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SUBJECTIVE WELL-BEING, INCOME AND ECONOMIC MARGINS

by

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Abstract

This paper uses the Swedish Level of Living Survey to study how satisfaction with living conditions and daily life covary with economic resources, in the cross-section and in a decade-long panel. We find that self-reported lack of economic margins is a powerful determinant of satisfaction, its magnitude being comparable even to that of marriage or cohabitation. In contrast, although income is positively associated with satisfaction, the relationship is less robust than for economic margins, and the estimated gradients vary substantially depending on the choice of satisfaction measure, income measure and model specification.

1 Introduction

Economists are to an increasing extent treating subjective well-being (SWB) measures — in particular global evaluations of life satisfaction and happiness — as useful welfare measures. There is now a fast-growing empirical economics literature on the determinants of well-being that largely overlaps with work in psychology, which in turn dates as far back as the 1960's (see e.g. Frey and Stutzer, 2002 and Di Tella and MacCulloch, 2006 on the use of SWB data in economics, and Diener et al., 1999 for a survey of the psychology literature). Starting with the seminal contribution of Easterlin (1974), much of this literature has been concerned with the relationship between SWB and economic conditions, as is this article. We investigate this relationship across individuals, and

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within individuals over time. We do so in the context of the developed welfare-state, using a representative sample of Swedes from the Swedish Level of Living Survey during the period 1991–2000.

Our main contribution is to extend the measure of economic conditions to include not only income, but also an indicator of self-stated economic margins. Moreover, we use matched register data on disposable income, thus potentially reducing noise compared to self-reported survey measures. We also consider a flexible association between SWB and income, which we compare with the standard logarithmic specification. Our focus is on a descriptive characterization of the association between well-being and economic conditions, but since we are able to control for all time-constant individual characteristics as well as several time-varying covariates, some of our results nevertheless approach a causal interpretation.

Like many previous studies, we estimate a positive and more or less monotonic cross-sectional relationship between satisfaction and income. Of the two SWB outcomes that we study, we find income to be more strongly related to satisfaction with living conditions than to satisfaction with daily life. We also find that the choice of income measure matters — household income yields substantially larger estimates and predictive power than individual income. Our decade-long panel estimates are much attenuated in the case of living conditions satisfaction, and we cannot rule out a zero effect with respect to daily life satisfaction. We find that lack of economic margins is associated with markedly lower levels of satisfaction with both living conditions and daily life, also when controlling for income and other socio-economic factors. A strong association remains when we control for time-constant individual characteristics, implying that this result is not mainly driven by selection. Self-stated economic margins is in fact a more robust predictor of satisfaction than income in some specifications. Overall, our results suggest that the importance of economic conditions for subjective well-being is not captured completely by measures of contemporaneous income.

The rest of this paper is organized as follows. Section 2 gives a brief overview of the literature on SWB and economic conditions. Section 3 describes our data, section 4 describes our method, and the results are presented in section 5. Finally, we discuss our results and conclude in section 6.

2 Previous literature

The relationship between SWB and income (or some other measure of economic conditions) can be addressed on at least four levels. First, how does the average level of SWB

vary with average income across societies (e.g. countries) at a given point in time? Second, how do average SWB and average income covary over time within societies? Third, how is SWB distributed with respect to household (or personal) income across individuals within a society at a given point in time? Fourth, how is individual SWB related to changes in household income? The SWB–income associations at these different levels are of course linked through a common underlying causal process. Understanding and estimating this process is challenging though, as each level has its associated confounders, and it is not easy to find generalizable sources of exogenous variation in income. Given the complexity of this underlying process, it is perhaps not even instructive to speak of *the* effect of income on well-being.

Easterlin (1974) found no association between different countries nor within the same countries over time, but a positive cross-sectional within-country association, a finding known as the "Easterlin Paradox". Easterlin inferred that relative income concerns or adaptation to higher income offset the welfare gains of growth. In light of more recent data, these findings have been challenged, and in particular, a positive cross-country relationship has been documented. (Stevenson and Wolfers, 2008; Deaton, 2008). Though this clearly suggests a role for absolute income, it does not rule out the importance of relative income or adaptation either. Indeed, such mechanisms have been the focus of several micro-level studies (see e.g. Luttmer, 2005 on relative income, Clark, Diener, and Lucas, 2008 on adaptation, and Clark, Frijters, and Shields, 2008 for a survey of the literature). In order to understand the relative importance of these mechanisms, more detailed studies at the micro level are needed, as well as more precise comparisons between micro and macro estimates of the SWB-income association.

Although several studies have documented a positive cross-sectional within-country association between SWB and income, the strength of this relationship is not clearly established, and it is somewhat difficult to compare magnitudes across studies. Among other things, this is due to differences in SWB and income measures, the sets of control variables, and estimation methods. A common interpretation is that income has a relatively small impact on SWB, and the same can be said for many other observable socio-economic characteristics. Most "happiness regressions" do indeed have low explanatory power (R-squared values are typically well below 0.10), and psychologists have at the same time found that SWB is largely determined by stable personality traits (Diener and Lucas, 1999 review this research).

It is possible that within-country studies underestimate the role of economic conditions for SWB though, due to the almost exclusive use of contemporaneous income collected from surveys. To the extent that income affects SWB through consumption,

the permament-income hypothesis (Modigliani and Brumberg, 1954) suggests that long-run income is more relevant than transitory income, and if people are not able to smooth their incomes perfectly over time, wealth should also matter. To our knowledge, there are only a few existing studies that consider aspects of economic conditions other than contemporaneous income: Mullis (1992), Headey and Wooden (2004), Headey et al. (2008) and D'Ambrosio et al. (2009). Besides income, these studies also include wealth as an explanatory variable, and find that substantially more variation in well-being can be accounted for. As a proxy for permanent income, Mullis (1992) and D'Ambrosio et al. (2009) also use income averaged across several years, which is found to be more relevant than contemporaneous income, in terms of magnitude and explained variation. Our paper contributes to this literature by considering also the importance of economic margins.

It is also possible that the causal effect of income on well-being is overestimated, e.g. if happy individuals are more productive, or if other factors such as health impact both well-being and income in the same direction. In this paper we do not focus on the causal effect of income, but see Gardner and Oswald (2007) who study lottery winners and Pischke (2011) who exploits quasi-exogenous income variation due to industry wage-differentials. Although somewhat tentative, the evidence provided in the latter paper does not suggest that ordinary OLS overestimates the impact of income.

3 Data

3.1 Data sources and sample

Our main data source is the Swedish Level of Living Survey (LNU) — a rich socio-economic panel survey based on a representative sample of the Swedish population aged 18–75 (Gähler, 2004; Jonsson and Mills, 2001). The first wave dates back to 1968, and four more waves have been completed 1974, 1981, 1991 and 2000. Respondents are re-interviewed in subsequent surveys as long as they remain in the age span 18–75 and have not died or moved abroad, and new respondents are added in each wave so as to maintain a representative cross-sectional sample. Interviews are conducted by the Swedish statistical agency, Statistics Sweden, either face-to-face in the respondent's home or by telephone.[1]

Our second data source is income tax register data matched to each individual in

[1] In our final sample, 8.3% and 12.6% of the interviews are conducted by telephone in 1991 and 2000. When including the interview type as a dummy in our satisfaction regressions, we find no evidence of a telephone interview effect, whether conditioning on other variables or not.

LNU. The data include the respondent's annual disposable income for the survey years 1991 and 2000. For respondents who can be linked to a partner in the 1991 or 2000 survey, the same data are available also for the partner, allowing us to compute household incomes.

Thus, we limit our analysis to the 1991 and 2000 waves, including all individuals in the 1991 wave that were re-interviewed in 2000, but excluding those living with their parents,[2] and those with any item non-response on the variables used in our analysis. We can thus think of our sample as a random sample of the adult Swedish population aged 18–65 in 1991. After taking into account sample attrition and item non-response, we are left with a final sample of 3209 individuals (6418 observations).

3.2 Variables

We use two different satisfaction measures as outcome variables. The first one, satisfaction with living conditions, is based on the following question (as formulated in the English version of the LNU questionnaire): *"We have now been through a lot of questions about your living conditions in different areas. How do you yourself view your own conditions? By and large, do you think that your situation is: very good, rather good, neither good nor bad, rather bad, or very bad?"*. This question is located at the very end of the survey, within a block of judgments and opinions, and at this point the respondent has been interviewed about his or her circumstances across several domains, such as family situation, health, education and occupation. In this context, it is thus plausible that the question captures satisfaction across all these domains. However, the question differs slightly from typical life satisfaction questions in other surveys (e.g. "All things considered, how satisfied are you with your life as a whole these days?", from the World Values Survey), in that it is phrased in terms of living conditions, rather than satisfaction with life as such. It is thus possible that this measure to a larger extent probes external aspects of life, i.e. salient factors that are thought to be relevant for a good life.

Our second satisfaction measure, satisfaction with daily life,[3] is based on the question: "*Do you usually feel that your daily life is a source of personal satisfaction? (Yes, most*

[2]We drop 327 individuals living with their parents in either 1991 and 2000. These are mostly youths that move out from their parents' home between 1991 and 2000. The motivation for this sample restriction is that income comparisons between this group, mainly living off their parents income, and others, are hard to interpret.

[3]This measure has been used by Andersson (2008) who studies the effects of self-employment on well-being, and by Gerdtham and Johannesson (2001) who study the correlates of well-being with a focus on health.

often; yes, sometimes; no)". This question is located shortly before the living conditions safisfaction question, but within a block of questions of more psychological character. Arguably, this question taps into more internal aspects of SWB.

Satisfaction with living conditions and daily life (henceforth LCS and DLS) correlate moderately with each other but show similar patterns of correlation with subjective health and job satisfaction. LCS shows a stronger correlation with pay satisfaction, indicating a somewhat larger role for material factors in this measure.[4]

Both of our satisfaction measures can be considered cognitive and evaluative in nature, in contrast to more specific measures of positive and negative emotions, i.e. *affect*, which is typically also encompassed in the concept of SWB (Diener et al., 1999). It has been argued, however, that different measures that can broadly be classified as evaluative, such as life satisfaction and happiness, vary along an evaluative–affective continuum. Moreover, it has been found that the more evaluative measures correlate more strongly with material circumstances (Diener et al., 2010). We believe that LCS is more evaluative in nature than DLS, and thus one would expect the former to be more closely related to economic conditions. By considering both outcomes, we can to some extent assess this, which is interesting in its own right. Unfortunately, LNU does not contain any measures of positive and negative affect, and hence we cannot directly assess the impact of economic conditions on all dimensions of SWB. Another limitation is that we cannot say exactly how our measures relate to standard life satisfaction and happiness measures used in other surveys. It seems plausible, however, that life satisfaction lies somewhere inbetween LCS and DLS with respect to the dimension evaluative–affective.

Our baseline income variable is the simple average of the spouses' total disposable income, henceforth referred to as household income. For non-married, non-cohabiting respondents, it is equal to his or her individual income. The variable is computed using the income register data matched to LNU, for the income years contemporaneous with the survey years (1991 and 2000). Register income is collected annually, but our measure is transformed into monthly income for easier interpretation of descriptive statistics. The variable includes labor and capital incomes, net of taxes, as well as important transfers such as child allowance and social welfare benefits. The use of household income is fairly standard, although the implicit assumption of equal income sharing between spouses may not be completely realistic (see e.g. Lundberg et al., 1997).

We also explore two alternative income measures based on the income register data:

[4]Kendall's rank order correlation between LCS and DLS is 0.3. The correlations between LCS and subjective health, job satisfaction and pay satisfaction are 0.2, 0.25, 0.18, respectively. The same correlations for DLS are 0.2, 0.25 and 0.1.

personal disposable income and adjusted disposable household income. The adjusted measure is the sum of the respondent's and his or her spouse's monthly disposable income, divided by the square root of the number of family members in the household, including children. This measure is thus meant to capture increased living costs due to children and household economies of scale.

Moreover, we use an indicator of economic margins based on the following survey question: *"If a situation suddenly arose where you had to come up with 10,000 kr, could you manage it? (yes ; no)"* The figure amounts to ca. 2170 USD in 2011 prices, and was adjusted upwards to 12,000 SEK in year 2000, keeping it roughly constant in real terms. The amount represents about one month's worth of average disposable income during the period 1991–2000. 8.6% and 8.1% reply 'no' to this question in 1991 and 2000. We can think of this variable as capturing the bottom tail of the (liquid) wealth distribution. Other possible interpretations will be discussed later.[5]

We use a set of control variables intended to capture various life-cycle events that might correlate with both well-being and economic conditions. As a measure of health we use a symptom index covering a broad range of afflictions. It is increasing in the number of symptoms and gives severe symptoms twice the weight of mild ones. Household type is captured by a set of indicator variables for marital status (including cohabitation) and whether there are any children living in the household. We use the following indicators of employment status: full-time, part-time, self-employed, unemployed, retired and other. In our cross-sectional analysis we also use indicators of age group, sex and education level. The variables are described in more detail in Appendix I.

3.3 Descriptive statistics

The sample distributions of the two satisfaction measures in 1991 and 2000 are shown in figure 1. Few Swedes appear to be dissatisfied: only 4.6% report LCS to be worse than 'rather good' and only 5.6% respond 'no' to the DLS question. We also see that the overall levels of both satisfaction measures are stable between 1991 and 2000. Intra-individual variation in LCS over time is shown in table 1. The best predictor of an individual's satisfaction level in 2000 is his or her satisfaction level in 1991, given that

[5]Since our register data also contain information on wealth for all individuals we can to some extent examine whether our economic margins variable seems reliable. It turns out that there is no overlap at all between self-reported lack of economic margins and the top decile of the wealth distribution according to the tax register; this increases our confidence in the economic margins measure. Wealth has not been included in our final specifications since this variable is severly left-censored (the tax authorities collecting the register data are only concerned with wealth above the deductible level). However, whether or not it is included has little effect on the results.

conditions were perceived as 'rather good' or 'very good' in 1991. For those reporting conditions to be worse in 1991, there is instead a tendency to report improved conditions in 2000. Overall, there is a fair amount of transitions, which is the variation exploited in our panel models. The dynamics of DLS, shown in table 2 are similar to those of LCS.

The first column of table 3 shows descriptive statistics for all observations in our pooled 1991–2000 sample. To highlight the raw patterns in the data, columns 2–4 show means by living conditions satisfaction, with the bottom three categories being grouped into one (to save space, we do not present means conditional on DLS). Those reporting higher satisfaction are more likely to be women, are more likely to have some higher education, have somewhat less health problems and are to a larger extent cohabiting or married. Moreover, satisfied individuals are more likely to be working part-time or being self-employed, less likely to be unemployed, and less likely to lack economic margins. People reporting conditions to be 'very good' have on average 10% higher income than those replying 'rather good', and the difference is 27% when comparing with those reporting conditions to be 'neither bad nor good' or worse. These differences are broadly in line with previous research.[6]

There are striking differences in the share of people lacking economic margins: among the least satisfied it is almost seven times as common to lack a cash margin as among the most satisfied. We will see that these differences remain in a regression framework when other observables are held constant.

4 Method

4.1 Model and estimation

The satisfaction measures we study are ordered categorical variables, i.e. while the outcomes are ordered, we do not know their relative intensities. To account for these properties we use an ordered logit model.

Estimating this model is tantamount to assuming that the outcomes $y = 1, \ldots, K$ ($K = 3$ for DLS and $K = 5$ for LCS) represent intervals of a continuous, underlying index, y^*. We measure the linear relationship between this underlying well-being index and a group of explanatory variables, $\mathbf{x}$. Thus, we have the following basic econometric specification, indexing on individual and time:

$$y^*_{i,t} = \alpha + \mathbf{x}_{i,t}{}'\boldsymbol{\beta} + \varepsilon_{i,t}. \tag{1}$$

[6]For example, Clark and Oswald (1994) document lower well-being among unemployed in Britain and Stutzer and Frey (2006) find married persons to be happier.

Under the utility interpretation of SWB, this is a standard random utility model. Assuming that the error term is independently logistically distributed, we arrive at an ordered logistic regression model:

$$\Pr(y_i = k \mid \mathbf{x}_i) = \begin{cases} \Lambda(\tau_1 - \alpha - \mathbf{x}_i'\boldsymbol{\beta}), & k = 1 \\ \Lambda(\tau_k - \alpha - \mathbf{x}_i'\boldsymbol{\beta}) - \Lambda(\tau_{k-1} - \alpha - \mathbf{x}_i'\boldsymbol{\beta}), & 1 < k < K \\ 1 - \Lambda(\tau_{K-1} - \alpha - \mathbf{x}_i'\boldsymbol{\beta}), & k = K \end{cases} \tag{2}$$

where Λ is the logistic cumulative distribution function and the τ_k:s are the interval boundaries for mapping y onto y^*, estimated jointly with α and $\boldsymbol{\beta}$.

This model is estimated for the pooled cross-section as well as with individual-fixed effects c_i. Since fixed individual characteristics, such as character traits, are likely to be correlated with both subjective well-being and economic conditions, neglecting to control for them could possibly give misleading results.

For fixed effects estimation we use the estimator suggested in Baetschmann et al. (2011), allowing for arbitrary correlation between the effects and the explanatory variables. This estimator transforms the data set into an expanded data set with a binary dependent variable, applies a fixed effects logit estimator, and uses cluster-robust standard errors to account for the dilution of observations. Hence the acronym, 'BUC' — *Blow-Up and Cluster*. Since this estimator has a fairly recent origin, there are as of yet few subjective well-being papers that use it. To our knowledge, it has only been applied in Rudolf and Kang (2011).

The data set expansion works in the following way. For each outcome category $k > 1$ of the dependent variable y, a binary variable is defined as $y_{i,t}^k = I(y_{i,t} \geq k)$. Combining with the covariates, for each original observation $(y_{i,t}, \mathbf{x}_{i,t})$ we now have $K - 1$ transformed observations $(y_{i,t}^k, \mathbf{x}_{i,t})$. In this binary logit model the fixed effects c_i can be eliminated by conditioning on the intra-individual sum of outcomes across time, $n_i = \sum_t y_{i,t}$, using conditional maximum likelihood for estimation (i.e. for all individuls, n_i is a *sufficient statistic* for c_i). However, this conditioning has the additional consequence that individuals with $y_{i,t}$ constant over time are eliminated as well, intuitively since $n_i = 0$ or $n_i = T$ implies with certainty $y_{i,0}, \ldots, y_{i,T} = 0$ or $y_{i,0}, \ldots, y_{i,T} = 1$, respectively, independent of $\hat{\boldsymbol{\beta}}$. This means that a fixed effects estimation utilizes a substantially smaller number of observations than in a pooled cross-section, possibly making comparisons between the two estimation methods difficult.

In the special case of $T = 2$ (as in this paper), fixed effects binary logit reduces to applying a logit regression on the first differences of all variables, excluding all observations

for which $\Delta y_i = 0$.[7]

Note that under the functional assumption (1), for any specific k, estimating a logit model using $(\mathbf{y}^k, \mathbf{x})$ results in a consistent estimator for $\boldsymbol{\beta}$, whether in cross-section or with fixed effects. In theory then, using all dichotomizations $(y^1, \mathbf{x}, \ldots, y^K, \mathbf{x})$ results in an estimator that has the same probability limit but is more efficient. The crucial assumption underlying this result is the 'parallel regressions assumption', stating that $\boldsymbol{\beta}$ is constant across all outcome categories of y (or equivalent, the conditional distributions of the outcome categories $y^k \mid \mathbf{x}$ are parallel). In practice however, the parallel regressions assumption may not be valid, e.g. some variables may have different impact in different regions of the distribution of y. Consequently, the estimates should be interpreted as the (weighted) average impact of $\boldsymbol{\beta}_{\mathbf{x}}$ over the distribution of $\mathbf{x}$.

4.2 Interpretation of the estimates

In typical applications of latent-variable models, the latent variable itself has no intrinsic meaning. In the present case however, the latent variable has a natural interpretation; as described in the previous subsection, the estimated model is essentially a random utility model, with the latent variable being a continuous measure of "utility" or "well-being".

The absolute magnitude of the coefficients in ordered response models cannot be easily interpreted, since the coefficients $\boldsymbol{\beta}$ and the error variance σ^2 are not separately identifiable. Hence, we only estimate the scaled coefficients $\frac{\beta}{\sigma}$, with σ^2 normalized to $\frac{\pi^2}{3}$ in logit models. A remedy to this problem is to scale coefficients and standard errors by the standard deviation of the latent variable, obtained from equation (1) by

$$\mathrm{Var}(y^*) = \underbrace{\hat{\boldsymbol{\beta}}' \widehat{\mathrm{Var}}(\mathbf{x}) \hat{\boldsymbol{\beta}}}_{Var(\widehat{y^*})} + \mathrm{Var}(\varepsilon), \tag{3}$$

where $\mathrm{Var}(\varepsilon) = \frac{\pi^2}{3}$.[8] This standardized coefficient vector will measure the impact on the latent variable associated with a unit change in the explanatory variable, in terms of latent variable standard deviations. All our regression results will be presented using this standardization.

As the first term of (3) is the variance of the fitted values $\widehat{y^*}$, (3) is a variance

[7] See Baetschmann et al. (2011) for details on the fixed effects ordered logit estimator, including discussions on robustness. Chamberlain (1984) describes the fixed effects binary logit model, while Long (1997) is an excellent reference on regressions with ordered dependent variables in general.

[8] This technique was first suggested in McKelvey and Zavoina (1975), though they suggest standardizing also with respect to the covariates.

decomposition well suited for measuring goodness of fit:

$$\overline{R^2} = \frac{\widehat{Var}(\widehat{y^*})}{\widehat{\mathrm{Var}}(y^*)} = \frac{\hat{\boldsymbol{\beta}}'\widehat{\mathrm{Var}}(\mathbf{x})\hat{\boldsymbol{\beta}}}{\hat{\boldsymbol{\beta}}'\widehat{\mathrm{Var}}(\mathbf{x})\hat{\boldsymbol{\beta}} + \mathrm{Var}(\varepsilon)}.$$

Since $\widehat{\mathrm{Var}}(\mathbf{x})$ is positive definite (for non-singular $\mathbf{x}$), we have $0 \leq \overline{R^2} < 1$, with $\overline{R^2} \to 1$ as $\hat{\boldsymbol{\beta}}'\widehat{\mathrm{Var}}(\mathbf{x})\hat{\boldsymbol{\beta}} \to \infty$. Similarly to R^2 for linear models, $\overline{R^2}$, generally referred to as McKelvey's and Zavoina's R-squared (McKelvey and Zavoina, 1975), is the share of dependent (latent) variable variance explained by the covariates.

5 Results

We present the regressions in parallel for our two outcome variables, living conditions satisfaction (LCS) and daily life satisfaction (DLS). As discussed, we expect the former to be more focused on external conditions, including material factors, while the latter is expected to capture more affective aspects of well-being.

We examine income and cash-margin separately from one another, as well as together with a set of socio-economic control variables. Income is analyzed both continuously in logarithm form, as well as non-parametrically in quantized form. Finally, we contrast three measures of disposable income and discuss their differences. Note that all coefficients are standardized; consequently, they measure the standard deviation impact on the latent variable due to a unit change in the covariates.

5.1 Logarithmic income specification

The basic specifications are variations of the following latent variable formulation:

$$y^*_{i,t} = \alpha + \beta_1 \log(inc_{i,t}) + \beta_2 no\text{-}cash\text{-}margin_{i,t} + \mathbf{z}_{i,t}{}'\boldsymbol{\gamma} + \varepsilon_{i,t}, \tag{4}$$

where *no-cash-margin* is a dummy variable, and $\mathbf{z}_{i,t}$ is a vector of control variables. The results of these regressions are presented in tables 5 and 6. As the fixed-effects estimator uses only intra-individual differences between observations with variation in the outcome variable, the number of observations in the fixed-effects regressions is substantially lower.

Taking a first general view, the differences in the results for our two well-being measures are consistent with our preconceived interpretation — living conditions satisfaction leans more to material aspects of life, while these aspects seem to be less influential for daily life satisfaction. For example, parenthood is associated with a decline in LCS, in

particular for single parents, but there is no such association with DLS. An interpretation is that while parenthood has a cost in terms of living conditions (holding income constant), it does not have an adverse effect on daily life satisfaction. Also, note that LCS does not solely capture material factors; the impact of health as measured by the symptom index, for instance, has similar impacts on both outcome measures.

Household disposable income is statistically significant and positive in all cross-sectional specifications, although the magnitudes vary dramatically between different specifications. Since income is measured in logarithmic form, the impact of an n-fold change is obtained by multiplying the coefficient with $\log n$. Looking first at living conditions in the pooled cross-section (table 5), the estimate must be considered large at 0.45; a doubling of income is associated with a $0.45 \cdot \log 2 = 0.31$ standard deviation increase in LCS, ranking among the most important coefficients. Furthermore, the estimate is virtually unchanged, dropping to 0.39, when including control variables. When considering intra-individual changes in the decade-long panel, the coefficient drops to around 0.10 and is no longer significantly different from zero. The impact of income on DLS is less convincing than for LCS: while the unconditional income coefficient is 0.23, adding control variables roughly halves this to 0.13, and including fixed effects results in a negative, though statistically insignificant, estimate. Looking from another perspective, for LCS the income coefficient is at par with that for cohabitation, whereas for DLS it is barely half as large. [9]

To compare, Sacks et al. (2010) use a similar setting but study the within-country cross-sectional association between the logarithm of income and standardized life satisfaction in a large number of countries. They find coefficients in the range 0.22–0.28 for the log-income impact on standard deviations of life satisfaction. Since, as argued in section 3.2, we consider life satisfaction lying somewhere in between the measures we use, their results are roughly in line with those obtained here.

Even though the decidedly smaller sample size for fixed effects (see the discussion in section 4.1) makes identification more difficult in the panel, this is unlikely to alone explain the sharp drop in magnitude for both outcome measures; all other covariates included change impact somewhat when adding fixed effects, but mostly marginally so. One interpretation is that adaptation tends to attenuate any short-run effects there might be. However, an alternative interpretation is that of the permanent-income hypothesis: to a large extent, individuals anticipate future income changes and smooth consumption

[9] The control variables responsible for reducing the income impact are primarily those for health and family, while demographics such as sex and age appear to be less important. Note that since we use per-spouse household income, the cohabitation dummy variable will capture potential economies of scale. This would not be the case if we used a suitably adjusted equivalized income measure.

accordingly (in so far as access to capital markets allow them to).[10]

Turning to economic margins in a broader sense, lack of cash margin has a strong negative association with both aspects of well-being, regardless of specification. This relationship is strongest for LCS, ranging from −0.76 standard deviations of well-being, to −0.41 when including fixed effects and full set of controls. But lack of cash margin has a strong negative impact on DLS as well; at between −0.48 and −0.23 it is among the strongest of the correlates of DLS. For both satisfaction measures, additional controls and individual-fixed effects reduce the impact, but not dramatically so. In most settings, the impact of not having a cash margin is at or above the level of magnitude for cohabiting (including marriage), the latter being known as one of the most important observables correlated with individual well-being. Comparing with household disposable income in the cross-section, it takes almost a three-fold increase of income to "compensate" for the decrease in LCS due to lack of cash margin — in 2000 this corresponded to going from the 10th to the 95th income percentile (see table 4). For DLS, it takes more than an eight-fold increase, and for intra-individual changes, we approach a factor of 30.[11] Perhaps surprisingly, lack of cash margin is not limited to low-income groups but is prevalent across the entire income distribution, although it is skewed towards the lower end.[12] Consequently, these results do not represent a low-income effect. In summary, cash margin is the most important economic factor among those here studied; only for LCS in the cross-section, income is at comparable magnitudes.

In general, economic factors have a stronger impact on living conditions satisfaction than on daily life satisfaction. Even so, cash margin has an impressive impact on both measures of well-being, being among the largest coefficients in magnitude in all specifications. While including control variables generally reduces this impact, its relative importance and statistical significance remain robust.

For both outcome measures the share of explained variation in well-being is generally small, dropping further when considering transitions of well-being; for DLS, $\overline{R^2}$ is never above 8%. This is consistent with previous literature stressing the importance of individual personality-fixed effects. LCS seems to be somewhat easier to explain by measurable factors, as indicated by slightly higher $\overline{R^2}$-values. Comparing regressions on only one economic variable at a time (columns 1 vs. 2 and column 4 vs. 5 in tables 5 and 6), the

[10] Sacks et al. (2010), citing micro estimations for the United States measuring the transitory part of income shocks, use an adjustment factor of 1/0.55 to "deduce" the permanent income coefficient from the cross-section coefficient.

[11] Since the effect of an n-fold increase in income is $\beta \log n = c$, we find the equivalent income increase by solving for n, giving $n = e^{c/\beta}$.

[12] The shares without cash margin are, from the lowest income quartile to the highest: 12.8%, 10.0%, 7.4%, and 3.1%.

cash margin variable has consistently higher explanatory power than household income. But in general, economic factors are relatively unimportant for explaining well-being — in sharp contrast to the control variables included in the full specifications.[13]

Finally, for most covariates, including fixed effects is associated with significantly lower magnitudes. This is in line with the literature on adaptation of well-being, stating that most factors correlated with well-being have a diminishing impact over time, and for many factors the long-run impact is essentially zero. In this paper, there are 9 years between the two points in time, implying that our estimates are weighted averages of one-year up to nine-year effects.[14]

5.2 Non-parametric income specification

The previous subsection used a specific functional form for the impact of disposable income on well-being, imposing a logarithmic relationship. In the following, we use a quasi non-parametric specification that should be less restrictive:

$$y^*_{i,t} = \alpha + \sum_{q \in Q} \beta_{1,q} I_q(income_{i,t}) + \beta_2 no\text{-}cash\text{-}margin_{i,t} + \mathbf{z}_{i,t}{}'\boldsymbol{\gamma} + \varepsilon_{i,t}, \tag{5}$$

where Q is a partitioning of $[0, 100]$ into quantiles and $I_q(\cdot)$ is the indicator function for quantile q. Since the income distribution is skewed, the partitioning is finer at the top and bottom of the income distribution. Table 4 describes the level of disposable income associated with each quantile. The results of these regressions are presented in tables 7 and 8. (Note that the second and fifth columns are the same as those in tables 5 and 6, for ease of comparison.) We have set the reference category to the 40th–60th percentiles, so that each quantile coefficient can be interpreted as the difference to the median income group.

Columns 1 and 3 in table 7 show the cross-sectional income-quantile coefficients for living conditions satisfaction, without and with socio-economic controls, respectively; this is graphically illustrated in figure 2 (lack of cash margin has been included in this and the following figures for ease of comparison). The figure shows a striking, close to perfect, monotonic association between LCS and income. As seen in the right-hand

[13] As indicated earlier, it is the health and family variables (cohabitation and having children) that stands for most of the explanatory power in our full specifications.

[14] Clark et al. (2008) examines the dynamic impact of several life events, including marriage, divorce and unemployment. They find that after four years, only unemployment can be prooved to have a long-run impact; for all other events, the null hypothesis of complete adaptation cannot be rejected. Rudolf and Kang (2011) on the other hand, using Korean data for a ten-year period, find systematic gender differences regarding adaptation, often with only partial adaptation for most life events studied.

panel, this relationship is not affected by the inclusion of control variables. For example, the difference between the bottom-five percentile and the top-five percentiles is associated with about 0.70 standard deviations of LCS, two thirds more than the magnitude of cohabiting in the same regression (not shown in table 7) and 40% higher than the cash margin margnitude.

Turning to DLS and table 8, the unconditional relationship (column 1) does show a monotonic form, but considerably weaker than that for living conditions; the coefficients are not statistically significant at conventional levels until we reach the 80th income percentile. When including socio-economic controls the cofficients are, while still tentatively monotonic, generally not statistically significant. Figure 3 describes these results graphically. The difference between bottom-five and top-five percentiles is about 0.25 standard deviations of DLS, less in magnitude than both the cash margin and the cohabiting estimates. Again, the impact of economic conditions are stronger for LCS than for DLS.

In figures 4 and 5 the above results are shown with income represented in absolute numbers (trimmed at both ends for readability). Since the x-axis is logarithmically scaled, a linearity in the figure represents a logarithmic relationship between well-being and income. From inspecting figure 4 it seems clear that LCS displays a quasi logarithmic relationship with income, robust to including control variables. This holds also for daily life satisfaction, to some extent. The case for logarithm functional form is reinforced by the fact that the $\overline{R^2}$-values for the cross-section regressions are virtually unaffected by changing income specification, for both outcomes. For DLS however, the relationship is notably flatter at the tails than in the middle of the distribution, without and with controls. Hence, we may, *a posteriori*, consider the logarithmic functional form more justified for LCS than for DLS.

Turning to intra-individual income transitions and living conditions satisfaction, the pattern persists, although attenuated and no longer statistically significant. At this point one should be cautious to draw conclusions; small fixed-effects sample size in conjunction with relatively few inter-quantile income transitions makes identification difficult. Given these circumstances, it is striking that the point estimates still are roughly monotonic. For daily life satisfaction, the relationship evaporates completely with fixed effects — if anything, the pattern is negative, as in the logarithm specification. Again, it is an open question whether this reflects hedonic adaptation or income smoothing. Still, with both outcome measures when using fixed effects, explanatory power as measured by $\overline{R^2}$-values increases with the non-parametric income specification. This is in contrast to the pooled cross-section regressions.

Remarkably, the cash margin estimates are virtually unaffected by changing the income specification, for both LCS and DLS. In most specifications it dwarfs the impact of disposable income. In summary, it is clear that lack of cash margin captures something distinct from income level.

The results from the non-parametric income specification is in principle in accordance with our previous results — income has a stronger and more robust influence on living conditions satisfaction than with daily life satisfaction.

5.3 Comparing different income measures

In this subsection we compare three different income measures: individual disposable income, per-spouse household disposable income (our main income measure), and equivalized household disposable income. The latter is defined as total household disposable income, excluding earnings by children, divided by the square root of household size. The idea behind this measure is to capture household economies of scale.

For single-person households without children all three measures coincide, for single person households with children the first two measures coincide, and for two-spouse households with two children the household measures coincide. As regards scaling, the per-spouse household measure can be considered a low-pass filtered version of the individual measure, reducing within-couple variation (noise) but maintaining the order of magnitude. The equivalized income, on the other hand, is anchored at singles without children and couples with two children, i.e. it coincides with the per-spouse measure at these points. Is is scaled differently at other points however. For example, singles with children have their income adjusted downwards while couples without children have their income adjusted upwards.

Table 9 compares these different measures for all specifications. As is apparent from the table, the estimates often differ sharply for the same specification. The difference in magnitude generally reflects explanatory power; $\overline{R^2}$ (not shown) is consistently higher with both household measures, compared to when using individual income. Considering for example LCS in the cross-section, without socio-economic controls (left part of the top row in table 9), going from individual income, through per-spouse income, to equivalized income is associated with $\overline{R^2}$-values at 0.01, 0.03 and 0.06, respectively. The same basic pattern holds for DLS, although all income measures are very weak predictors of daily life satisfaction (at $\overline{R^2} \leq 0.01$).

Including control variables makes the divide between individual and household measures apparent: in all specifications, the specific choice of household measure does not

matter fundamentally — coefficient magnitudes and explanatory power are essentially the same — whereas individual income generally seems to underestimate the association between income and well-being. Per-spouse household income is the most robust measure; for the two other measures, including control variables tends to push estimates towards the per-spouse estimate.[15]

To summarize, the choice of well-being measure, income measure, and control variables has a strong impact on the estimation of the income–SWB relationship, with the cross-sectional coefficients ranging from 0.10–0.58. Conceptually, household income should be more precise in measuring the individual's material resources — this is confirmed in table 9, where individual income appears to be more volatile. Adjusting for household size does not seem to be necessary when including control variables, since economies of scale is captured in the dummy variable for cohabitation. When excluding control variables, the adjusted measure is strongly upward biased due to its strong correlation with cohabitation.

Finally and importantly, regardless of income measure, the estimate for lack of cash margin (not shown) is virtually identical, as are most control variables. Consequently, while the choice of income measure is important for estimating the income–SWB relationship, the cash margin estimate is robust in this regard.

6 Discussion

We have shown that, for a representative sample of the Swedish population, self-reported lack of economic margins is strongly associated with lower satisfaction with living conditions and daily life. This holds whether or not socioeconomic factors are held constant, and whether we compare different individuals or the same individuals over time. Although the two are correlated, lack of a cash margin is distinct from having low income. Quantitatively, the average satisfaction difference between those who have a cash margin and those who lack it is comparable to the satisfaction difference between those at the top and the bottom of the income distribution. By another yardstick, the negative impact of lacking economic margins is about as large as the positive impact of marriage or cohabitation.

In light of the fact that economic margins remain important even when controlling

[15] To explain the difference between the two household measures, note that while income in general is positively correlated with cohabitation, this correlation is reinforced for equivalized household due to its built-in economies of scale (the correlation is 0.17, compared to 0.04 for the other measures). Since cohabitation, or marriage, has a strong positive impact on well-being, the estimate for equivalized income will be upward biased if controls are not included.

for income it is not obvious how one should interpret this result. There are several possible explanations.

First, *lack of a cash margin might be an indicator of low long-run income.* According to the permanent-income hypothesis, long-run income (or its expectation), rather than contemporaneous income, determines consumption and hence well-being. It is thus possible that self-stated economic margins carry some information about long-run income not reflected in contemporaneous income. This is consistent with interpreting lack margins as low wealth, although wealth might also matter beyond long-run income if one is unable to borrow on one's future income.

Second, *lack of a cash margin might capture low income relative to the individual's own consumption standard.* The individual's consumption standard is presumably slow-moving, and a function both of own past consumption, and that of some reference group.[16] A mis-match between income and consumption standard might for example arise if one fails to adjust one's consumption standard when faced with a negative income shock. A permanent mis-match would also be possible if the standard rises in line with incomes increases in the reference group.[17]

Third, *lack of economic margins might reflect financial illiteracy or self-control problems.* A recent strand of literature (see e.g. Lusardi and Mitchell 2008) has documented the importance of financial literacy — the ability to understand concepts such as inflation, financial risk and compound growth — for important financial decisions such as saving for retirement. Similarly, financial illiteracy could perhaps also explain why some people fail to hold an adequate amount of short-term savings. Failure to save, or "overspending", might also be due to various form of self-control problems. This interpretation is in line with the fact that people report a lack of margins also towards the top of the income distribution. However, a sizeable impact remains when personality-fixed effects are accounted for.

These explanations are perhaps not entirely mutually exclusive. They might also vary in relevance depending on where in the income distribution we look. Comparing the characteristics of those with and without margins gives some additional insights. The two rightmost columns in table 3 show descriptive statistics by cash margin. It turns out that this comparison is quite similar to the one made in section 3.3, between

[16] Such a framework is discussed in Clark et al. (2008). Robert Frank has also written extensively about the importance of reference groups and "positional goods", see e.g. Frank (1985).

[17] A related explanation is that lack of cash margin could capture differences in living expenses across regions. To test this hypothesis, we have run regressions where we include regional dummies and their interaction with income, but with no substantial results: the income interactions are generally not significant, and more importantly, lack of cash margin remains equally strong. Hence we reject this explanation.

groups reporting different satisfaction levels. Individuals lacking margins are, just like those reporting lower satisfaction, less educated, have worse health, are less likely to be married or cohabiting, are more likely to be single parents and are more likely to be unemployed. There are also differences, however. Those without margins are younger, more likely to be women and more likely to work part time rather than full time, all of which are characteristics associated with higher satisfaction. The differences in terms of employment status and family situation are expected, and suggest that absence of self-reported margins indeed identify those with less economic resources. On the other hand, the fact the those without economic margins are younger is consistent with the two latter explanations; it is conceivable that younger people to a higher extent have their consumption standards misaligned with their income levels, but it is equally plausible that they are less accustomed to long-term economic responsibility. At the macro level, the share of people without a cash margin has also been shown to covary with the share of people defined as absolute poor, and the share of people seeking social assistance (Jonsson et al., 2010).

The robust association between satisfaction and economic margins should be of interest for policy-makers concerned with SWB. To be sure, however, one should be cautious in drawing policy conclusions before we know more about the underlying reasons for why some people lack economic margins. In particular, disentangling the interconnections between economic margins, household income, and personality factors is an important area for future research.

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Appendix I: Variable definitions

Living conditions satisfaction (LCS), 5 categories: satisfaction with living conditions is reported to be *very good*; *rather good*; *neither good nor bad*; *rather bad*; or *very bad*.

Daily life satisfaction (DLS), 3 categories: daily life is reported to be a satisfying *yes, most often*; *yes, sometimes*; or *no*.

Household income: per spouse share of the sum of spouses' monthly total income net of taxes and transfers, based on tax register data contemporaneous with the survey year. Equals personal income when the respondent is neither married nor cohabiting.

Personal income: respondent's monthly income net of taxes and transfers, based on tax register data contemporaneous with the survey year.

Adjusted household income: the sum of spouses' monthly total disposable income divided by the square root of the number of household members (including children).

No cash margin: indicator equal to 1 if the respondent replied 'no' to a question about whether 10,000 SEK (12,000 in 2000) could be acquired within a week (not mentioned in the English version of the questionnaire).

Female: indicator equal to 1 if respondent is female.

Age group, 5 categories: 18–26, 27–36, 37–50, 51–64 and 65–75. Age is approximated by subtracting birth year from the survey year.

Highest completed education, 3 categories: *basic school* (base category, education level is junior high school or lower, includes no schooling), *high school* (highest completed education level is high school, gymnasium, or a short vocational training), *higher education* (has completed some higher level education, i.e. a university diploma or a longer vocational education).

Symptom index: index based on the summation of 44 separate symptom scores that take the values 0, 1 or 2, if the respondent has no, mild, or severe symptoms, respectively. Hence, an index score of zero indicates perfect health.

Marital status, 3 categories: *not married* (base category), *cohabiting* (including married), *divorced or widowed*.

Children in household, 3 categories: indicates whether there are any children currently living in the respondent's household, regardless of how many: *no children* (base category), *cohabiting parent* (children living in household together with married or cohabiting respondent), *single parent* (children living in household, respondent is neither married nor cohabiting).

Employment status, 5 categories: respondents in LNU may hold multiple employment statuses, e.g. working full-time while searching for a job. We define mutually exclusive employment indicators in the following lexicographic order, meant to capture main activity: *full-time*, *part-time*, *self-employed* (works either in a firm partly or fully owned by him or herself, or in a free profession), *unemployed* (is currently searching for a job), *retired* (at least 65 years old and receiving pension) and *other*. The last category includes all respondents not falling into any other category, e.g. students.

Appendix II: Figures and tables

Figure 1: Satisfaction distributions, pooled cross-section 1991–2000

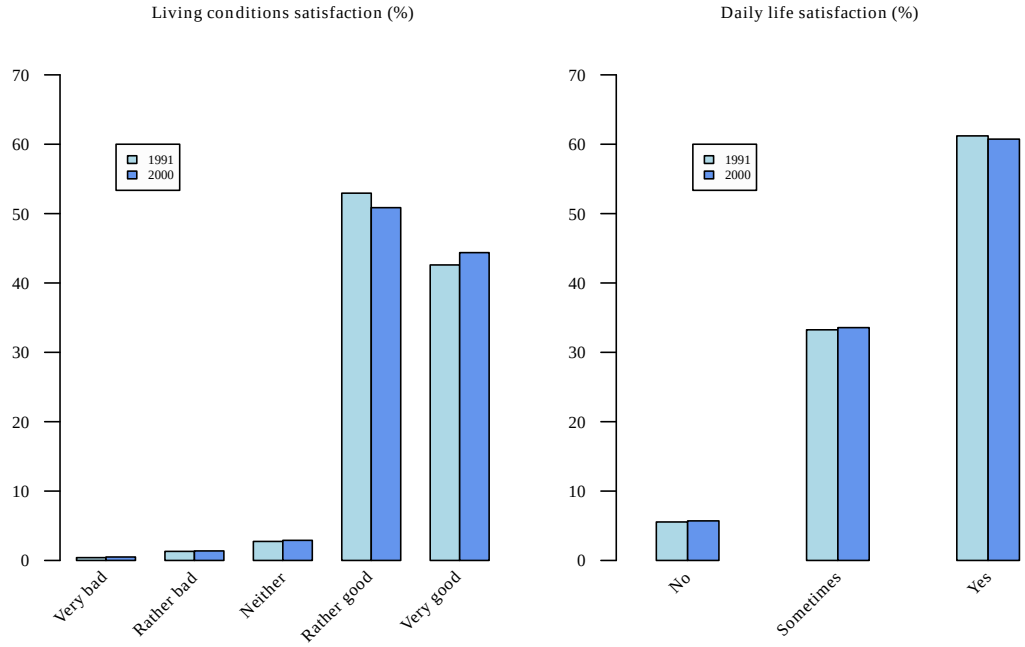

Figure 2: Living conditions satisfaction and quantiles of household income, 40th–60th quantile reference. (Columns 1 and 3 from table 7.)

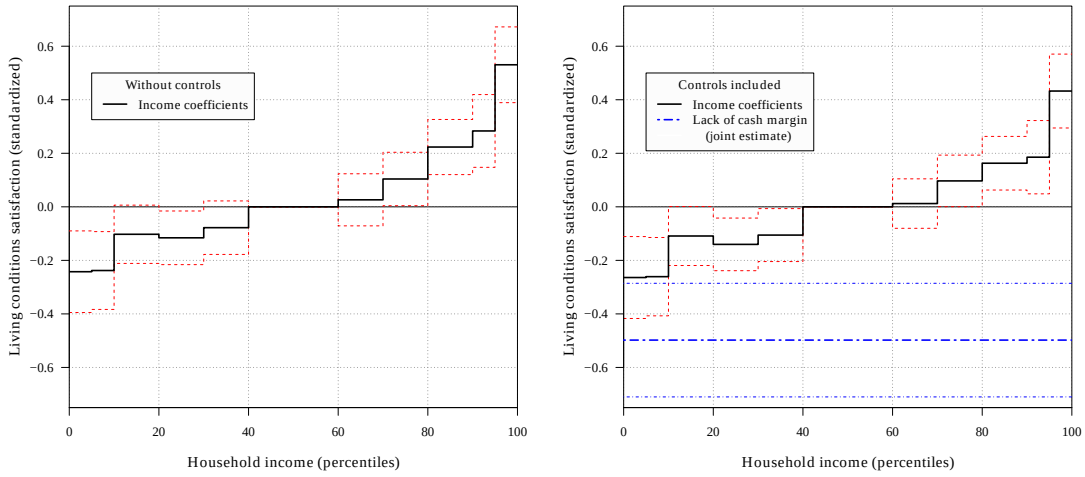

Figure 3: Daily life satisfaction and quantiles of household income, 40th–60th quantile reference. (Columns 1 and 3 from table 8.)

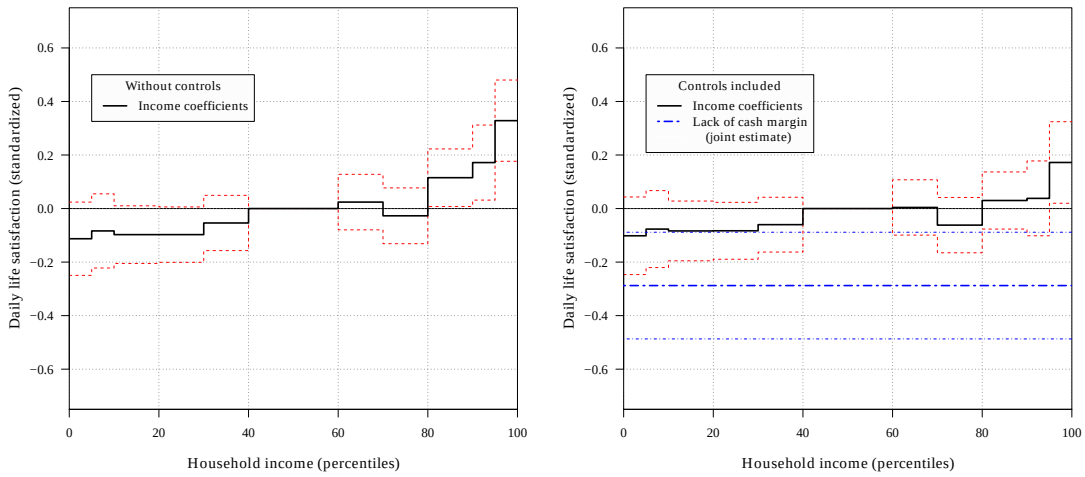

Figure 4: Living conditions satisfaction and log household income, 40th–60th quantile reference. (Columns 1 and 3 from table 7.)

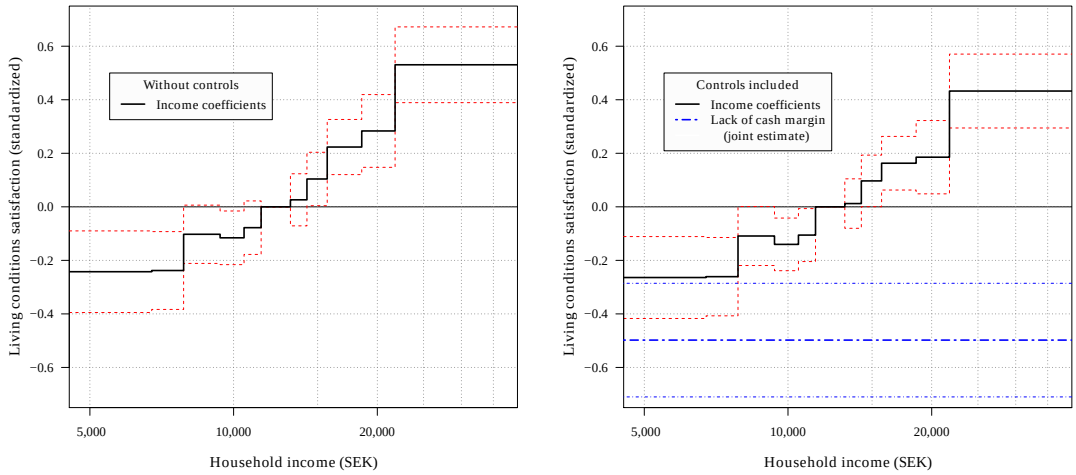

Figure 5: Daily life satisfaction and log household income, 40th–60th quantile reference. (Columns 1 and 3 from table 8.)

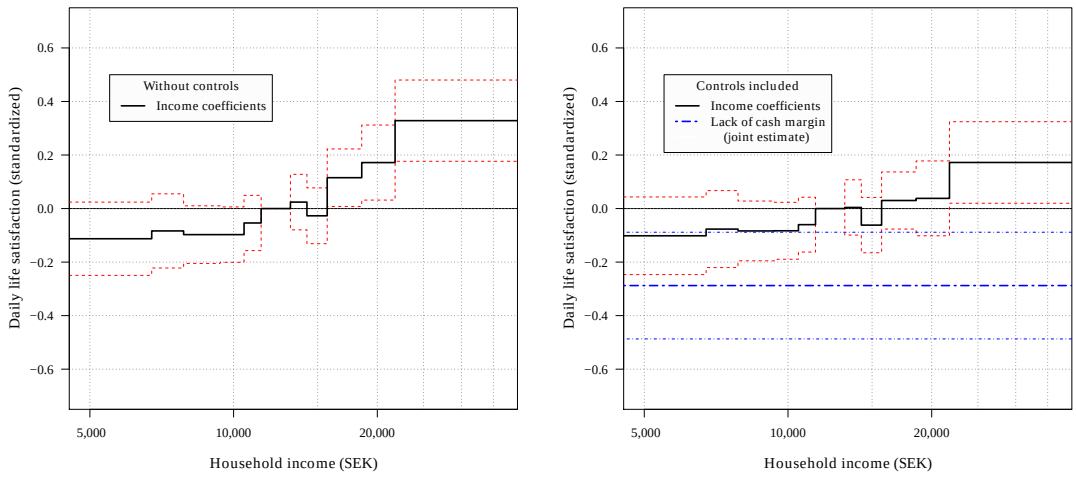

Table 1: Living conditions satisfaction 2000, conditional on satisfaction 1991

"We have now been through a lot of questions about your living conditions in different areas. How do you yourself view your own conditions? By and large, do you think that your situation is very good, rather good, neither good nor bad, rather bad, or very bad?"

	2000 satisfaction					
1991 satisf.	*Very bad* %	*Rather bad* %	*Neither* %	*Rather good* %	*Very good* %	Individuals
Very bad	7.7	23.1	23.1	46.2	0	13
Rather bad	9.5	11.9	14.3	47.6	16.7	42
Neither	0	3.4	21.6	60.2	14.8	88
Rather good	0.5	1.7	3.2	64.9	29.7	1699
Very good	0.1	0.3	0.8	33	65.8	1367

Table 2: Daily life satisfaction 2000, conditional on satisfaction 1991

"Do you usually feel that your daily life is a source of personal satisfaction?"

	2000 satisfaction			
1991 satisfaction	*No* %	*Yes, sometimes* %	*Yes, most often* %	Individuals
No	27.5	41	31.5	178
Yes, sometimes	6.7	45.4	48	1067
Yes, most often	3.2	26.5	70.3	1964

Table 3: Descriptive statistics, means (sd)

		Living conditions			Cash margin	
	All	*< Rather good*	*Rather good*	*Very good*	*No*	*Yes*
High daily life sat.	0.61	0.25	0.51	0.77	0.43	0.63
	(0.49)	*(0.43)*	*(0.5)*	*(0.42)*	*(0.49)*	*(0.48)*
Household income	13.27	10.9	12.55	14.38	10.97	13.48
	(8.7)	*(3.81)*	*(5.31)*	*(11.69)*	*(3.38)*	*(9)*
Personal income	13.32	11.11	12.82	14.15	10.65	13.56
	(10.72)	*(4.34)*	*(7.55)*	*(13.89)*	*(4.09)*	*(11.1)*
No cash margin	0.08	0.27	0.11	0.04		
	(0.28)	*(0.44)*	*(0.31)*	*(0.19)*		
Female	0.52	0.47	0.48	0.57	0.68	0.5
	(0.5)	*(0.5)*	*(0.5)*	*(0.5)*	*(0.47)*	*(0.5)*
Age	45.93	46.19	45.95	45.88	41.43	46.34
	(13.29)	*(13.87)*	*(13.25)*	*(13.28)*	*(13.12)*	*(13.23)*
High school	0.42	0.42	0.44	0.41	0.46	0.42
	(0.49)	*(0.49)*	*(0.5)*	*(0.49)*	*(0.5)*	*(0.49)*
Higher education	0.26	0.23	0.22	0.32	0.16	0.27
	(0.44)	*(0.42)*	*(0.42)*	*(0.46)*	*(0.37)*	*(0.45)*
Symptom index	6.44	11.05	6.77	5.54	9.5	6.16
	(5.59)	*(7.86)*	*(5.69)*	*(4.84)*	*(7.47)*	*(5.29)*
Cohabiting	0.77	0.47	0.73	0.85	0.57	0.79
	(0.42)	*(0.5)*	*(0.44)*	*(0.36)*	*(0.5)*	*(0.41)*
Cohab. parent	0.4	0.25	0.4	0.43	0.4	0.4
	(0.49)	*(0.43)*	*(0.49)*	*(0.49)*	*(0.49)*	*(0.49)*
Single parent	0.04	0.12	0.05	0.02	0.14	0.03
	(0.2)	*(0.32)*	*(0.22)*	*(0.14)*	*(0.35)*	*(0.17)*
Full time	0.54	0.44	0.56	0.53	0.44	0.55
	(0.5)	*(0.5)*	*(0.5)*	*(0.5)*	*(0.5)*	*(0.5)*
Part time	0.16	0.09	0.15	0.18	0.21	0.16
	(0.37)	*(0.29)*	*(0.36)*	*(0.39)*	*(0.41)*	*(0.37)*
Self-employed	0.08	0.07	0.07	0.09	0.02	0.08
	(0.27)	*(0.26)*	*(0.25)*	*(0.29)*	*(0.15)*	*(0.28)*
Unemployed	0.03	0.09	0.03	0.02	0.1	0.02
	(0.17)	*(0.29)*	*(0.18)*	*(0.14)*	*(0.3)*	*(0.15)*
N	6418	296	3331	2791	535	5883

High daily life sat. = 1 for those replying "Yes, most often". Incomes reported in thousands of monthly SEK, year 2000 prices. Questions and variable definitions in section 3.2 and Appendix I.

Table 4: Household income quantile cutoffs 1991 and 2000

Percentile	1991	2000
5th	6520	6900
10th	7760	8050
20th	9150	9660
30th	10100	10900
40th	11100	11900
60th	12500	13900
70th	13400	15100
80th	14700	17000
90th	16800	20100
95th	18900	23900
Max	372000	192000

Household income in monthly SEK, year 2000 prices. Details in section 3.2 and Appendix I.

Table 5: Living conditions satisfaction, logarithmic income specifications

	Pooled cross-section			Fixed effects		
	(1)	(2)	(3)	(4)	(5)	(6)
Household income (log)	0.45***		0.39***	0.096		0.12
	(0.043)		*(0.046)*	*(0.091)*		*(0.1)*
No cash margin		−0.76***	−0.5***		−0.54***	−0.41***
		(0.057)	*(0.055)*		*(0.12)*	*(0.12)*
Female			0.3***			
			(0.033)			
Symptom index			−0.03***			−0.029***
			(0.0029)			*(0.006)*
Cohabiting			0.42***			0.47***
			(0.051)			*(0.11)*
Divorced or widow			−0.12*			−0.14
			(0.07)			*(0.16)*
Cohab. parent			−0.11***			−0.12*
			(0.037)			*(0.069)*
Single parent			−0.23***			−0.24
			(0.082)			*(0.16)*
Part time			0.07*			0.14*
			(0.04)			*(0.081)*
Self-employed			0.22***			0.19
			(0.058)			*(0.12)*
Unemployed			−0.14*			−0.25*
			(0.083)			*(0.14)*
Other controls	No	No	Yes	No	No	Yes
Year FE	Yes	Yes	Yes	—	—	—
N	6418	6418	6418	1317	1317	1317
$\overline{R^2}$	0.03	0.04	0.16	0.00	0.03	0.14

Significant at *** 1%, ** 5%, * 10%. Ordered logit regressions, coefficients standardized by latent variable standard deviation, standard errors cluster-robust w.r.t. individuals. 'Other controls' refer to dummy variables for level of education, age group, retired, and 'other occupation' (the first only for cross-section regressions).

Table 6: Daily life satisfaction, logarithmic income specifications

	Pooled cross-section			Fixed effects		
	(1)	(2)	(3)	(4)	(5)	(6)
Household income (log)	0.23***		0.13***	−0.086		−0.071
	(0.04)		*(0.045)*	*(0.089)*		*(0.1)*
No cash margin		−0.48***	−0.29***		−0.27***	−0.23**
		(0.051)	*(0.053)*		*(0.1)*	*(0.11)*
Female			0.18***			
			(0.033)			
Symptom index			−0.032***			−0.03***
			(0.0029)			*(0.0057)*
Cohabiting			0.27***			0.22**
			(0.05)			*(0.1)*
Divorced or widow			0.033			0.019
			(0.067)			*(0.14)*
Cohab. parent			0.018			−0.11
			(0.039)			*(0.067)*
Single parent			0.071			−0.15
			(0.084)			*(0.13)*
Part time			0.04			0.0069
			(0.043)			*(0.081)*
Self-employed			0.22***			0.31**
			(0.061)			*(0.13)*
Unemployed			−0.18**			−0.025
			(0.082)			*(0.12)*
Other controls	No	No	Yes	No	No	Yes
Year FE	Yes	Yes	Yes	—	—	—
N	6418	6418	6418	1414	1414	1414
$\overline{R^2}$	0.01	0.02	0.08	0.00	0.01	0.06

Significant at *** 1%, ** 5%, * 10%. Ordered logit regressions, coefficients standardized by latent variable standard deviation, standard errors cluster-robust w.r.t. individuals. 'Other controls' refer to dummy variables for level of education, age group, retired, and 'other occupation' (the first only for cross-section regressions).

Table 7: Living conditions satisfaction, non-parametric income specifications

	Pooled cross-section			Fixed effects		
	(1)	(2)	(3)	(4)	(5)	(6)
Household inc, 0–5p	−0.24***		−0.26***	−0.099		−0.1
	(0.078)		*(0.078)*	*(0.14)*		*(0.15)*
Household inc, 5–10p	−0.24***		−0.26***	−0.13		−0.23*
	(0.074)		*(0.075)*	*(0.13)*		*(0.14)*
Household inc, 10–20p	−0.1*		−0.11*	−0.14		−0.13
	(0.056)		*(0.056)*	*(0.096)*		*(0.098)*
Household inc, 20–30p	−0.12**		−0.14***	−0.11		−0.11
	(0.051)		*(0.05)*	*(0.094)*		*(0.088)*
Household inc, 30–40p	−0.078		−0.11**	−0.078		−0.16*
	(0.051)		*(0.05)*	*(0.094)*		*(0.09)*
Household inc, 60–70p	0.026		0.012	−0.11		−0.1
	(0.05)		*(0.047)*	*(0.091)*		*(0.088)*
Household inc, 70–80p	0.1**		0.097**	0.024		0.051
	(0.051)		*(0.049)*	*(0.095)*		*(0.092)*
Household inc, 80–90p	0.22***		0.16***	0.029		0.041
	(0.053)		*(0.051)*	*(0.1)*		*(0.1)*
Household inc, 90–95p	0.28***		0.19***	−0.24*		−0.25*
	(0.069)		*(0.07)*	*(0.13)*		*(0.14)*
Household inc, 95–100p	0.53***		0.43***	0.1		0.15
	(0.072)		*(0.07)*	*(0.16)*		*(0.16)*
No cash margin		−0.76***	−0.5***		−0.54***	−0.42***
		(0.057)	*(0.055)*		*(0.12)*	*(0.12)*
Year FE	Yes	Yes	Yes	—	—	—
Full controls	No	No	Yes	No	No	Yes
N	6418	6418	6418	1317	1317	1317
$\overline{R^2}$	0.03	0.04	0.17	0.01	0.03	0.16

Significant at *** 1%, ** 5%, * 10%. Ordered logit regressions, coefficients standardized by latent variable standard deviation, standard errors cluster-robust w.r.t. individuals. 'Full controls' refer to dummy variables for level of education, sex, age group, health, family conditions and occupation (the two former only for cross-section). Reference income quantile is 40th–60th percentiles.

Table 8: Daily life satisfaction, non-parametric income specifications

	Pooled cross-section			Fixed effects		
	(1)	(2)	(3)	(4)	(5)	(6)
Household inc, 0–5p	−0.11		−0.1	−0.027		−0.028
	(0.07)		*(0.074)*	*(0.14)*		*(0.15)*
Household inc, 5–10p	−0.084		−0.077	0.071		0.051
	(0.071)		*(0.073)*	*(0.12)*		*(0.13)*
Household inc, 10–20p	−0.097*		−0.084	−0.065		−0.071
	(0.055)		*(0.057)*	*(0.095)*		*(0.1)*
Household inc, 20–30p	−0.097*		−0.083	0.051		0.041
	(0.053)		*(0.054)*	*(0.086)*		*(0.086)*
Household inc, 30–40p	−0.054		−0.06	0.031		0.017
	(0.053)		*(0.052)*	*(0.084)*		*(0.084)*
Household inc, 60–70p	0.024		0.0041	0.023		0.036
	(0.053)		*(0.053)*	*(0.086)*		*(0.087)*
Household inc, 70–80p	−0.027		−0.062	−0.26***		−0.27***
	(0.053)		*(0.053)*	*(0.093)*		*(0.09)*
Household inc, 80–90p	0.12**		0.03	−0.11		−0.1
	(0.055)		*(0.054)*	*(0.1)*		*(0.1)*
Household inc, 90–95p	0.17**		0.038	−0.22*		−0.23*
	(0.072)		*(0.071)*	*(0.13)*		*(0.13)*
Household inc, 95–100p	0.33***		0.17**	0.028		0.0013
	(0.077)		*(0.078)*	*(0.15)*		*(0.15)*
No cash margin		−0.48***	−0.29***		−0.27***	−0.23**
		(0.051)	*(0.054)*		*(0.1)*	*(0.11)*
Year FE	Yes	Yes	Yes	—	—	—
Full controls	No	No	Yes	No	No	Yes
N	6418	6418	6418	1414	1414	1414
$\overline{R^2}$	0.01	0.02	0.08	0.02	0.01	0.08

Significant at *** 1%, ** 5%, * 10%. Ordered logit regressions, coefficients standardized by latent variable standard deviation, standard errors cluster-robust w.r.t. individuals. 'Full controls' refer to dummy variables for level of education, sex, age group, health, family conditions and occupation (the two former only for cross-section). Reference income quantile is 40th–60th percentiles.

Table 9: Comparison of income coefficients

	Living conditions satisfaction			Daily life satisfaction		
	Ind. inc.	Hh inc.	Adj. hh inc.	Ind. inc.	Hh inc.	Adj. hh inc.
Cross-section	0.16***	0.45***	0.58***	0.11***	0.23***	0.28***
	(0.03)	*(0.04)*	*(0.04)*	*(0.03)*	*(0.04)*	*(0.04)*
w. controls	0.21***	0.39***	0.37***	0.1***	0.13***	0.1**
	(0.04)	*(0.05)*	*(0.05)*	*(0.03)*	*(0.04)*	*(0.04)*
Fixed effects	−0.03	0.1	0.31***	−0.16**	−0.09	0.02
	(0.07)	*(0.09)*	*(0.09)*	*(0.07)*	*(0.09)*	*(0.08)*
w. controls	0	0.12	0.08	−0.15*	−0.07	−0.11
	(0.08)	*(0.1)*	*(0.1)*	*(0.08)*	*(0.1)*	*(0.1)*

Significant at *** 1%, ** 5%, * 10%. Each cell shows coefficient of log income from ordered logit regression on satisfaction with living conditions or daily life (individual-clustered standard errors in parentheses). Estimates are standardized by latent variable standard deviation. Columns show estimates for individual income, unadjusted per-spouse household income or household income adjusted by square root of number of household members.