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Why Are the Unemployed So Unhappy?

Evidence from Panel Data

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July 23, 2006

Abstract

This paper tests for the importance of non-pecuniary costs of unemployment using a longitudinal dataset on life-satisfaction of working age men in Germany. We show that unemployment has a large detrimental effect on satisfaction after individual specific fixed effects are controlled for. The non-pecuniary effect is much larger than the effect that stems from the associated loss of income.

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1 Introduction

The growing concern about the extent of joblessness in advanced Western economies is fueled by the perception that the social costs of unemployment substantially exceed the costs of an economy operating below its potential. Rather, it is suspected that unemployment imposes an additional burden on the individual, a burden that might be referred to as the non-pecuniary cost of unemployment. Those costs arise primarily since employment is not only a source of income but also a provider of social relationships, identity in society and individual self-esteem. Darity and Goldsmith (1996) provide a summary of the psychological literature on the link between loss of employment and reduced well-being.

Substantial efforts have been made in the past in order to quantify these non-pecuniary costs of unemployment (See Junankar, 1987, Björklund and Eriksson, 1995, and Darity and Goldsmith, 1996, for surveys of previous empirical studies). To begin with, one can think of costs directly in terms of decreased psychological well-being. Beyond that, decreased well-being may express itself through adverse individual outcomes such as increased mortality, suicide risk and crime rates or decreased marital stability. These possibilities have been explored by previous research. The general finding is that unemployment is associated with substantial negative non-pecuniary effects (For instance, Jensen and Smith, 1990, Junankar, 1991).

The case seems particularly strong for the direct negative association between unemployment and psychological well-being. For instance, Clark and Oswald (1994), using the first wave of the British Household Panel Survey, report estimates from ordered probit models in which a mental distress score is regressed on a set of individual characteristics, unemployment being one of them. They find that the effect of unemployment is both statistically significant and large: being unemployed increases mental distress by more than does impaired health. Other researchers have used different measures of psychological well-being and yet obtained the same basic result, a large, negative effect of unemployment on well-

being. Björklund (1985) and Korpi (1996) construct well-being indicators from symptoms of sleeplessness, stomach pain, depression, and the like, while Goldsmith et al. (1995, 1996) measure psychological well-being through responses that establish the individual's "locus of control". Closest to our study in terms of dependent variable is Blanchflower (1996) who studies the effect of unemployment on a life-satisfaction response in data from 23 countries.

However, Blanchflower (1996), as well as most other cited studies, are based on cross-section data and hence subject to the usual limitations associated with such data. Where panel data have been used, datasets were small and based on narrowly defined sub-populations (e.g. those aged 16 to 24 in Korpi (1996)). By presenting evidence from a large representative panel dataset we address two types of concerns typically associated with the use of cross-sectional data. Firstly, it is difficult to infer the direction of causation – does unemployment lead to low satisfaction, or is it the other way around? Assume, for instance, that inherently dissatisfied persons are more likely to be laid off. In a cross section study, this effect would be falsely interpreted as an effect of unemployment on satisfaction. Secondly, the presence of unobserved common determinants of satisfaction and unemployment may lead to a spurious correlation, or omitted variable bias. Health is one such factor that is commonly difficult to measure correctly. With repeated observations for the same individuals, it becomes possible to control for unobserved, but time invariant individual specific effects that are correlated with unemployment.

Our main result is that the detrimental effect of unemployment persists after individual specific fixed effects are accounted for. We also shed some light on the causality issue. While panel data do not always solve the problem of causation, we present various types of evidence suggesting that unemployment in fact causes dissatisfaction. Furthermore, the richness of our dataset allows us to explore two additional issues that have been hitherto largely neglected.

Firstly, we analyse the empirical content of the distinction between non-participation and unemployment. Labor economists typically acknowledge that the boundary between

unemployment and non-participation is not well defined. Added- and discouraged worker hypotheses have been invoked to capture the gray area between the two states. Flinn and Heckman (1983) answer the question "Are unemployment and out of the labor force behaviorally distinct labor force states?" in the affirmative. Our analysis largely confirms their conclusion.

Secondly, we decompose the cost of unemployment into direct (pecuniary) costs through reduced income and into indirect (non-pecuniary) costs through reduced well-being. Technically, this is achieved by estimating the effect of unemployment for a given income, *ceteris paribus*. We find that the pecuniary costs are small compared to the non-pecuniary costs.

The paper is organized as follows. In Section 2 we introduce the data from the *German Socio-Economic Panel* and discuss some modeling issues. Section 3 analyses basic patterns of satisfaction and labor force status. Formal fixed effects regression models for satisfaction responses are introduced in Section 4, while Section 5 contains the results of our analysis.

2 The Data

Our empirical analysis of the determinants of individuals' psychological well-being is based on the response to the question

How satisfied are you at present with your life as a whole?

which is given on an ordinal scale from 0 to 10, where 0 means "completely dissatisfied" and 10 means "completely satisfied". A question of this type is frequently included in general purpose household surveys. Examples are the British Household Panel Survey (Buck et al. 1994) or the International Social Survey Programme (Blanchflower, 1996). Here, we use data for West Germany before re-unification drawn from the *German Socio-Economic Panel* (GSOEP, Wagner, Burkhauser and Behringer, 1993) in order to

- a) test whether unemployed individuals are satisfied or dissatisfied relative to individuals out of the labor force and employed individuals, and

- b) establish the size of the non-pecuniary costs of unemployment relative to the pecuniary costs.

While such subjective variables (that measure what people say rather than what they do) have been usually treated with suspicion by economists, they have been used occasionally in the past. Freeman (1978) and Akerlof, Rose and Yellen (1988) are examples for studies using job satisfaction while Easterlin (1974, 1995) and Blanchflower (1996) are examples for studies based on life satisfaction responses. The measurement issues are the same for job and life satisfaction. A particular concern is that individuals “anchor” their scale at different levels, rendering inter-personal comparisons of responses meaningless. This problem bears close resemblance to the issue of cardinal versus ordinal utility. Any statistic that is calculated from a cross-section of individuals, like for instance an average satisfaction, requires cardinality of the measurement scale.

It is clear that, from a statistical perspective, this problem is closely related to the problem of unobserved individual specific effects. Hence, anchoring cause the estimator to be biased as long as it is not random but correlated with explanatory variables. Panel data help if the metric used by individuals is time invariant. The important benefit of panel data is that such data allow to make inferences based on *intra-* rather than *inter-*personal comparisons of satisfaction. Of course, the limitation to intra-individual variation not only deals with potential distortions caused by anchoring, but also with the effects of other unobserved individual specific factors.

The data we use come from the first six (1984-1990) waves of the GSOEP and provide repeated measurements on satisfaction as well as various socio-economic and demographic characteristics for a pool of (initially) about 10.000 individuals. The information on satisfaction and labor market status refers to the time of the survey. In contrast to standard international practice, unemployment is not defined by a search criterion but rather by registration in the official unemployment register. The survey contains some limited recall

information on events that occurred between interview periods. For instance, individuals fill out a monthly calendar on labor force status. This calendar information can be used to construct the length of the current unemployment episode for those who are unemployed¹. Moreover, individuals who terminated an employment contract during the past year are asked for the reasons of termination. We use these responses to construct an index of voluntary and involuntary unemployment.

The analysis is for a sample of male individuals aged 20 to 64 at the time of the interview. We exclude women from the analysis since we expect significant differences in the ways in which labor market events affect female satisfaction, and a detailed analysis of those is beyond the scope of this paper². After deleting records with missing values, we obtain a sample with a total of 20944 observations. We do not require a balanced panel and hence allow the number of individuals to vary from year to year. The number of individuals in a given year is determined by two factors. Firstly, the age limitations will result in young individuals entering the sample once they become 20 and in old individuals leaving once they turn 64. Secondly, general panel attrition reduces the number of respondents over time. Not surprisingly, the second effect dominates the first and, as a consequence, the sample size decreases from 4183 persons in 1984 to 3080 persons in 1989. We are not too worried about this attrition, since all regressions are based on unbalanced panel designs. Moreover, we find that the sample composition in terms of labor market status, health, and other socio-demographic characteristics hardly changes over time. To be on the safe side, we report results from a separate analysis of a subsample that uses the first three years only and faces a lesser attrition problem.

¹No direct information on the spell length is available.

²Clark and Oswald (1994) report higher mental distress scores for women, while Blanchflower (1996) reports higher satisfaction levels.

3 Satisfaction and Labor Force Status

We start with an analysis of some simple descriptive statistics. Figure 1 displays the relative frequencies of the answers to the satisfaction question for the year 1984. The frequency distribution is skewed to the right with a mean response of 7.4 and a modal response of 8. The middle response 5 exhibits a local mode, which might reflect a focal choice for those individuals who perceive themselves as neither particularly satisfied nor particularly dissatisfied. Accordingly, we classify individuals with responses 4 or below as having “low” satisfaction, or being “dissatisfied”. The proportion of individuals with low satisfaction in the 1984 wave is 7.4 percent. The first row of Table 1 shows that average satisfaction slightly drops (from 7.4 to 7.1) during the six year period 1984-1989, while the proportion of individuals with low satisfaction shows no marked trend.

To approach the question of how changes in individual satisfaction are related to labor market status, Table 1 gives the mean satisfaction and the proportion of individuals with low satisfaction by current labor market status for a given year. Standard errors are in parentheses. The labor force states are *employment* (which includes full-time and part-time employment and excludes self-employment), *unemployment*, and *out of labor force*. The following pattern emerges: *employment* is associated with the highest (though falling) average satisfaction levels in all the years. On a scale from 0 to 10, the satisfaction of individuals out of the labor force is roughly half a unit below that of the employed. The difference is statistically significant. *Unemployed* have a satisfaction that is between 1.5 and 2 points below the typical satisfaction level of an employed. This effect is highly significant and large.

Comparing the percentage of individuals with low satisfaction for the various labor market states, we find that between 5 and 6 percent of the employed, 11 and 18 percent of the non-participants, and 23 and 35 percent of the unemployed report a low satisfaction. In other words, a randomly selected jobless person is much more likely to have a low

satisfaction than a randomly selected employed individual. This effect is pronounced for the non-participant, but much stronger for the unemployed. The overall evidence suggests that

- a) a persistent satisfaction gap for the unemployed exists, confirming the results from previous research using different data sources, and
- b) it is “joblessness” that matters, not only unemployment. However, the adverse effect of unemployment is much stronger than the effect of non participation.

Next, we consider the argument that unemployed individuals are inherently dissatisfied. We provide two types of evidence. Firstly, we report in Table 1 the satisfaction levels for the subset of individuals that are currently employed but were unemployed in at least one of the other years. Secondly, we crosstabulate in Table 2 changes in satisfaction with changes in employment status.

In Table 1 we find that employees with past unemployment experience have in fact a lower satisfaction than the average employee and hence might be intrinsically dissatisfied. Another explanation for their lower satisfaction is that these individuals have insecure jobs and that their satisfaction is reduced by fear of potential job-losses. Whatever the cause, the effect is small compared to the drop experienced by individuals who actually become unemployed. For instance, the average satisfaction of individuals who later becomes unemployed is 7.3 in 1984, as compared to an average satisfaction of 7.6 of all employed. The average satisfaction of the unemployed, however, is 5.6. As a preliminary conclusion, unemployed individuals are to some extent intrinsically dissatisfied but this effect small compared to the drop in satisfaction while actually unemployed.

Table 2 gives corroborating evidence. It shows by how much the average satisfaction responds to changes in labor force status. For instance, changing from paid employment to unemployment is associated with a drop in satisfaction by -1.19. Conversely, the satisfaction of those, who were unemployed in the last period and become re-employed increases by 1.12

- the effects are symmetric. They are also highly significant with standard errors of about 0.2 . This is further evidence against the hypothesis that unemployed individuals are those who were already dissatisfied.

As expected, a significant negative effect is also detected for the transition from employment to out of labor force. However, the effect is about half the size of the unemployment effect. Interestingly, status changes between unemployment and out of labor force lead to insignificant changes in satisfaction, although the point estimates indicate a lower satisfaction for the unemployed. Finally, we notice that Table 2 records little variation in satisfaction for those who do not change their labor force status. This result indicates that individuals do not get used to their situation – the satisfaction of the unemployed does not improve as they stay unemployed for a second consecutive period.

While we find strong evidence that changes from employment to joblessness are associated with decreased satisfaction (for the same individual) we can still not be sure that this represents a causal relationship. It is a possibility that unemployment is endogenous and chosen by the individual. For instance, a worker may become dissatisfied with the job and hence decide to quit to unemployment. If this is true, satisfaction causes unemployment rather than the opposite.

To distinguish between the effects of exogenous and endogenous changes in unemployment, Table 3 presents two types of evidence. Firstly, we measure the effect of unemployment separately for different age groups. Our assumption is that unemployment is more likely to be endogenous for younger workers that have no established careers yet. Older workers, in contrast, are more likely to become unemployed through (exogenous) plant closures and layoffs. Secondly, we use information that is available for part of the unemployed to distinguish between voluntary and involuntary employment terminations³. We are mostly interested in determining whether or not the detrimental effect of unemploy-

³Respondents were classified as being unemployed involuntarily if they crossed one of the following possibilities: trouble with supervisor; business rationalization; bankruptcy.

ment persists for workers with exogenous unemployment, that is older workers and workers with involuntary terminations. Table 3 show that this is in fact the case. Both older and involuntarily unemployed experience substantial and significant reductions in satisfaction. Moreover, we cannot reject the hypothesis that the detrimental effect of unemployment is the same independently of age or reason for termination⁴. The results are consistent with the interpretation that unemployment can be treated as exogenous, and hence causal, for satisfaction.

In the following, we refine the analysis by distinguishing between two main channels through which unemployment may cause a decrease in satisfaction. Firstly, unemployment is associated with an income loss, the size of which depends on various factors such as previous income, family status, unemployment duration and the like. For Germany, estimates of this income loss range from 40 to 50 percent of the pre-unemployment income. Secondly, unemployment creates non-pecuniary costs since it deprives the individual of the social rewards of employment.

To assess the relative magnitude of these two potential channels, we turn to a multiple regression analysis, where we control for the pecuniary aspects using a measure of (the log of) household income that includes all types of government transfers and is net of taxes, that is, disposable income. Our main interest is to test whether or not there is a specific negative effect of unemployment on well-being after controlling for the associated income loss, other observed variables as well as unobserved fixed effects, and how this effect compares to the effect of non-participation.

⁴We would not expect to see a negative effect for the voluntarily unemployed. One possibility is that "voluntary" has turned into "involuntary" unemployment by the time of the interview.

4 Econometric Specification

Satisfaction is measured on an ordinal scale, and hence ordered probit or logit models would be the appropriate econometric techniques (Greene, 1993). Such models have been used in Clark and Oswald (1994) and in Blanchflower (1996). However, no ready formulation of the model is available for the fixed effects case. We propose to collapse the satisfaction variable into a satisfied/dissatisfied dichotomy. While the binary variable approach does not use the available information efficiently, it enables us to make use of a relatively well developed class of limited dependent variable panel models. Furthermore, it can be shown that the resulting binary logit estimator is consistent, a result that does not depend on the choice of the breaking point (Crouchley, 1995). In particular, we consider the following underlying latent model.

$$S_{it}^* = \alpha_i + x_{it}'\beta + \varepsilon_{it} \quad i = 1, \dots, N, t = 1, \dots, T \quad (1)$$

S_{it}^* is a continuous but unobserved index of satisfaction of individual i in period t . x_{it} is a vector of explanatory variables and α_i is an idiosyncratic fixed effect which accounts for inter-individual differences in scaling and anchoring of the responses, intrinsic differences in satisfaction, as well as unobserved explanatory variables, as long as these differences are constant over time. Rather than observing S_{it}^* we observe

$$S_{it} = \begin{cases} 1 & \text{if } S_{it}^* > 0 \\ 0 & \text{else} \end{cases} \quad (2)$$

For ε_{it} independently logistic

$$P(S_{it} = 1 | x_{it}, \alpha_i) = \frac{\exp(\alpha_i + x_{it}'\beta)}{1 + \exp(\alpha_i + x_{it}'\beta)} \quad (3)$$

Chamberlain (1980, 1984) shows that such a fixed effects logit model can be estimated by conditional maximum likelihood. In particular, the probability of a particular sequence (S_{i1}, \dots, S_{iT}) , conditional $s_i = \sum_{t=1}^T S_{it}$,

$$P(S_{i1}, \dots, S_{iT} | x_{i1}, \dots, x_{iT}, \alpha_i, s_i) = \frac{\prod_{t=1}^T \exp(x_{it}'\beta S_{it})}{\sum_{d \in D_i} \prod_{t=1}^T \exp(x_{it}'\beta d_t)}, \quad (4)$$

where D_i is the set of all possible combinations of s_i ones and $T - s_i$ zeros, is independent of α_i . In order to test for fixed individual effect one can perform a Hausman-type test based on the difference between the above conditional MLE and the usual logit MLE ignoring the individual effects (where the constant is dropped to compute the statistic). The test-statistic

$$H = (\hat{\beta}_{\text{CML}} - \hat{\beta}_{\text{ML}})'[\hat{V}_{\text{CML}} - \hat{V}_{\text{ML}}]^{-1}(\hat{\beta}_{\text{CML}} - \hat{\beta}_{\text{ML}}) \quad (5)$$

is asymptotically χ^2 distributed with k degrees of freedom⁵.

Explanatory Variables

The set of explanatory variables x includes a set of dummy variables indicating current labor market status (*unemployed, no participation*) with *employment* as reference category. We further control for good health condition (*good health*, defined as the absence of any chronic condition or handicap), *age* and *age squared*, and marital status (*married*).

Unemployment reduces income which in turn may reduce satisfaction. However, if income is included as a control variable, the unemployment coefficient in fact measures the specific (non-pecuniary) effect of unemployment *ceteris paribus*, that is, keeping income constant. It is not obvious what the right income measure would be. If individuals are not indifferent as to who earns income within the household, individual income might be more relevant than household income. Unfortunately, the GSOEP measures individual income as either wage income in the previous month or average total income in the previous year. Both measures are not suitable for the present analysis and hence we use household income which is total income at the time of the interview⁶.

⁵We did not pursue the alternative random effects specification that is available for the Probit model, since the required assumption of independence between the individual effect and the regressors is implausible in the current context.

⁶The exact question is: *If everything is taken together: How high is the total monthly income of all the household members at present? Please give the net monthly amount, in other words after the deduction of*

We further control for the length of the current unemployment spell (*duration*). The importance of the duration of unemployment on the mental state of the individual is well documented in the psychological literature. For instance, Harrison (1976) distinguishes the sequential stages of shock–optimism–pessimism–fatalism during a period of unemployment. On the other hand Easterlin (1974) suggests that individuals get used to everything in the long run, so that unemployment should hurt more in the short run. The overall direction of the effect is an empirical question⁷. To allow for potential non-linearities, we also included the squared unemployment duration (*duration squared*).

Finally, we consider age specific differences in the effect of labor force status on psychological well-being. Clark and Oswald (1994) find that there is a U-shaped relationship between the psychological damage of unemployment and age with a minimum mental well-being for those aged 30-49. They point out that young people may worry less about unemployment because they recognize that it happens more to people like them. Also, young people may perceive unemployment as a transitory experience associated with labor market entry. Technically, we report estimates for regressions with age-labor force interaction terms.

5 Results

Table 4 gives logit estimates for five different models. Model 1 is the standard logit regression for data that are pooled over time. Model 2 is the fixed effects logit model. For both models, the dependent variable is coded as 1 if the original satisfaction response is above 7 and as 0 otherwise. Since average satisfaction is between 7 and 8, this is equivalent to classifying

tax and national insurance contributions. Regular payments such as rent subsidy, child benefit, government grants, subsistence allowances, etc., should be included.

⁷Note, that the sample is biased towards longer unemployment spells. If those people are dissatisfied, the degree of dissatisfaction for the unemployed will be upward biased.

individuals into those who report above, and those who report below average satisfaction. Models 3 and 4 explore the robustness of the fixed effects logit results under modified specifications. Firstly, Model 3 re-estimates Model 2 for the shorter period 1984-1986 in order to assess the potential effects of sample attrition. Secondly, Model 4 re-estimates Model 2 under a different classification for the dependent variable. Here, the dependent variable is 1 if the satisfaction response falls into the (5,...,10) range. Finally, Model 5 introduces age specific effects of unemployment and out of labor force⁸.

While looking at the regression results, one has to keep in mind that the fixed effects estimator does not use information provided by inter-individual comparisons of satisfaction responses. As a consequence, the satisfaction effect is identified by individuals who change labor force and satisfaction status during the period. In fact, in the fixed effects logit model, all individuals with unchanged outcome drop out of the conditional likelihood function. In our sample, we observe 2523 individuals who change their binary satisfaction status at least once during the 1984-1989 period. This number drops to 1634 for the shorter subperiod in Model 3, and to 925 in Model 4, where the alternative break point is used. Furthermore, it is apparent from Table 2, that there are 586 changes between employment and unemployment, 384 changes between employment and out of labor force, and 166 changes between unemployment and out of labor force⁹. Hence, the number of informative observations is substantially lower than the total sample size, and the superior properties of the fixed effects estimators in terms of bias have to be traded-off for less precise estimates,

⁸The reported regressions are estimated without time effects. Time dummies lead to identification problems in the fixed effects models. In the pooled model, the inclusion of time dummies has almost no effect on the remaining coefficients.

⁹The changes are relatively evenly distributed over the years (ranging from 22 percent between 1984 and 1985 to 19 percent between 1988 and 1989). Most changes between employment and unemployment occur for those persons aged 30-49 (45 percent of all changes) while changes involving non participation are more frequent for those aged 50 or older (48 percent of all changes for both employment and unemployment).

i.e. higher standard errors, which is clearly seen in Table 4.

A comparison between the fixed effects and pooled logit models leads to the following conclusions. Firstly, the fixed effects model is the better model. The Hausman test statistic of 213.4 leads to a rejection of the model without fixed effects¹⁰. Secondly, the substantive conclusion with respect to the detrimental effect of unemployment on satisfaction persists after fixed effects are taken into account. If anything, the effect of unemployment slightly increases in absolute value, from 0.89 to 0.96.

The effect of unemployment is large – almost three times larger than the effect of bad health. The out of labor force (OLF) coefficient is negative and significant as well. However, it is smaller, and the hypothesis that unemployment and OLF have the same effect on satisfaction can be rejected at any conventional significance level. Based on the fixed effects results, and in contrast to Clark and Oswald (1994), we do not find that satisfaction is U-shaped in age. The squared term is insignificant and we find an inverse relationship between age and satisfaction. Furthermore, we find that for those who are unemployed, satisfaction is unrelated to unemployment duration. Hence, there is no evidence that the long-term unemployed get used to their situation and partially recover from the initial adverse effect. Finally, the estimated effect of income is positive and statistically significant although small.

One has to be careful about making quantitative statements since the coefficients do not correspond to marginal effects. In order to illustrate the magnitude of the estimated income coefficient one can consider “compensating income variations”, that is, the relative increase in income that is needed to compensate an individual for the drop in satisfaction due to unemployment. If a 100 percent increase of income raises happiness by β_{inc} and unemployment decreases satisfaction by β_{ue} , then income needs to be increased by β_{ue}/β_{inc} in order to make up for lost satisfaction due to unemployment. Based on the fixed effects logit income estimate of 0.13, the compensating variation is roughly 7. This number suggest

¹⁰Under H_0 , the statistic is approximately chi-squared distributed with 9 degrees of freedom.

that income would need to be increased tremendously in order to trigger an increase in satisfaction large enough to just offset the adverse effect of unemployment. Moreover, it also suggests that the pecuniary cost of unemployment are relatively small. If we assume an unemployment induced income reduction of 50 percent, the estimated pecuniary costs of unemployment of -0.13×0.5 fall substantially short of the non-pecuniary cost of -0.96 .

How robust are these results? When we restrict the sample to the years 1984-1986, the estimated coefficients are largely unchanged, although, as expected, standard errors are larger in the model that uses less observations. This suggests that attrition is not a particular problem. The only notable change is an increase in absolute magnitude for out of labour force. One possible explanation is an age composition effects. In particular, we find that the shorter 1984-1986 dataset has a lower proportion of older individuals among the unemployed and the non participants. Since we find in the following that older individuals are relatively less affected by non-participation the observed increase in the OLF estimate may result. The substantive conclusions from Model 2 are also upheld by Model 4 where the satisfaction response is split around 5, rather than 7, in order to generate the binary dependent variable. Most coefficients increase in absolute value but again, unemployment is the single most important factor increasing the probability of dissatisfaction. The effects are generally estimated less precisely than by Model 2, since the dependent variable has less variation.

The hypothesis that labor force status effects are age specific is investigated in Model 5, the last column of Table 4. We define three age groups (under 30, 30-49, over 49) and include interaction terms into the fixed effects regressions. The results show that the impact of unemployment and non participation in fact varies substantially with age. A likelihood ratio test shows that Model 5 is superior to Model 2 (LR=124.12 with 4 degrees of freedom). Substantively, we find that unemployment has the largest effect for the young and becomes gradually smaller. Hence, our findings differ from those by Clark and Oswald (1994) who find that the effect of unemployment is largest for those aged 30-49.

Substantial differential effects emerge for non-participation: the effect of OLF is insignificant for those aged 50 or over. These findings point towards the importance of the social environment in determining the psychological effects of joblessness – those who chose early retirement are not negatively affected at all. For prime aged men, in contrast, non participation has a large negative impact of -0.68, although this is still smaller than the effect of unemployment for this age group (-0.92).

The major result of this study is that the use of panel data and fixed effects models corroborates previous cross-section evidence of a large negative effect of unemployment on satisfaction. The point estimates on unemployment are very similar for the pooled and panel models. The use of cross-sectional data appears to be most misleading for assessing the effect of marital status and health. For these two variables, pooled and fixed effects estimates differ substantially. The health effect drops by about 50 percent, while the marriage effect more than doubles, once fixed effects are introduced. One possible inference is that health is positively (and marriage negatively) correlated with “intrinsic satisfaction”, and hence the individual specific fixed effects.

6 Conclusions

Using data on life-satisfaction for 1984 to 1989 from the German Socio-Economic Panel, we perform an analysis of the determinants of satisfaction. We find that, after controlling for various observed individual characteristics, and after exploiting the panel structure of the data by allowing for individual specific fixed effects, unemployment has a significant and substantial negative impact on satisfaction. The non-pecuniary costs of unemployment by far exceed the pecuniary costs associated with loss of income while unemployed. For men aged 30 to 49, we find that being out of labor force has large adverse effects as well, although of smaller order of magnitude.

Why does this matter? Firstly, an inclusion of non-pecuniary costs of unemployment

is essential when one is to conduct a cost-benefit analysis of employment generating policies. Secondly, taking into account the psychological cost of unemployment may provide a promising starting point when thinking about hysteresis and duration dependence of unemployment. This line of reasoning has been recently promoted by Darity and Goldsmith (1996) who argue that the adverse psychological affects of unemployment may change tastes for work and search strategies, as well as lower productivity.

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