

# Measuring happiness: context matters

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## Abstract

We test for calendar effects and the presence of others in reports of life satisfaction using Eurobarometer data from 31 countries over 20 years. We find significant day and month, but not time of day, effects. Life satisfaction is significantly reduced in the presence of others.

Keywords: happiness; measurement

## 1. Introduction

A number of ‘happiness’ studies focus on calendar regularities, which are of particular interest, not least because individuals have a clear separation between working days and weekends that affect their mood, social life and work-related stress (Yang et al., 2001; Areni and Burger, 2008). Using BHPS data, Taylor (2006) finds that reported mental well-being lower on Sundays for women, while job satisfaction is higher on Fridays and Saturdays. Using GSOEP data, Akay and Martinsson (2009) find that Germans report their lowest levels of subjective well-being (SWB) on weekends, while different patterns emerge depending on individuals’ employment status. For example, SWB of the employed does not fluctuate between days, but decreases sharply on Sundays; that of the unemployed shows small increases during weekdays and sharp reductions over the weekend.

Another stream of research has recently examined the context in which SWB data are collected. For example, SWB responses have been shown to be susceptible to the mode of interview and the presence of others. Conti and Pudney (2011) find higher reports of job satisfaction in face-to-face compared to

self-completion interviews in BHPS data. They also find that the spouse’s presence during the interview decreases reported job satisfaction, while the presence of children increase them. Dolan and Kavetsos (2012) find that individuals consistently report higher SWB over the phone compared to face-to-face interviews and show that the determinants of SWB differ significantly by survey mode. Heffetz and Rabin (forthcoming) investigate the impact of telephone attempts to find that easy-to-reach women are happier than easy-to-reach men, while the opposite is true for hard-to-reach individuals.

Against this background, we examine the existence of similar contextual regularities using life satisfaction (4-scale) data across 31 countries over 20 years obtained from the Eurobarometer – Table 1. We estimate OLS regressions of the following form:

$$LS_{is} = a_0 + a_1Day_{is} + a_2Month_{is} + a_3Time_{is} + a_4Others_{is} + Demo_{is} + Y_t + C_s + e_i$$

Where  $LS$  denotes the life satisfaction of individual  $i$  at country  $s$ ;  $Day$ ,  $Month$ , and  $Time$  are a set of dummy variables for day, month, and time interval effects, respectively;  $Others$  is a set of dummy variables denoting the presence of other people during the interview – note that we have no information on who those ‘others’ are;  $Demo$  is a set of socio-demographic characteristics, including age, age squared, gender, marital status, employment status, education level;  $Y_t$  and  $C_s$  are year and country fixed effects.

## 2. Results

Table 2 presents the results. Compared to June, LS increases by 0.078, 0.085 and 0.089 points in December, January and February, respectively, and decreases in October. The December-January effects might be interpreted as a ‘festive’ effect (Christmas and new year). It is plausible that February’s estimate is linked to the association between monthly salary returns for days worked, since it has less than 30 days. Focusing next on day effects we find that, compared to Monday, LS scores significantly decrease on Sunday by 0.013 points on average. This confirms prior evidence suggesting that SWB is indeed lower on Sundays in anticipation of a full week coming ahead. We do not find any statistically significant time of interview effects. Finally, we look at the estimates for the presence of others during the interview. Compared to sole interviews, being interviewed in the presence of one or two additional people reduces responses by about 0.017 points.

Repeating estimations by gender we find that the month effects are only statistically significant to female respondents; male responses only appear to be significantly greater in December. Interestingly, the Sunday effect only appears to hold for the female sub-sample too.

Results by employment group produce interesting cases. There is much more variation in LS reports for the unemployed, which significantly decreases in spring and autumn months. We further find a negative Sunday effect only for stay-home individuals and the retired – for which the entire weekend appears to be ‘blue’. There are no day effects for those who are either employed or unemployed. Employed individuals report higher LS of about 0.08 points between 5-8pm, a time interval broadly reflecting the end of the working day. Finally, the presence of one additional person during the interview significantly decreases LS scores across all employment categories.

### **3. Discussion**

The economic significance of our findings is substantial. Relative effects suggest that the coefficient of December interviews is about half that of being married and more than offsets the negative coefficient associated with widowhood. Sunday’s coefficient is more than half the effect of being a male, while having one or two additional people present during the interview offsets the positive coefficient of being self-employed.

This study does not come without limitations. We have no data for July and August – the warmest and sunniest months that might be affecting SWB (Barrington-Leigh, 2008). The time intervals were pre-determined, thus limiting our scope for a more detailed investigation into the variation of responses within the course of the day. Finally, we have no information on who those ‘others’ present during the interview are.

Notwithstanding these issues, this study has provided important cross-sectional evidence on the context affecting LS responses across a large set of countries over time, and has highlighted the necessity of controlling for such effects in SWB research. Following the increasing interest policy-makers have shown lately in measures of SWB (Stiglitz et al., 2009), future research should focus more in highlighting any regularities in these measures.

## Acknowledgements

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**Table 1: Data**

	YEAR																					
	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	
BEL	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
DEN	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
FRA	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
GER	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Gr. B	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
GRE	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
IRE	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
ITA	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
LUX	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
NETH	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
N.IRE	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
POR	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
SPA	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
AUS							•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
FIN							•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
SWE							•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
BUL																•	•	•	•	•	•	
CRO																•	•	•	•	•	•	
CYP																•	•	•	•	•	•	
CZE																•	•	•	•	•	•	
EST																•	•	•	•	•	•	
HUN																•	•	•	•	•	•	
LAT																•	•	•	•	•	•	
LITH																•	•	•	•	•	•	
MAL																•	•	•	•	•	•	
POL																•	•	•	•	•	•	
ROM																•	•	•	•	•	•	
SLVK																•	•	•	•	•	•	
SLVN																•	•	•	•	•	•	
NOR			•	•	•	•	•															
FYROM																				•	•	•

**Table 2: Results**

	<b>Full Sample</b>	<b>Employed</b>	<b>Unemployed</b>	<b>Retired</b>	<b>Stay-home</b>
<b>Month</b> (Reference: June)					
<b>Jan</b>	0.085* (0.04)	0.059 (0.04)	0.100 (0.074)	0.023 (0.024)	0.199** (0.068)
<b>Feb</b>	0.089** (0.034)	0.067 (0.035)	0.092 (0.06)		0.178** (0.055)
<b>Mar</b>	-0.002 (0.017)	0.004 (0.019)	-0.133** (0.048)	0.023 (0.032)	-0.018 (0.035)
<b>Apr</b>	-0.021 (0.013)	-0.008 (0.015)	-0.124** (0.044)	-0.018 (0.028)	-0.031 (0.033)
<b>May</b>	-0.023 (0.012)	-0.004 (0.014)	-0.114** (0.04)	-0.035 (0.028)	-0.052 (0.033)
<b>Sep</b>	0.004 (0.016)	0.019 (0.017)	-0.142** (0.048)	0.012 (0.03)	-0.006 (0.036)
<b>Oct</b>	-0.027* (0.012)	-0.011 (0.014)	-0.138** (0.043)	-0.009 (0.027)	-0.054 (0.032)
<b>Nov</b>	-0.011 (0.014)	0.003 (0.015)	-0.116* (0.046)	0.006 (0.028)	-0.037 (0.033)
<b>Dec</b>	0.078** (0.021)	0.095** (0.023)	-0.028 (0.052)	0.115** (0.034)	0.031 (0.042)
<b>Day</b> (Reference: Monday)					
<b>Tue</b>	0.004 (0.003)	0.006 (0.005)	-0.002 (0.014)	-0.004 (0.007)	0.007 (0.009)
<b>Wed</b>	0.002 (0.004)	0.007 (0.005)	-0.001 (0.015)	-0.002 (0.007)	-0.001 (0.01)
<b>Thu</b>	-0.002 (0.004)	0.005 (0.005)	-0.013 (0.015)	-0.01 (0.007)	-0.011 (0.009)
<b>Fri</b>	0.001 (0.004)	0.005 (0.005)	-0.014 (0.015)	0.005 (0.007)	-0.007 (0.009)
<b>Sat</b>	-0.006 (0.004)	0.006 (0.005)	-0.026 (0.015)	-0.018** (0.007)	-0.007 (0.01)
<b>Sun</b>	-0.013* (0.004)	-0.003 (0.006)	-0.011 (0.017)	-0.024** (0.009)	-0.033* (0.013)
<b>Time</b> (Reference: before 8am)					
<b>08:00-12:59</b>	-0.001 (0.027)	0.068 (0.038)	-0.089 (0.119)	-0.035 (0.051)	-0.046 (0.073)
<b>13:00-16:59</b>	0.006 (0.027)	0.073 (0.038)	-0.073 (0.119)	-0.03 (0.051)	-0.031 (0.073)
<b>17:00-19:59</b>	0.008 (0.027)	0.08* (0.038)	-0.077 (0.119)	-0.036 (0.051)	-0.029 (0.074)
<b>20:00-23:59</b>	0.002 (0.027)	0.074 (0.038)	-0.042 (0.12)	-0.047 (0.053)	-0.038 (0.074)
<b>Other People Present</b> (Reference: none)					
<b>One</b>	-0.017** (0.003)	-0.015** (0.004)	-0.029** (0.01)	-0.014** (0.005)	-0.02** (0.007)
<b>Two</b>	-0.017** (0.005)	-0.01 (0.007)	-0.063** (0.019)	-0.02 (0.013)	-0.024 (0.014)
<b>Three</b>	-0.007 (0.01)	-0.002 (0.013)	-0.016 (0.032)	-0.004 (0.031)	-0.038 (0.023)
<b>Demographics</b>	Yes	Yes	Yes	Yes	Yes
<b>Year Effects</b>	Yes	Yes	Yes	Yes	Yes
<b>Country Effects</b>	Yes	Yes	Yes	Yes	Yes
<b>N</b>	625,097	271,410	41,776	135,456	76,908
<b>R<sup>2</sup></b>	0.218	0.208	0.184	0.251	0.172

Notes: OLS regressions. Robust standard errors in brackets clustered at the country-wave-year level.

\*\* p<0.01

\* p<0.05

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