

THE EFFECT OF PERSONAL AND GENERAL UNEMPLOYMENT ON SUBJECTIVE WELL-BEING

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Abstract

This paper aims to add a multilevel perspective to understanding of self-reported well-being. Not only individual level factors but also country level determinants influence our satisfaction, therefore single level models that prevail in the analysis of subjective well-being are not appropriate. The main focus lies in the analysis of the impact of personal unemployment and country's unemployment rate on life satisfaction of individuals. A two-level regression model is developed. Factors describing individual's characteristics are included at the within level, while gross national income per capita and unemployment rate are between level variables. In order to obtain the moderating effects of unemployment rate on the influence of individual's employment status on subjective well-being, a random intercept random slope model is estimated using the cross-sectional data from the sixth wave of World Values Survey. The results show that the negative effect of personal unemployment increases with the unemployment rate in the economy.

Keywords: Personal unemployment, unemployment rate, subjective well-being, reference groups, multilevel model

Acknowledgment

This research was made possible by the financial support of the European Social Fund.

Introduction

The idea of using self-assessments of life satisfaction or happiness as a way of evaluating the quality of a society goes back to Aristotle (Helliwell, 2003). In the past 20 or 30 years the economics of happiness and subjective well-being (SWB) has made a big breakthrough, which is reflected in the number of articles considering quality of life and its determinants in mainstream economic journals.

Subjective well-being can be interpreted similarly as utility, but it incorporates more than just the consequences of our choices. Psychologists use subjective well-being as a term that covers how we think and feel about our lives (Diener et al., 1999).

Studies on the determinants of SWB are usually based on the surveys, where the self-reported SWB is often a response to a single question. Researchers have proved that despite some concerns, these appear to be relatively robust indicators of a person's SWB (Dolan, Peasgood & White, 2008).

The self-reported SWB is modeled as a function of true SWB, which is determined by a number of individual, social and economic factors. Most common this is modeled as an additive function, where the error term captures individual differences in self-evaluation (ibid.):

$$SWB_i = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \varepsilon_i.$$

The two most important economic factors are unemployment and income and their effects on SWB have been studied by many researchers. In both cases we have to distinguish between the individual and country level (relative income vs. national income and individual unemployment & unemployment rate).

Clark, Frijters, and Shields (2008) provide a review of the evidence on the impact of relative and absolute income from the subjective well-being literature. In most developed countries economic growth does not lead to greater life satisfaction, while for poorer countries there is a positive relationship between the income growth and increases in the subjective well-being. This can be explained by diminishing marginal utility and is known as Easterlin paradox. Easterlin (1974) was namely the first one, who empirically showed that »national comparisons among countries and over time show an association between income and happiness which is so much weaker than, if not inconsistent with, that shown by within-country comparisons«. Many studies have confirmed the Easterlin's findings that relative income dominates the absolute income effect (e.g. Clark & Oswald, 1996, Luttmer, 2005).

In contrast to the view of new classical economists who consider unemployment as voluntary, studies on SWB support the idea that unemployment is burdensome and involuntary (Frey & Stutzer, 2002). Unemployed have around 5-15% lower SWB scores than the employed (Dolan, Peasgood & White, 2008). Winkelmann and Winkelmann (1998) have shown that » the adverse effect of unemployment is much stronger than the effect of nonparticipation«. In other words the effect of unemployment exceeds the effect of related loss of income. Same authors also provide evidence that the selection bias is minimal, which means that unemployed individuals are not those who were dissatisfied even before the job loss.

Alesina, Di Tella and MacCulloch (2004) were able to show the negative correlation between the SWB and the unemployment rates in the US, but failed to do the same on European data. On contrary, Di Tella, MacCulloch and Oswald (2001) have shown that even in Europe there is a negative effect of unemployment rate on SWB.

Non-economic factors are important as well. Empirical studies usually find social contact and health to be strongly correlated with subjective well-being (Fleche, Smith & Sorsa, 2011). Other factors include personal characteristics (e.g. Blanchflower & Oswald, 2004) and many more.

The empirical part of the paper is based on the last available (sixth) wave of the World Values Survey that was conducted between 2010 and 2014. Dataset is combined with the gross national income per capita and unemployment rate from World Bank database. Altogether there are 42 countries in the final sample and the sample size on individual level is 52,637 observations, which means that the average size of each cluster is 1,253 units.

This empirical study is intended to answer the following research questions:

- 1) How strong is the negative effect of personal unemployment on subjective well-being?
- 2) Does the overall unemployment rate in the economy affect life satisfaction of individuals?
- 3) Do people suffer more if they are jobless in a country with high or low unemployment rate?

Empirical analysis

The literature review in the previous chapter showed that the SWB is determined by factors on individual and country level. A problem that concerns the relationships between variables that are measured at a number of different hierarchical levels is a multilevel problem (Hox, 1995) and should therefore also be analyzed as such. Because of this multilevel structure, a single level analysis may be flawed. Another reason for a multilevel model lies in the World Values Survey data, which stem from a two-stage sampling design, where in first stage the primary units (countries) are sampled and then a random sample of

secondary units (individuals) is taken. The third important argument for two-level analysis comes from the previously stated research question number 3. To answer this question we have to choose a model that allows different slopes.

A multilevel modeling approach in the field of economics of happiness is still in its infancy. Despite an obvious multi-level problem most of the researchers still use single level models. Nevertheless, there are some exceptions (Schyns, 2002, Helliwell, 2003, Ballas & Tranmer, 2012).

Model

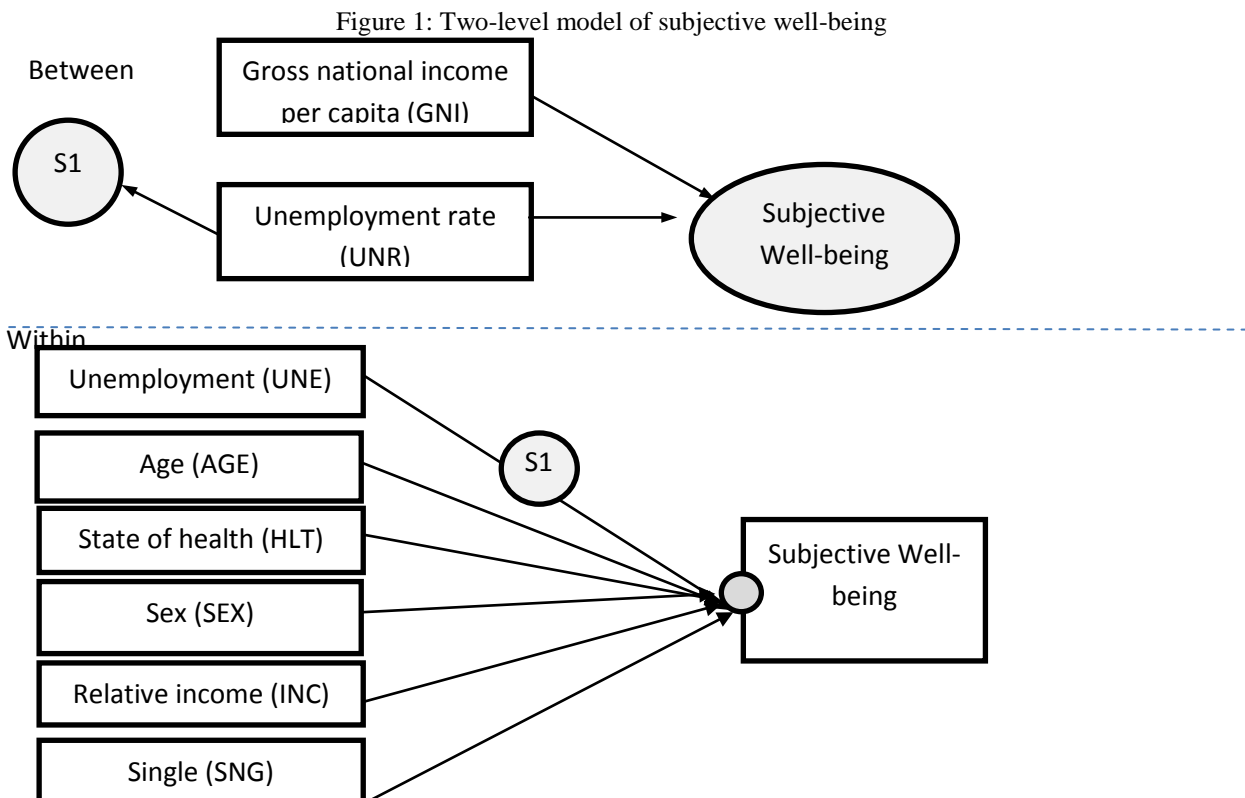
Based on the literature review we decide to include the following factors in our model:

- Age: measured in years
- Sex: male=0, female=1
- Health: very good=1, good=2, fair=3, poor=4
- Single status: married or living as married=0, single, divorced or widowed=1
- Relative income: a decile like group (self-reported)
- Employment status: unemployed=1, all other statuses=0
- Gross national income per capita (logged)
- Unemployment rate (ILO methodology)

The dependent variable in the model is subjective wellbeing. In the survey the respondents were asked to evaluate their satisfaction with life on a scale from 1 (dissatisfied) to 10 (satisfied). The following question was used: "All things considered, how satisfied are you with your life as a whole these days?"

As mentioned earlier in the text, most of the data stem from the sixth wave of World Values Survey. The exception are macroeconomic variables (unemployment and gross national income per capita), which were taken from the World Bank database.

Our two-level model is represented in *Figure 1*.



The same model can also be written as a combination of three equations. β_{g0} ($g = 1, \dots, 6$) are regression coefficients for level-one explanatory variables and γ_{0h} ($h = 1, 2$) are regression parameters for level-two explanatory variables, and e_{ij} and r_{0j} are the level-two and level-one residuals. The subscript j is for countries ($j = 1, \dots, J$) and the subscript i is for individuals ($i = 1, \dots, N_j$).

Within-group regression:

$$SWB_{ij} = \beta_{0j} + \beta_{10}UNE_{ij} + \beta_{20}AGE_{ij} + \beta_{30}HLT_{ij} + \beta_{40}SEX_{ij} + \beta_{50}INC_{ij} + \beta_{60}SNG_{ij} + e_{ij}. \quad (2)$$

Between-group regression:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}GNI_j + \gamma_{02}UNR_j + r_{0j}. \quad (3)$$

The third equation defines the relation between the slope (s_1) and unemployment rate:

$$\beta_{10} = \gamma_{10} + \gamma_{11}UNR_j + r_{1j}. \quad (4)$$

All three equations can easily be combined. By doing this we get an equation that includes two terms that are of special interest for us. One is $\gamma_{11}UNR_jUNE_{ij}$, which is the explained interaction between general and individual unemployment. The second term $r_{1j}UNE_{ij}$ is a random interaction between country and relative income, by which homoscedasticity is actually assumed in our model. In the model there are two random effects (r_{1j}, r_{0j}). For different groups, the pairs of random effects (r_{1j}, r_{0j}) are i.i.d. and they are independent of e_{ij} (Snijders & Bosker, 2012). All e_{ij} are i.i.d. as well.

Results and discussion

We used Mplus software to calculate the estimates. Our findings are in line with previous studies on the determinants of SWB. State of health⁴⁵ and relative income show positive effect on SWB. Women and couples are more satisfied than men and single. SWB increases with age. Higher GNI per capita increases life satisfaction of the citizens, while higher unemployment rates reduce it.

γ_{10} estimate is insignificant, therefore we can not confirm that being unemployed reduces SWB in all conditions. If the unemployment rate is very low, the estimated impact of joblessness is too close to zero to make a conclusion that unemployed persons are less satisfied than the rest. On the other hand the interaction between unemployment rate and individual unemployment is significant and negative, which means that the higher the unemployment rate is, the more obvious and significant is the negative impact of personal unemployment.

⁴⁵ Inverted scale: 1-very good, 5-very poor.

Table 1: Estimates

Fixed effect	Coefficient	S.E.	p
γ_{00} =Intercept	6.597**	0.309	0.000
γ_{10}	-0.097	0.118	0.409
Age	0.005**	0.001	0.000
State of health	-0.718**	0.025	0.000
Gender	0.143**	0.030	0.000
Relative income	0.220**	0.019	0.000
Being single	-0.217**	0.043	0.000
Unemployment rate	-0.039*	0.017	0.025
GNI per capita	0.275**	0.073	0.000
Interaction between personal and general unemployment	-0.029**	0.013	0.020
Random part	Parameters	S.E.	
Level-two random part			
$\tau_0^2 = \text{var}(r_{0i})$	0.358	0.087	
$\tau_1^2 = \text{var}(r_{1i})$	0.105	0.039	
$\tau_{01} = \text{cov}(r_{0i}, r_{1i})$	0.006	0.031	
Level-one variance			
$\sigma^2 = \text{var}(e_{ij})$	3.836	0.178	

The estimated regression coefficient of personal unemployment is:

$$b_{10} = -0.097 - 0.029\text{UNR}_j + r_{1j}. \quad (7)$$

Thereby we have confirmed our hypothesis that it is more burdensome to be unemployed in the countries where the unemployment rate is higher.

Conclusion

With the presented two-level model of SWB we were able to confirm the findings from previous studies on new dataset. In addition to this we have addressed an important and till now still unanswered question. The results of the empirical analysis show that being unemployed in a country with high unemployment rate is clearly worse than being unemployed in a country with low unemployment. This phenomenon can be explained by the difference in causes of personal unemployment in two different economic environments. When the economy is close to the natural rate of unemployment, those who are unemployed have voluntarily chosen to be jobless. There are enough jobs available, so whoever wants to find one, can do so. In such conditions unemployment is not burdensome or frustrating. Contrary, in economies with high unemployment rates, persons are jobless because there are not enough jobs available. In such conditions, unemployment is not a voluntary decision but a result of broader economic situation. Being unemployed is therefore burdensome and its effect on SWB consequently exceeds the effect of lost income.

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