the future. Please say whether you personally agree with each. I can pretty much decide what happen in my life.” [1] Agree Completely, [2] Agree Slightly, [3] Disagree Slightly, [4] Does Not Apply.

Success plan: category variable and available for 3 years. “The following statement indicates different attitudes towards life and the future. Please say whether you personally agree with each. When I forge plans, I am certain that they will become reality.” [1] Agree Completely, [2] Agree Slightly, [3] Disagree Slightly, [4] Does Not Apply.

Unforeseen (things happen): category variable and available for 3 years. “The following statement indicates different attitudes towards life and the future. Please say whether you personally agree with each. It makes little sense to pursue clearly defined goals, because something unexpected always intervenes.” [1] Does Not Apply, [2] Disagree Slightly, [3] Agree Slightly, [4] Agree Completely.

Different (outcomes): category variable and available for 3 years. “The following statement indicates different attitudes towards life and the future. Please say whether you personally agree with each. It is always different than you think; you can rely on nothing.” [1] Does Not Apply, [2] Disagree Slightly, [3] Agree Slightly, [4] Agree Completely.

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Table I. Summary Statistics

group	(1) All	(2) Emp	(3) Unemp	(4) NLF
Life Satisfaction	7.10	7.28	5.66	6.78
Individual Labor Income	1540	1963	0	40
Other Household Income	1219	947	1769	2377
Weekly Working Hours	33.1	42.3	0	0.1
Age	42	41	43	47
Married	67%	69%	60%	56%
Disability	11%	6%	15%	32%
How concerned are you about your own economic situation?				
Somewhat concerned	49%	51%	33%	44%
Very concerned	20%	17%	58%	23%
Observation	97519	76197	6512	14810

All income is monthly income, in 2006 real EURO. GSEOP wave 1984 to 2012. Males of

West Germany only. Age 21 to 64, inclusively.

Table II. SWB and Financial Worry

Δ SWB after unemployment	Percent	Financial Worry		
		Not concerned	Somewhat concerned	Very concerned
Decrease	54%	5%	28%	68%
No change or increase	46%	14%	44%	43%

Panel (A) Δ SWB and Financial Worry

Δ SWB after unemployment	Percent	Δ Worry		
		Less concerned	Same level concerned	More concerned
Decrease	54%	7%	49%	45%
No change or increase	46%	17%	56%	27%

Panel (B) Δ SWB and Δ Worry

Table III. SWB decrease and pecuniary cost

Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Happiness OLS	Happiness Ordered logit	Happiness OLS	Happiness Ordered logit	Happiness OLS	Happiness OLS	Worry OLS	Worry Ordered logit
Unemployment	-0.855*** (.0435)	-0.990*** (.0612)	-0.128 (.0802)	-0.337*** (.13)	-0.229** (.0925)	-0.109 (.0851)	0.295*** (.0146)	1.107*** (.0643)
Not in labor force	-0.215*** (.035)	-0.246*** (.0568)	-0.0183 (.0411)	-0.0809 (.0722)	0.0822* (.0432)	-0.0176 (.0421)	0.0364*** (.0131)	0.0843 (.0584)
Financial Worry (=2)			-0.350*** (.0139)	-0.637*** (.0247)	-0.645*** (.018)	-0.348*** (.0143)		
Financial Worry (=3)			-0.839*** (.0245)	-1.319*** (.0363)	-1.401*** (.0326)	-0.841*** (.0249)		
Unemployment × Financial Worry (=2)			-0.307*** (.0837)	-0.210 (.132)	-0.390*** (.0979)	-0.337*** (.0887)		
Unemployment × Financial Worry (=3)			-0.860*** (.089)	-0.700*** (.136)	-1.049*** (.103)	-0.879*** (.0938)		
Not in labor force × Financial Worry (=2)			-0.0844** (.0355)	-0.0440 (.0592)	-0.203*** (.0417)	-0.0878** (.0361)		
Not in labor force × Financial Worry (=3)			-0.432*** (.0548)	-0.358*** (.0766)	-0.767*** (.0665)	-0.424*** (.0565)		
Control X_{it}	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effects	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Observations	97519	342486	97519	342486	97519	91644	97519	119600

Standard errors in parentheses (* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$). Standard errors are clustered at individual level. Demographic variable X_{it} includes Individual Labor Income, Other Household Income, Married, Disability, age square, year dummies, state dummies, and 7 dummy variables categorizing the number of household members aged 0-1, 2-4, 5-7, 8-10, 11-12, 13-15, and 16-18 years. Specification (6) includes health status dummy.

Table IV. Estimation of fixed cost of living

Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)
	Happiness	Happiness	Happiness	Happiness	Happiness	Happiness
	OLS	OLS	OLS	OLS	Ordered logit	OLS
Individual Labor Income \times Leisure/100000	0.655 ^{***} (.0584)	0.640 ^{***} (.0604)	0.686 ^{***} (.0634)	1.704 ^{***} (.356)	2.547 ^{***} (.528)	1.027 ^{***} (.235)
Other Household Income \times Leisure/100000	0.115 ^{***} (.0396)	-0.0569 ^{**} (.029)	0.116 ^{***} (.0417)	0.0729 (.101)	0.0717 (.142)	0.0899 (.0819)
Median Labor Income \times Leisure/100000	-0.652 ^{***} (.085)		-0.643 ^{***} (.0864)	-0.884 ^{***} (.244)	-1.155 ^{***} (.311)	-0.680 ^{***} (.194)
Median Other Income \times Leisure/100000	-0.397 ^{***} (.115)		-0.390 ^{***} (.114)	-0.518 (.37)	-0.608 (.484)	-0.355 (.282)
Previous Labor Income \times Leisure/100000		-0.339 ^{***} (.0413)	-0.0473 (.0438)			
Previous Other Income \times Leisure/100000		-0.167 ^{***} (.0302)	0.00462 (.0234)			
Control X_{it}	Yes	Yes	Yes	Yes	Yes	Yes
Observations	74576	74576	74576	4062	9971	4062
Calculated F	2207	1138	2177	1095		1356

Standard errors in parentheses (* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$). Standard errors are clustered at individual level. All regression includes demographic variable X_{it} (except incomes). All regressions are fixed effects. Specifications (4) to (6) include those transit between employ and unemployment. Specifications (1) to (5) use total hour $T=50$. Specification (6) uses total hour $T=70$.

Table V. Marginal utility

Dependent Variable	(1)	(2)
	Happiness	Happiness
	OLS	Ordered logit
Working hours	-0.00225** (.0011)	-0.00435** (.00184)
Working hours \times I	0.0184*** (.00159)	0.0229*** (.00244)
Individual Labor Income	0.000164*** (.0000169)	0.000296*** (.0000337)
Other Household Income	0.0000345*** (9.23e-06)	0.0000608** (.0000177)
Observations	71548	238517

Standard errors in parentheses (* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$). Standard errors are clustered at individual level. All regression includes demographic variable X_{it} . All regressions are fixed effects. The sample includes the treatment group (those transit between employ and unemployment) and the control (those remain employed). Dummy variable I equals 1 for the treatment, and 0 for the control group.

Table VI. Social Norm

Dependent Variable	(1)	(2)	(3)	(4)	(5)
	Happiness	Happiness	Happiness	Happiness	Important Career
	OLS	OLS	OLS	OLS	OLS
Unemployment	-0.869*** (.122)	-0.117 (.128)	-0.417 (.388)	-0.177 (.488)	-0.0450 (.149)
Financial Worry (=2)		-0.349*** (.0139)		-0.279*** (.0524)	0.00816 (.0244)
Financial Worry (=3)		-0.837*** (.0245)		-0.658*** (.0852)	0.0806** (.0369)
Unemp × Financial Worry (=2)		-0.308*** (.0837)		0.147 (.333)	0.0856 (.154)
Unemp × Financial Worry (=3)		-0.863*** (.089)		-0.591 (.365)	0.0393 (.155)
Unemp Rate	-0.0301** (.0121)	-0.0246** (.0116)			
Unemp × Unemp Rate	0.00169 (.0124)	-0.000881 (.0113)			
Important Career (=2)			-0.237 (.23)	-0.280 (.228)	
Important Career (=3)			-0.193 (.235)	-0.216 (.233)	
Important Career (=4)			-0.0766 (.24)	-0.0881 (.238)	
Unemp × Important Career (=2)			-0.0973 (.39)	0.0456 (.385)	
Unemp × Important Career (=3)			-0.238 (.389)	-0.129 (.379)	
Unemp × Important Career (=4)			-0.894** (.439)	-0.751* (.431)	
Observations	97519	97519	8609	8609	8609

Standard errors in parentheses (* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$). Standard errors are clustered at individual level. All regression includes demographic variable X_{it} . All regressions are fixed effects. Specifications (1) and (2) use state unemployment rate as a proxy of social work norm, while (3) to (5) use individual's opinion whether successful career is important for satisfaction.

Table VII. Social Capital

Dependent Variable	(1)	(2)	(3)
	Happiness	Happiness	Gather
	OLS	OLS	OLS
Unemployment	-0.924 ^{***} (.0783)	-0.112 (.131)	0.0156 (.0607)
Financial Worry (=2)		-0.362 ^{***} (.0219)	0.0214 ^{**} (.0107)
Financial Worry (=3)		-0.888 ^{***} (.0364)	0.0580 ^{***} (.016)
Unemp × Financial Worry (=2)		-0.428 ^{***} (.131)	-0.0252 (.0624)
Unemp × Financial Worry (=3)		-0.886 ^{***} (.136)	-0.0224 (.0631)
Gather (=2)	-0.106 ^{***} (.0214)	-0.0927 ^{***} (.0209)	
Gather (=3)	-0.321 ^{***} (.033)	-0.289 ^{***} (.0321)	
Gather (=4)	-0.378 ^{***} (.101)	-0.343 ^{***} (.0976)	
Unemp × Gather (=2)	0.120 (.0973)	0.0777 (.0944)	
Unemp × Gather (=3)	0.0521 (.12)	0.0488 (.116)	
Unemp × Gather (=4)	0.112 (.241)	0.0181 (.239)	
Observations	41675	41675	41675

Standard errors in parentheses (* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$). Standard errors are clustered at individual level. All regression includes demographic variable X_{it} . All regressions are fixed effects.

Table VIII. Expectation

Dependent Variable	(1)	(2)	(3)
	Happines	Happines	Job
	s	s	Prospect
	OLS	OLS	OLS
Unemployment	-0.0159 (.178)	-0.0227 (.215)	0.109** (.0439)
Financial Worry (=2)		-0.359*** (.0625)	0.0740** (.0287)
Financial Worry (=3)		-1.054*** (.147)	0.0738** (.0374)
Unemp × Financial Worry (=2)		0.0889 (.149)	-0.0620 (.0435)
Unemp × Financial Worry (=3)		---	---
Job Prospect (=2)	-0.640*** (.17)	-0.491*** (.164)	
Job Prospect (=3)	-0.538*** (.0964)	-0.459*** (.0943)	
Unemp × Job Prospect (=2)	---	---	
Unemp × Job Prospect (=3)	-0.147 (.194)	-0.0590 (.19)	
Observations	11033	11033	11033

Standard errors in parentheses (* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$). Standard errors are clustered at individual level. All regression includes demographic variable X_{it} . All regressions are fixed effects.

Table IX. Psychological: worry, anxiety, and depression

Explanation variable	Melancholy			Well-balanced			Worried			Sad		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Dependent Variable	Happiness	Happiness	Melancho	Happiness	Happiness	Well-	Happiness	Happiness	Worried	Happiness	Happiness	Sad
Unemployment	-0.635*** (.132)	-0.363 (.236)	0.190 (.143)	-0.725*** (.194)	-0.362 (.274)	0.139 (.12)	-0.668*** (.111)	-0.119 (.282)	0.100 (.121)	-0.380** (.153)	0.103 (.279)	0.197 (.13)
Financial Worry (=2)		-0.202*** (.0277)	0.203*** (.0201)		-0.231*** (.0282)	0.110*** (.0185)		-0.214*** (.0277)	0.107*** (.0175)		-0.218*** (.0271)	0.101*** (.0205)
Financial Worry (=3)		-0.594*** (.0474)	0.412*** (.0291)		-0.664*** (.0484)	0.218*** (.0282)		-0.529*** (.0473)	0.251*** (.0284)		-0.525*** (.046)	0.276*** (.0319)
Unemp × Financial Worry (=2)		-0.00975 (.229)	0.0766 (.156)		-0.0555 (.235)	-0.117 (.131)		-0.484* (.28)	-0.0159 (.122)		-0.399 (.277)	0.0950 (.137)
Unemp × Financial Worry (=3)		-0.300 (.236)	-0.00974 (.145)		-0.317 (.24)	-0.108 (.126)		-0.555* (.288)	-0.0162 (.124)		-0.502* (.286)	0.0170 (.138)
Exp (=2)	-0.203*** (.0281)	-0.172*** (.028)		-0.196*** (.0527)	-0.171*** (.052)		-0.231*** (.0259)	-0.216*** (.0256)		-0.145*** (.0249)	-0.137*** (.0246)	
Exp (=3)	-0.550*** (.0342)	-0.492*** (.0338)		-0.505*** (.0567)	-0.459*** (.0559)		-0.511*** (.0447)	-0.478*** (.0441)		-0.423*** (.0337)	-0.399*** (.0333)	
Exp (=4)	-1.212*** (.0575)	-1.127*** (.0564)		-0.923*** (.0672)	-0.864*** (.0657)		-1.016*** (.09)	-0.964*** (.0883)		-0.963*** (.0641)	-0.909*** (.0635)	
Exp (=5)	-2.064*** (.224)	-1.964*** (.22)		-1.080*** (.144)	-0.998*** (.142)		-1.860*** (.203)	-1.777*** (.206)		-1.680*** (.182)	-1.626*** (.18)	
Unemp × Exp (=2)	-0.00470 (.171)	0.00891 (.168)		0.116 (.205)	0.0606 (.199)		0.168 (.137)	0.136 (.133)		-0.274* (.16)	-0.275* (.16)	
Unemp × Exp (=3)	0.115 (.15)	0.108 (.146)		0.00743 (.212)	-0.0514 (.21)		0.111 (.17)	0.134 (.168)		-0.234 (.167)	-0.229 (.169)	
Unemp × Exp (=4)	-0.00371 (.182)	0.0191 (.181)		-0.175 (.244)	-0.201 (.241)		-0.185 (.267)	-0.208 (.262)		-0.252 (.216)	-0.268 (.218)	
Unemp × Exp (=5)	-0.873** (.431)	-0.848* (.433)		0.0862 (.408)	0.00326 (.401)		-0.0530 (.48)	-0.140 (.495)		-0.336 (.446)	-0.303 (.456)	
Observations	22393	22393	22393	22382	22382	22382	19942	19942	19942	19950	19950	19950

Standard errors in parentheses (* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$). Standard errors are clustered at individual level. All regression includes demographic variable X_{it} . All regressions are fixed effects.

Table X. Psychological: self-esteem and alienation

<i>Explanation variable</i>	<i>Afford</i>			<i>Fulfil</i>			<i>Confidence</i>			<i>Not able</i>		
<i>Dependent Variable</i>	(1) Happiness	(2) Happiness	(3) Afford	(4) Happiness	(5) Happiness	(6) Fulfil	(7) Happiness	(8) Happiness	(9) Confidenc	(10) Happiness	(11) Happiness	(12) Not able
Unemployment	-0.284 (.647)	0.118 (.682)	-0.152* (.0809)	-1.055** (.437)	-0.613 (.448)	-0.0632 (.0969)	-0.460** (.212)	-0.254 (.229)	0.0316 (.0993)	-0.537*** (.106)	-0.159 (.171)	0.00797 (.0781)
Financial Worry (=2)		-0.303*** (.0356)	-0.00128 (.0146)		-0.299*** (.0356)	-0.0255 (.018)		-0.295*** (.0339)	0.171*** (.0191)		-0.331*** (.0343)	-0.0203 (.0174)
Financial Worry (=3)		-0.858*** (.0641)	0.0551** (.0223)		-0.855*** (.0642)	0.0502* (.0274)		-0.769*** (.0595)	0.369*** (.0318)		-0.858*** (.0604)	0.00997 (.0261)
Unemp × Financial Worry (=2)		-0.206 (.203)	0.156* (.089)		-0.269 (.202)	0.134 (.106)		-0.0800 (.163)	0.000518 (.102)		-0.111 (.172)	-0.0170 (.0788)
Unemp × Financial Worry (=3)		-0.561*** (.215)	0.0955 (.0899)		-0.638*** (.21)	-0.00487 (.106)		-0.343* (.185)	0.269** (.108)		-0.498** (.195)	-0.0800 (.0844)
Exp (=2)	0.169 (.261)	0.133 (.253)		0.0502 (.145)	0.0527 (.14)		-0.214*** (.042)	-0.193*** (.0414)		-0.101 (.0714)	-0.0928 (.0698)	
Exp (=3)	0.156 (.261)	0.125 (.254)		0.145 (.148)	0.144 (.142)		-0.544*** (.0516)	-0.464*** (.0512)		0.0479 (.0594)	0.0429 (.0585)	
Exp (=4)	0.209 (.264)	0.186 (.257)		0.248 (.156)	0.265* (.15)		-0.917*** (.0937)	-0.799*** (.0929)		0.0888 (.0727)	0.0878 (.071)	
Unemp × Exp (=2)	-0.237 (.654)	-0.190 (.66)		0.532 (.435)	0.621 (.422)		0.0935 (.214)	0.105 (.21)		0.0436 (.22)	0.0312 (.207)	
Unemp × Exp (=3)	-0.257 (.655)	-0.190 (.661)		0.504 (.454)	0.640 (.435)		-0.0253 (.235)	0.0745 (.229)		0.00373 (.2)	0.0225 (.198)	
Unemp × Exp (=4)	-0.810 (.672)	-0.674 (.678)		0.0515 (.48)	0.0967 (.46)		-0.415 (.296)	-0.242 (.291)		-0.532* (.283)	-0.500* (.274)	
Observations	16935	16935	16935	16884	16884	16884	16674	16674	16674	16635	16635	16635

Standard errors in parentheses (* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$). Standard errors are clustered at individual level. All regression includes demographic variable X_{it} . All regressions are fixed effects.

Table XI. Psychological: control

Explanation variable	Control			Success plan			Unforeseen			Different		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Dependent Variable	Happiness	Happiness	Control	Happiness	Happiness	Success	Happiness	Happiness	Unforese	Happiness	Happiness	Different
Unemployment	-0.184 (.205)	0.303 (.304)	-0.154 (.151)	-0.786** (.365)	-0.290 (.382)	-0.249 (.161)	-0.299 (.288)	0.267 (.341)	-0.0603 (.156)	-0.693*** (.253)	-0.197 (.312)	-0.338* (.205)
Financial Worry (=2)		-0.308*** (.0546)	0.0435 (.0268)		-0.316*** (.0547)	-0.00540 (.0276)		-0.306*** (.0548)	0.0724** (.0345)		-0.314*** (.0548)	0.0211 (.0334)
Financial Worry (=3)		-0.639*** (.0968)	0.0490 (.0427)		-0.629*** (.0991)	0.0410 (.0427)		-0.626*** (.0993)	0.149*** (.0545)		-0.639*** (.0996)	0.146*** (.0527)
Unemp × Financial Worry (=2)		-0.0790 (.267)	0.220 (.146)		-0.126 (.255)	0.289* (.157)		-0.170 (.263)	0.0685 (.153)		-0.205 (.272)	0.251 (.193)
Unemp × Financial Worry (=3)		-0.875*** (.312)	0.251 (.166)		-0.948*** (.303)	0.397** (.17)		-1.005*** (.312)	0.0666 (.174)		-1.063*** (.317)	0.266 (.21)
Exp (=2)	-0.0882* (.052)	-0.0760 (.0507)		-0.151** (.0708)	-0.145** (.0697)		-0.0598 (.0572)	-0.0531 (.0562)		-0.0421 (.0559)	-0.0220 (.0554)	
Exp (=3)	-0.394*** (.0951)	-0.364*** (.0925)		-0.371*** (.0865)	-0.352*** (.085)		-0.140* (.0734)	-0.110 (.0721)		-0.148* (.0799)	-0.124 (.0793)	
Exp (=4)	-0.827*** (.247)	-0.824*** (.256)		-0.313** (.154)	-0.303** (.154)		-0.267** (.12)	-0.245** (.12)		-0.273** (.122)	-0.221* (.122)	
Unemp × Exp (=2)	-0.359 (.233)	-0.318 (.233)		0.410 (.383)	0.458 (.374)		-0.226 (.313)	-0.238 (.309)		0.225 (.273)	0.439* (.257)	
Unemp × Exp (=3)	-0.706** (.332)	-0.618* (.318)		0.319 (.406)	0.452 (.396)		-0.422 (.315)	-0.288 (.312)		0.255 (.3)	0.427 (.283)	
Unemp × Exp (=4)	0.169 (.575)	0.0873 (.536)		-0.151 (.6)	0.0349 (.579)		0.344 (.469)	0.477 (.464)		0.173 (.462)	0.494 (.432)	
Observations	7284	7284	7284	7273	7273	7273	7271	7271	7271	7268	7268	7268

Standard errors in parentheses (* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$). Standard errors are clustered at individual level. All regression includes demographic variable X_{it} . All regressions are fixed effects.

Table XII. Summary of psychological effects

Dependent Variable	Most observed value for unemployed	REPLICATE		PROPOSE		CAUSE
		Is coefficient of Unemp large, negative and significant?	Are the effects of EXP variable significant? If yes, they are smaller, similar or larger compared with Unemp?	Is coefficient of Unemp still large and significant?	Is the coefficient of EXP variable still significant? If yes, the effects are smaller, similar, or larger than effects of financial worry?	Which worsens EXP variable, unemployment, or worry about financial situation, or both, or interaction, or none?
Melancholy	3	Yes	Similar	No	Similar	Financial Worry
Well-balanced	2,3	Yes	Smaller	No	Similar	Financial Worry
Worried	1,2	Yes	Smaller	No	Smaller	Financial Worry
Sad	1,2,3	Yes	Larger	No	Similar	Financial Worry
Afford	3	Large, but insignificant	No	No	No	Both, in different direction
Fulfil	3	Yes	No	Large, but insignificant	No	None
Confidence	2,3	Yes	Similar	No	Smaller	Financial Worry
Not able	1	Yes	Very small	No	Very small	None
Control	2	No	Yes	No	Smaller	None
Success plan	2,3	Yes	Smaller	No	Smaller	Interaction
Unforeseen	2,3	Large, but insignificant	Small, but significant	No	No	Financial Worry
Different	2,3	Yes	Smaller	No	Smaller	Both, in different direction