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Working Paper No. 60

**The Social Costs of Unemployment: Accounting for
Unemployment Duration**

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The Social Costs of Unemployment: Accounting for Unemployment Duration

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Abstract: The social costs of unemployment, in terms of unemployment's impact on European citizens' life satisfaction, relate strongly to unemployment duration. At any level of general joblessness, reducing long-term unemployment is more important than reducing the number of people unemployed at any point in time.

JEL classification: J64, I31

Keywords: unemployment; unemployment duration; life satisfaction; happiness; social costs

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1. Introduction

Over the past decade or so it has become a familiar approach to assess the welfare consequences of economy-wide phenomena in terms of their impact on subjective well-being (happiness, life satisfaction).¹ Especially, the happiness consequences of unemployment have become an important field of research.² According to this literature, being unemployed features among the strongest *individual* determinants of unhappiness, and the non-pecuniary effect of being unemployed may be larger than the effect that stems from the associated loss of income (see e.g. Clark and Oswald 1994, Blanchflower 1996, Winkelmann and Winkelmann 1998). Moreover, people's happiness does not seem to adapt to the status of being unemployed (Winkelmann and Winkelmann 1998), in contrast to the adaptation noticed with respect to other circumstances.

In addition to these individual effects, unemployment may act as a *social* bad, that is, people may be unhappy about unemployment even if they are not themselves out of work. For instance, they may worry about the possibility of becoming unemployed themselves when the general unemployment level is high, or they may fear that social tension may increase. Consistent with these and related hypotheses, an important study by Di Tella et al. (2001) finds a considerable effect of the general unemployment rate on self-rated life satisfaction in several European countries, even when controlling for the individual employment status. Similar evidence has been presented for Latin America (Graham and Pettinato 2001). There is thus not only a private, but also a social cost to unemployment.

Given these findings, the aim of the present paper is to look in more detail into the linkage between general unemployment and life satisfaction. Our point of departure is the simple observation that any given level of the annual unemployment rate can arise from a certain number of persons unemployed for a short period of time or a smaller number of persons unemployed for a longer period. The question then arises whether or not life satisfaction is affected not just by the level of unemployment, but in addition by its quality in terms of how many people are long-term unemployed. If so, this would indicate that the fear of losing one's job is more pronounced when the prospect is to stay unemployed for a long time.

Using data for eleven European countries, 1992-2002, we find that the percentage of jobless people that are unemployed for more than one year affects self-rated life satisfaction in a

¹ See Frey and Stutzer (2002) or Layard (2005) for a discussion.

² Other phenomena recently studied in this way include income inequality (Alesina et al. 2004), environmental pollution (Welsch 2002, 2006a), climate (Rehdanz and Maddison 2005), aircraft noise (van Praag and Baarsma 2005) and the extent to which civil rights and liberties are held in respect (Welsch 2003).

sizable and significant way, in addition to the mere impact of the general unemployment rate. What seems to bother people is thus not just the risk of *becoming* unemployed, but especially the risk of permanently *staying* out of work. This then suggests that society may have an interest in reducing the share of long-term unemployment, even if this did not affect the overall unemployment rate.

Our life satisfaction regressions control for the inflation rate. With respect to inflation, we find that introducing unemployment duration as an additional explanatory variable raises the unhappiness from inflation. Estimates that omit unemployment duration may thus underweight the unhappiness from inflation, as inflation to some extent seems to act as a proxy for a *low* risk of being long-term unemployed.

The paper is organized as follows. Section 2 discusses the model and the data. Section 3 presents the results. Section 4 concludes.

2. The Model and Data

We consider a life satisfaction regression of the following form:

$$LS_{kit} = \alpha_{UR}UR_{it} + \alpha_{IR}IR_{it} + \alpha_{UD}UD_{it} + \alpha_{GR}GR_{it} + \beta_i + \gamma TIME + \delta D_{kit} + \varepsilon_{kit} \quad (1)$$

where LS_{kit} denotes life satisfaction of individual k in country i and year t and D_{kit} is a vector of socio-demographic characteristics. UR , IR , UD and GR are the unemployment rate, inflation rate, unemployment duration and the growth rate, respectively, and α_{UR} , α_{IR} , α_{UD} and α_{GR} the associated coefficients. The β_i are country dummies, and ε_{kit} is an error term. The regression includes a common time trend, denoted by $TIME$.³

The data on life satisfaction and socio-demographic characteristics are taken from the *Eurobarometer* survey series. They cover the period 1992 – 2002 and refer to the following countries: Belgium, Denmark, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal, Spain and the UK. The *Eurobarometer* survey is a representative survey of approximately 1000 persons per country (Germany: 2000).⁴ Given that not all of the required

³ Alternatively, we experimented with year dummies as well as country-specific time trends. Inclusion of year dummies implied near-singularity, due to the large number of dummy variables used to capture socio-demographic characteristics. Country-specific time trends turned out to be rather uniform and not to affect our findings.

⁴ The Eurobarometer public opinion surveys are conducted on behalf of the European Commission, DG Press and Communication. Each consists of approximately 1000 face-to-face interviews per Member State of persons aged 15 and over.

socio-demographic characteristics are available in all years for all countries, the regressions refer to 57533 individuals.

The life satisfaction question reads as follows: "On the whole, are you very satisfied, fairly satisfied, not very satisfied or not at all satisfied with the life you lead." The responses are rated as follows: "very satisfied" = 4, "fairly satisfied" = 3, "not very satisfied" = 2, "not at all satisfied" = 1.

The rates of growth, unemployment, and inflation are taken from the EU's Annual Macroeconomic Data Base (AMECO).⁵ They are entered in our data as percentages. The time frame considered is restricted to the post-1991 period because AMECO data prior to that date show West Germany only, not unified Germany. Unemployment duration is captured by the persons unemployed for more than one year as a percentage of the total number of unemployed people. This variable captures the risk of long-term unemployment. It is taken from the OECD Labour Market Statistics.⁶

Given the ordinal character of our dependent variable the model is estimated using an ordered probit maximum likelihood estimator. Huber/White robust standard errors are used to control for heteroskedasticity.

3. Results

Table 1 shows the results of several versions of the life satisfaction regression stated in equ. (1). The regressions include country dummies and a time trend; they control for individual characteristics of the respondents. In common with virtually all of the literature in happiness economics, being unemployed is the single most powerful individual determinant of life satisfaction, even controlling for income (see Table A1 in the Appendix). With respect to the macroeconomic variables, regression (A) shows that, over and above individual unemployment, the general unemployment rate significantly affects life satisfaction, as does inflation. Consistent with earlier findings (Di Tella et al. 2001) the weight placed on inflation is less than the weight placed on unemployment.

Regression (B) introduces our indicator for unemployment duration as an explanatory variable, in addition to the standard formulation (A). The coefficients on all three variables – unemployment rate, inflation rate, and unemployment duration – are negative and significant. In comparison to (A), the coefficient on the unemployment rate gets reduced. Regression (B)

⁵ See http://europa.eu.int/comm/economy_finance/indicators/annual_macro_economic_database/ameco_en.htm.

⁶ See <http://www1.oecd.org/scripts/cde/members/lfsdataauthenticate.asp>.

thus yields an estimate of how strongly the pure *level* of unemployment affects life satisfaction, controlling for the *quality* of unemployment in terms of the general duration of joblessness.

Another result from including unemployment duration is that the coefficient on inflation increases in magnitude, compared to regression (A). A possible explanation is that (A) involves an omitted variable bias, in the sense that inflation to some extent acts as a proxy for *low* risk of long-term unemployment.⁷ When unemployment duration is explicitly accounted for, the disutility from inflation is shown in a purer way and turns out to be larger.

For the purpose of sensitivity analysis, regressions (C) and (D) augment regressions (A) and (B), respectively, by including the growth rate as an additional regressor. In (C), which omits unemployment duration, the coefficients on the unemployment and inflation rates remain negative and significant, while the coefficient on the growth rate is positive and significant. There is thus some autonomous value placed on growth. When we compare this regression with its counterpart (A), we see that the coefficients on unemployment and inflation are now smaller. However, the drop in the unemployment coefficient is more pronounced than that in the inflation coefficient. The sharp drop in the unemployment coefficient when growth is accounted for may indicate that, in (A), the unemployment coefficient to some extent captures the disutility from a lack of growth. The “pure” disutility from unemployment as shown in (C) thus appears to be smaller than the composite effect shown in (A). Overall, regression (C) suggests that the disutility from inflation may be - at least - of a similar magnitude as that from unemployment, a result already noted by Welsch (2006b).

Finally, regression (D) augments (C) by adding unemployment duration. Similar as in (B), the unemployment and inflation rates as well as unemployment duration retain their negative and significant coefficients, while the coefficient on growth is positive and significant. The effects from including unemployment duration noted above turn out to be robust: In the first place, the coefficient on the unemployment rate gets reduced in comparison with (C), and part of the effect of the unemployment rate is now assigned to unemployment duration. In the second place, similar as above when switching from (A) to (B), the coefficient on inflation rises, suggesting that in (C) part of the disutility from inflation is mitigated by inflation being associated with lower unemployment duration.

⁷ There exists a small but significant negative correlation between long-term unemployment and inflation ($r = -0.12$).

4. Conclusions

This paper has examined the linkage between the general unemployment level and life satisfaction, placing the emphasis on the duration of unemployment. Our main finding is that the social costs of unemployment, in terms of general unemployment's impact on life satisfaction, relate significantly and to a considerable extent to unemployment duration. It is thus not just the risk of becoming unemployed that people worry about, but especially the risk of staying long-term unemployed. This is consistent with earlier evidence that people's happiness does not adapt to the status of being unemployed.

Observing that any given level of the annual unemployment rate can arise from (i) a large number of persons unemployed for a short period or (ii) a smaller number of persons unemployed for a longer period, our results suggest that society dislikes (ii) more than (i). Given the same level of general joblessness, reducing long-term unemployment thus seems to be more important than reducing the number of people unemployed at any point in time. This can be viewed as a strong point in favor of increased labor market flexibility.

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Table 1: Main regression results, 1992 – 2002, dependent variable: life satisfaction (*LS*)

	Regression (A)	Regression (B)	Regression (C)	Regression (D)
unemployment rate	-0.0456 (-9.944)	-0.0378 (-7.458)	-0.0329 (-6.053)	-0.0287 (-5.096)
inflation rate	-0.0412 (-9.424)	-0.0459 (-10.053)	-0.0358 (-7.928)	-0.0404 (-8.375)
unemployment duration		-0.0068 (-3.950)		-0.0054 (-3.026)
growth rate			0.0057 (4.338)	0.0048 (3.536)
country fixed effects	✓	✓	✓	✓
common time trend	✓	✓	✓	✓
demographic control variables	✓	✓	✓	✓
countries	11	11	11	11
total observations	57533	57533	57533	57533
Pseudo-R ²	0.12111	0.12122	0.12125	0.12132

Considered countries: EU-12 without Luxembourg; estimation method: ordered probit; t-values in parentheses.

Appendix

Table A1: Complete regression results, 1992 – 2002, dependent variable: life satisfaction (*LS*)

	Regression (A)	Regression (B)	Regression (C)	Regression (D)
unemployment rate	-0.0456 (-9.944)	-0.0378 (-7.458)	-0.0329 (-6.053)	-0.0287 (-5.096)
inflation rate	-0.0412 (-9.424)	-0.0459 (-10.053)	-0.0358 (-7.928)	-0.0404 (-8.375)
unemployment duration		-0.0068 (-3.950)		-0.0054 (-3.026)
growth rate			0.0057 (4.338)	0.0048 (3.536)
household income	0.0620 (35.844)	0.0615 (35.491)	0.0617 (35.638)	0.0614 (35.386)
household size	-0.0336 (-8.188)	-0.0333 (-8.129)	-0.0334 (-8.146)	-0.0332 (-8.106)
age	-0.0323 (-16.293)	-0.0323 (-16.269)	-0.0322 (-16.242)	-0.0322 (-16.230)
age ²	0.0004 (17.042)	0.0004 (17.019)	0.0004 (17.001)	0.0004 (16.989)
male		<i>reference group</i>		
female	0.0525 (4.933)	0.0526 (4.941)	0.0525 (4.928)	0.0526 (4.935)
education ≤ 15 years		<i>reference group</i>		
education > 15 ≤ 19 years	0.0706 (5.491)	0.0712 (5.543)	0.0714 (5.554)	0.0718 (5.585)
education > 19 years	0.1713 (11.083)	0.1722 (11.135)	0.1724 (11.154)	0.1730 (11.184)
education still	0.0626 (1.556)	0.0624 (1.552)	0.0658 (1.635)	0.0652 (1.619)
single		<i>reference group</i>		
married	0.1201 (7.624)	0.1205 (7.650)	0.1199 (7.610)	0.1203 (7.632)
living together	0.0241 (0.983)	0.0250 (1.018)	0.0243 (0.992)	0.0250 (1.018)
divorced	-0.2468 (-8.386)	-0.2479 (-8.421)	-0.2477 (-8.420)	-0.2485 (-8.443)
separated	-0.3265 (-7.500)	-0.3276 (-7.529)	-0.3281 (-7.538)	-0.3287 (-7.555)
widowed	-0.1548 (-6.337)	-0.1553 (-6.356)	-0.1565 (-6.405)	-0.1566 (-6.409)
employed		<i>reference group</i>		
unemployed	-0.4437	-0.4446	-0.4447	-0.4453

	(-19.546)	(-19.575)	(-19.590)	(-19.606)
retired	0.0214 (1.113)	0.0211 (1.101)	0.0211 (1.100)	0.0210 (1.092)
housewife	0.0430 (2.639)	0.0424 (2.601)	0.0431 (2.644)	0.0426 (2.613)
other occupation	0.2515 (6.488)	0.2519 (6.499)	0.2489 (6.419)	0.2496 (6.438)
rural		<i>reference group</i>		
small town	-0.0735 (-6.382)	-0.0734 (-6.375)	-0.0736 (-6.387)	-0.0735 (-6.381)
big town	-0.1583 (-12.765)	-0.1581 (-12.747)	-0.1579 (-12.737)	-0.1578 (-12.727)
common time trend	-0.0271 (-7.088)	-0.0201 (-4.758)	-0.0275 (-7.204)	-0.0219 (-5.141)
limit point 2	-2.4171 (-23.907)	-2.7367 (-21.051)	-2.2603 (-21.088)	-2.5385 (-17.769)
limit point 3	-1.4549 (-14.434)	-1.7741 (-13.687)	-1.2978 (-12.140)	-1.5757 (-11.057)
limit point 4	0.3110 (3.090)	-0.0080 (-0.061)	0.4684 (4.386)	0.1906 (1.339)
country fixed effects	✓	✓	✓	✓
countries	11	11	11	11
total observations	57533	57533	57533	57533
Pseudo-R ²	0.12111	0.12122	0.12125	0.12132

Considered countries: EU-12 without Luxembourg; estimation method: ordered probit; t-values in parentheses.