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BECOMING (UN)EMPLOYED AND LIFE
SATISFACTION: ASYMMETRIC EFFECTS AND
POTENTIAL OMITTED VARIABLE BIAS IN
EMPIRICAL HAPPINESS STUDIES

Urban
Transport
Media
Sports
Socio-
Regional
Real Estate
Architectural

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Becoming (Un)employed and Life Satisfaction: Asymmetric Effects and Potential Omitted Variable Bias in Empirical Happiness Studies

Abstract: Becoming unemployed has negative effects on life satisfaction; a transition from unemployment to employment, however, has only small positive effects. This asymmetry indicates a potential “omitted variable bias” in previous empirical happiness studies, with the consequence of underestimated effects of unemployment on life satisfaction. There are also gender-specific effects of asymmetry.

Keywords: Happiness; life satisfaction; asymmetric effect; labour status; employment; unemployment
JEL classification: I31, J01, Z13

Version: August 2011

1 Introduction

The significantly negative effects of “involuntary” loss of one’s job on happiness have been documented multiple times.¹ This study challenges the implicitly assumed symmetry of the various changes in the employment situation and asks whether a transition from employment to unemployment has stronger effects on happiness than the transition from unemployment to employment. We also control for the influence of gender-specific differences and changes in income in order to isolate potential pecuniary and non-pecuniary costs at the time of the change from employment to unemployment, for example, lower self-esteem, uncertainty about the future, deteriorating health and mental disorders (WINKELMANN & WINKELMANN 1998; 1995).

¹ Cf. BLANCHFLOWER & OSWALD 2004, POWDTHAVEE 2009, STUTZER 2004 and WINKELMANN & WINKELMANN 1998, 1995.

To operationalise happiness, we apply the single-item measurement of the “Socio-Economic Panel”² and follow the trends of most of the literature, which interpret the general life satisfaction as a separately measurable category (DIENER et al., 1999) and assumes that individuals are best placed to judge their “happiness” (STUTZER & FREY, 2010).

2 Data and Empirical Strategy

We use the LONG Beta-Version 2010 of the “Socio-Economic Panel (SOEP)”, a population-representative panel survey conducted in Germany.³ The primary data set consists of fourteen transitions (1994 to 1995 and 2007 to 2008). For the respective starting year, hereinafter designated as t_0 , only such entities have been selected as were reported as either in full-time employment or unemployed both at the start of the survey and a year later (hereinafter “ $t+1$ ”).⁴ We restrict the analysis to persons aged between 20 and 65.

We generate as an endogenous variable Δ HAPP the annual change in the SOEP variable “general life satisfaction”, which ranges from 0 (“completely dissatisfied”) to 10 (“completely satisfied”). By differentiating, a range of values arises from -10 to +10 (GRÜN et al., 2010).

We establish our estimates using a pooled cross-section, controlling for different sample sizes in the SOEP by means of longitudinal and cross-sectional weighting. Against the background of the single-peaked distribution of the endogenous variable, we estimate OLS models like most of the relevant studies (FERRER-I-CARBONELL & FRIJTERS, 2004). To test the robustness of the estimates, we use “ordered logit estimates”.

² The question is: “In conclusion, we would like to ask you about your satisfaction with your life in general. Please answer according to following scale: 0 means “completely dissatisfied”, 10 means “completely satisfied”. How satisfied are you with your life, all things considered?”, <http://panel.gsoep.de/soepinfo2009/>

³ See: http://www.diw.de/en/diw_02.c.238121.en/changes_in_the_soep_data_set.html

⁴ For both points in time, therefore, people without jobs, part-time workers and the self-employed have been excluded.

The set of exogenous variables includes initially the variables frequently tested as being significant for life satisfaction, such as household income, health, number of children and partnership (STUTZER, 2004), which are used for changes in the same way as the endogenous variable.⁵ We also control for other variables, such as gender, age, region, education and $HAPP_{t-1}$ (BINDER & COAD, 2010).

The operationalisation of the variable “change in employment status” between the periods t_0 and $t+1$ yields four manifestations *Employed – Employed*, *Unemployed – Unemployed*, *Employed → Unemployed* and *Unemployed → Employed*, with the latter two being at the centre of this study. The reference category is *Employed – Employed*.

3 Results

Figure 1 shows the distribution of change in general life satisfaction at the transition from t_0 to $t+1$ for the four types of employment status. The distributions of changes in life satisfaction of the subpopulations of *Employed – Employed* and *Unemployed – Unemployed* are relatively symmetrical around zero, although the continuously employed exhibit significantly less change in their life satisfaction than the continuously unemployed. Among the continuously unemployed, there are both more positive and more negative changes in life satisfaction. The transition from employment into unemployment is associated with a right-skewed distribution ($\nu = -0.264$), that is, with more (probability) mass in the negative range. People who move from unemployment to full-time employment are characterised by a left-skewed distribution with increased mass in the positive range ($\nu = 0.185$).

⁵ Concerning changes in household income, the equivalence-weighted monthly net household income in t_0 is compared to that in $t+1$, and the growth rate is calculated.

Fig. 1 Change in Life Satisfaction by Labour Status. Pooled Cross-Section, 1994 to 2008, With Two Transitions Each.



Source: Own analysis, calculation and illustration, LONG Beta-Version SOEP (2010).

Table 1 summarises the regression results. Our estimates on the influence of variables not in the foreground are consistent with results from other studies. Thus, health has a significantly positive impact on life satisfaction (KNABE & RÄTZEL, 2010). The influence of marital status or non-marital unions shows significant effects (FERRER-I-CARBONELL & FRIJTERS, 2004). We found no significant effect on happiness resulting from the number of children, which, at least, matches the findings of most of the relevant studies (LUECHINGER, 2010).

As far as the central object of the study is concerned, the change in employment status, Employed → Unemployed, as expected, has a significantly negative effect on life satisfaction ($\beta = -0.837$), generally confirming the results of most of the other relevant studies. Previously job-seeking individuals who start full-time employment in $t+1$ (Unemployed → Employed with $\beta = 0.172$) exhibit significantly positive effects in terms of changes in their life satisfaction, but they are in absolute terms significantly less and thus constitute an asymmetric correlation be-

tween leaving and joining the labour market. This effect is the non-pecuniary effect of the transition to unemployment or employment, because the study controls for the (significant) influence of net household income.

Model B shows that changes in income can also have asymmetric effects on happiness. The reduction in income associated with the transition from t_0 to $t+1$ has a significantly more negative effect than the effect of a rise in income associated with the transition to employment. The non-pecuniary effects of the change of employment status are retained; the asymmetry (measured by the difference of the absolute size of the coefficients of the change in employment status) remains fully intact.

Model C tests for gender-specific differences. First, it should be noted that a positive change in the number of children in the household has a slightly significant positive effect for women, which is not encountered in men. Finding a partner is significantly more positive for women; however, no significant differences were found in connection with the loss of a partner. As for employment status, it is important to note that women experience a significantly lower decline in life happiness both in continuous unemployment ($\beta = 0.243$) and at the loss of a job ($\beta = 0.263$). In moving from unemployment to full-time employment, however, no significant differences have been detected between men and women; under the gender-specific version of the model, neither gender shows any further non-pecuniary happiness increases when transitioning from unemployment to employment. The asymmetry described also applies to women, but to a lesser extent than in men, because the transition to unemployment seems to affect female happiness less.

Tab. 1 Determinants of Change of Happiness; Regression Results.

Models	OLS			Ordered-Logit		
	A	B	C	A	B	C
Employment status $t_0 \rightarrow t+1$ (ref.: Employed – Employed)						
Unemployed – Unemployed	-0.576*** [0.043]	-0.577*** [0.044]	-0.681*** [0.061]	-0.822*** [0.064]	-0.734*** [0.066]	-0.945*** [0.092]
Employed → Unemployed	-0.837*** [0.053]	-0.764*** [0.053]	-0.846*** [0.066]	-1.170*** [0.080]	-1.040*** [0.080]	-1.220*** [0.097]
Unemployed → Employed	0.172*** [0.059]	0.104* [0.065]	0.078 [0.079]	0.257*** [0.085]	0.221** [0.095]	0.130 [0.117]

Unemployed – Unemployed * Female	-	-	0.243*** [0.076]	-	-	0.284** [0.112]
Employed → Unemployed * Female	-	-	0.263** [0.103]	-	-	0.446*** [0.150]
Unemployed → Employed * Female	-	-	0.085 [0.116]	-	-	0.130 [0.165]

Δ HHInc. $t_0 \rightarrow t+1$ (growth rate)	0.200*** [0.031]	0.156*** [0.036]	0.157*** [0.036]	0.266*** [0.046]	0.298*** [0.061]	0.226*** [0.056]

Unempl. → Unempl. * Δ HHInc. (growth rate)	-	0.024 [0.068]	0.021 [0.067]	-	-0.064 [0.105]	-0.021 [0.099]
Empl. → Unempl. * Δ HHInc. (growth rate)	-	0.580*** [0.139]	0.560*** [0.138]	-	0.684*** [0.191]	0.675*** [0.183]
Unempl. → Empl. * Δ HHInc. (growth rate)	-	0.222** [0.095]	0.222** [0.095]	-	0.248* [0.135]	0.270** [0.131]

Δ Health $t_0 \rightarrow t+1$	0.300*** [0.013]	0.299*** [0.013]	0.299*** [0.013]	0.436*** [0.019]	0.435*** [0.019]	0.436*** [0.019]

Δ Children $t_0 \rightarrow t+1$ (ref.: no or negative change)						
Positive Change	0.107 [0.086]	0.102 [0.086]	0.079 [0.091]	0.138 [0.109]	0.142 [0.110]	0.106 [0.116]

Positive Change * Female	-	-	0.283* [0.164]	-	-	0.391 [0.249]

Δ Partnership $t_0 \rightarrow t+1$ (ref. no change)						
Positive Change	0.242*** [0.049]	0.241*** [0.049]	0.141** [0.064]	0.324*** [0.069]	0.322*** [0.069]	0.163** [0.088]

Positive Change * Female	-	-	0.267*** [0.095]	-	-	0.429*** [0.132]
Negative Change	-0.251*** [0.057]	-0.249*** [0.057]	-0.249*** [0.078]	-0.309*** [0.086]	-0.312 [0.087]	-0.307** [0.127]

Negative Change * Female	-	-	0.005 [0.113]	-	-	0.010 [0.171]

Variables controlled in t_0 Gender, East, Age, Education, Life satisfaction						
	-----Yes-----			-----Yes-----		

Constant	-----Yes-----			-----No-----		

Adjusted R ² /LR index (Pseudo R ²)	24.25	24.30	24.38	0.0755	0.0765	0.0759
F-Statistic/ Probability (LR stat.)	199.70***	166.84***	132.04***	0.000	0.000	0.000
N	-----67,006-----			-----67,006-----		
Test (Employed - Unemployed)	190.26***	127.83***	100.21***	-	-	-

Notes: Dependent variable: Δ life satisfaction between t_0 and $t+1$; robust variance estimator with clustering for persons; robust standard errors in brackets; coefficients of the models, with error probability in parentheses: *** $p < 0.01$ - ** $p < 0.05$ - * $p < 0.1$; cross and section weights for all waves; weighted household net income by the modified OECD scale.

Source: Own analysis, calculation and illustration, LONG Beta-Version SOEP, 2010.

Overall, it can be noted that entry to and exit from the labour market has a significantly asymmetric effect on happiness. The loss of a job is associated with significantly higher pecuniary and non-pecuniary losses in life satisfaction than the corresponding gains realised when moving from unemployment to employment. For empirical social research, this means that studies that do not consider the asymmetries outlined – in our view, this is true of all studies – have a potential omitted variable bias, with the consequence that effects of unemployment on life satisfaction may be underestimated.

Literature

- BINDER, M. / COAD, A. (2010), An Examination of the Dynamics of Happiness using Vector Autoregressions. *Journal of Economic Behavior & Organization* 76 (2), 352-371.
- BLANCHFLOWER, D. / OSWALD, A. (2004), Well-being over time in Britain and the USA. *Journal of Public Economics* 88, 1359-1386.
- DIENER, E. / SUH, E.M. / LUCAS, E.R. / SMITH, H.L. (1999), Subjective well-being: Three decades of progress. *Psychological Bulletin* 125 (2), 276-302.
- FERRER-I-CARBONELL, A. / FRIJTERS, P. (2004), How important is Methodology for the estimates of the determinants of Happiness? *Economic Journal* 114, 641-659.
- GRÜN, C. / HAUSER, W. / RHEIN, T. (2010), Is Any Job Better than No Job? Life Satisfaction and Re-employment. *Journal of Labor Research* 31 (3), 285-306.
- KNABE, A. / RÄTZEL, S. (2010), Income, happiness, and the disutility of labour. *Economics Letters* 107 (1), 77-79.
- LUECHINGER, S. / MEIER, S. / STUTZER, A. (2010), Why Does Unemployment Hurt the Employed?: Evidence from the Life Satisfaction Gap Between the Public and the Private Sector. *Journal of Human Resources* 45 (4), 998-1045.
- POWDTHAVEE, N. (2009), How much does money really matter? Estimating the causal effects of income on happiness. *Empirical Economics* 39 (1), 77-92.
- STUTZER, A. (2004), The Role of Income Aspirations in Individual Happiness. *Journal of Economic Behavior & Organization* 54 (1), 89-109.
- STUTZER, A. / FREY, B.S. (2010), Recent Advances in the Economics of Individual Subjective Well-Being. *Social Research: An International Quarterly* 77 (2), 679-714.
- WINKELMANN, L. / WINKELMANN, R. (1995), Happiness and Unemployment: A Panel Data Analysis for Germany. *Konjunkturpolitik* 41 (4), 293-307.
- WINKELMANN, L. / WINKELMANN, R. (1998), Why Are The Unemployed So Unhappy? Evidence from Panel Data. *Economica* 65, 1-15.

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