

**SUBJECTIVE WELL-BEING OF SPANISH WORKERS:
CONTINUOUS VOLUNTARY WEB SURVEY EXAMINATION**

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ABSTRACT

This paper studies subjective well-being determinants focusing extensively on the role of working conditions. Large dataset on Spanish workers has been obtained from web surveys conducted between 2005 and 2011. First data quality is tested against a traditional probability survey. Owing to a large sample size, estimates from life-satisfaction model with standard variables confirm that results based on web-survey data align better with findings generally accepted by the existing literature. Second, we augment the model to explore the role of work-related explanatory variables which are not commonly included in traditional surveys. Finally, the paper opens opportunities for future research also by encouraging the communication between life-satisfaction researchers, labor economist and web survey methodologist.

Keywords: life-satisfaction, job quality, web surveys

JEL classification: J28, J81

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1.- Introduction

The novelty of this paper is the examination of life-satisfaction¹ determinants using data from Wage Indicator (WI) web survey and focusing on the role of working conditions. Web-collected datasets have several strengths but also drawbacks. Internet surveys allow continuous collection of information in large numbers and often data are instantly available for further analysis. Yet the validity of results may be a concern. In this paper, before running the proposed analysis, the WI sample is contrasted with the data from European Social Survey (ESS) – a traditional probability survey. Estimates from life-satisfaction model with standard variables confirm that results from web survey match well to those obtained from a traditional survey. Moreover, owing to a large sample size, results obtained from WI sample align better with findings generally accepted by the existing literature. After the quality of web survey data is tested, analysis further takes advantage of the wide array of questions collected in the web survey by testing hypothesis regarding life-satisfaction determinants referred to factors such as family-work arrangements, working conditions, satisfaction with various work characteristics, future career prospects and past working experiences, individual job preferences and subjective job security. Finally we take advantage of continuous collection of data and study reported life-satisfaction time trend between 2005 and 2011, a period characterized by several changes in Spanish economy and labor market conditions.

According to Frey and Stutzer (2010), happiness research should remain open to constructing different indicators to different aspects of life. This paper contributes to the well-being literature while it aims to emphasize the role of work related characteristics as a specific and very important aspect of life. Research on life-satisfaction, despite examining very broad areas, often neglects the importance of work related variables. Blanchflower (2008) gives an international evidence of the correlation between time use and life-satisfaction by reviewing

¹ Throughout the paper we interchangeable use the following three terms: subjective well-being, life-satisfaction and happiness.

the cross-country relationship between life-satisfaction and the U-index.² In developed countries, working time is a very important part of active labor force individuals' time use: Working population spends on average one third of daily time at the work place. Therefore, work related issues, and preferences towards work may constitute significant determinants of worker's life-satisfaction. However, traditional surveys that include well-being question often do not interview their respondents on job related domains. Another obstacle to study well-being when relying on traditional surveys is the small sample size for a specific country. Most studies therefore provide the international evidence by pooling observations of all available countries.³

This paper assesses the life-satisfaction determinants of Spanish workers while it uses data obtained through a Continuous Voluntary Web Survey (CVWS) hosted at the Spanish site of the Wage Indicator.⁴ The sample is composed by 25,768 individuals who completed the questionnaire between 2005 and 2011. Large sample size allows to study life-satisfaction determinants in Spain as the sole country and not within an international comparison. The paper finds new nuances regarding commonly accepted correlations between life-satisfaction and variables like gender, education and age by showing the importance of several work related variables that are included in WI questionnaires. The secondary aim of the paper is to encourage efforts for researchers to be able to take advance of the web as a data collection tool. This includes CVWS, like the one used in this paper, but also non-reactive data and mixed-mode probabilistic surveys including the web as a collection tool. The implementation of new technologies in data collection methods is an inevitable step that is not yet sufficiently being tackled. The future cooperation of web survey methodologists and other social scientists (Steinmetz et al. 2012a) will be essential to minimize drawbacks and facilitate the access for future global research and data mining. If the Layard's (Layard, 2005) revolution, according

² National Time Accounting is a way of measuring society's well being based on time use and its explicit form is the U-index, for "unpleasant" or "undesirable", which measures the proportion of time an individual spends in an unpleasant state. See also Kahneman and Krueger 2006.

³ Few countries collect data in large numbers that are suitable to study life-satisfaction determinants (i.e. Germany, United Kingdom, USA and Australia). International evidence often relies on European Social Survey, Eurobarometer or World Values Surveys (Leuchinger et al. 2010).

⁴ Wage Indicator project (www.wagindicator.org) is operating in 67 countries. Spanish website is www.tusalario.org.

to which every scientist, from any discipline, should be focusing in identifying happiness determinants, is to take place, it should take advantage of new technologies without neglecting the methodological underpinnings that web data still need. To this aim we contribute by demonstrating the qualities of the CVWS.

Paper is structured as follows. Section 2 provides an overview of well-being literature. Section 3, introduces the web survey data and discusses its good qualities and drawbacks. It is demonstrated that life-satisfaction determinants estimated on web survey data align well with findings from literature. Section 4 establishes hypothesis regarding work related variables to be tested. Section 5 presents estimates from nested models. Section 6 concludes and outlines future research.

2.- Life-satisfaction explanatory variables in Economic Literature

Economist have had long-standing preference for studying revealed preferences, that means, looking at individuals' decisions and choices rather than at reported preferences, for example, in a survey. However behavioral economists have shown that individuals often make irrational decisions and their choices do not align with their true preferences. Thus it is not surprising that the research of subjectively reported measures is getting attention in the last decade. Kahneman and Krueger (2006) demonstrate that the validity of subjective measures of well-being can be assessed, in part, by identifying their correlations with other characteristics of individuals. It has been shown that reported well-being is correlated with health outcomes such as blood pressure, coronary heart disease (Di Tella and MacCulloch, 2007, Kahneman and Krueger, 2006), the likeliness of becoming sick and the speed of recovery from illness (Cohen et al., 2003). Economists have contributed by examining both macro- and micro-oriented questions such as the relationship between economic growth and happiness (Easterlin, 1974); the effects of inflation and unemployment (Di Tella, MacCulloch

and Oswald, 2001) or the role of labor legislation. Many studies conclude that, although subject to many caveats, subjective measures of well-being complement traditional welfare analyses and its findings could be taken into considerations in the economic policy (Layard, 2005).

From a macro perspective, reported subjective well-being has several important advantages over traditional indicators of economic activity, such as individual income or Gross National Product (GNP) as an indicator of individuals' welfare. As documented in Frey and Stutzer (2002, 2010), the measures of subjective well-being include *non-material* aspects of human well being excluded from traditional national accounts and go beyond existing extensions of GNP (Michalos 2005, Nordhaus and Tobin 1972, Zolotas 1981, Daly and Cobb 1989, United Nations Development Programme 2005) such as the "Human Development Index". The main difference is that the reported well-being considers the *outcome* aspects of components already included in the GNP such as government activities in health and education while traditional indicators mostly measure the *input*.

The micro perspective research based on survey data examines different aspects of reported well-being and general consensus has been established in some variables.⁵ It has been found that the reported levels of life-satisfaction are higher among married, more educated, sexually active, healthy and religious individuals but also among those with higher income and low blood pressure. On the contrary lower well-being is reported by disabled, newly divorced, people in their mid-40s, unemployed, ethnic minorities, those with lower income and high blood pressure. Important finding is that money can buy happiness but the effect in absolute terms is small relative to the situation of marriage, divorce, unemployment or sexual activity. Additionally, the economists show a U-shaped relationship of reported life-satisfaction with age.⁶ Similarly relative terms are important because it has been shown that most individuals compare themselves to others (Clark and Senik, 2010). These common

⁵ Diener and Suh 1999, Layard 2005 and Frey and Stutzer 2002, Blachflower 2008

⁶ Blachflower and Oswald 2008 find robust U-shape in seventy-two countries. Scientists have suggested several reasons why compared to younger adults, older adults experience higher levels of hedonic well-being. One possibility is changes in the brain. Another is that people just aren't very good at guessing what will affect their happiness and older adults are better at emotion regulation (Urry and Gross 2010).

patterns, regarding well-being equation are found among industrialized countries. Literature further documents the importance of social contacts such as the active participation in civic organization, involvement in religion and the role of physiological measures such as temperament, personality and depression (Diener and Suh 1999, Layard 2005, Frey and Stutzer 2002, Blachflower and Oswald 2004, Blachflower 2008). It has also been shown that reported life-satisfaction is correlated with activity in the left prefrontal cortex of the brain (Urry et al. 2006)

Although working time, together with commuting time, is one of the activities in which the U-index is higher (Kahneman et al. 2004), the quality of working condition on subjective well-being have not been extensively explored. Kahneman et al. (2004), using a sample of 909 working women in Texas, show that *net affect*, a measure of mood used in psychological literature, is positively related to some job characteristics such as qualification requirement, fringe benefits, open relations with colleagues while negatively related to over qualification, stressful work and the exposure to a disturbing noise.

In the literature, temporary employment is often defined as precarious employment. As a matter of fact, temporary workers need not necessarily feel insecure and unhappy with their job if they are likely to hold continuously a job. In case of job loss, workers can count on income stability thanks to generous welfare support and are likely to find rapidly a new job. At the same time, permanent workers may feel insecure if they are likely to lose their job and labor market is characterized by high incidence of long term unemployment. The relationship between the type of contract and individual job satisfaction in Netherlands and Spain is examined in Ferrer-i-Carbonell and Praag (2006).⁷ Results confirm that for Spanish workers not having a permanent contract has a considerable negative impact on their job satisfaction, while the effect is much smaller in the Netherlands. Authors explain that the results reflect the different levels of uncertainty associated with each type of contract in two countries. The fixed-term contract in Spain may represent a low quality type of contract and it also lasts longer until it phase into permanent jobs, relative to Netherlands.

⁷ Ferrer-i-Carbonell and Praag (2006) use European Community Household Panel for 1995-2001.

Namkee (2007) uses Spanish Survey on quality of life in the workplace for years 1999-2004 to examine the relationship between job characteristics and worker's well-being. She shows that long working hours and longer commuting time have strong negative effects. Her analysis then identifies that intangible job characteristics such as work flexibility, independency, trust in superiors, pleasant and low-stress work environment are positively associated with reported life-satisfaction, both for males and females.

Few studies include separate well-being analysis for Spain within a multi-country comparison such as Peiro (2006) using World Value Survey 1996. He confirms a negative effect on life-satisfaction of unemployed or part-time workers and positive effect for self-employed relative to full-time workers.

3.- Advantages and disadvantages of the data set

Analysis based on probabilistic samples allows statistical inference and generalization of conclusions to the whole population because every individual in the target population has the same probability of being sampled. The introduction of web surveys has triggered a heated debate about the external validity of the analysis. Both strengths and weaknesses of web surveys have been discussed extensively in the literature (Couper 2000, Fricker & Schonlau 2002, Groves, 2004, Honing & Reips 2008, Musch, Bröder & Klauer 2001, Reips et al. 1999, Taylor, 2005, Tuten et al., 2002). Arguments in the favor of web surveys emphasize cost benefits, the speed of data collection in large numbers, the flexibility of questionnaire design, and the potential to reach respondents across national borders, enabling multi-country, multilingual and quasi-global homogenized surveys. Arguments against web surveys name survey errors common to all surveys, such as errors related to sampling, non-coverage, non-response and measurement (Dillman & Bowker 2001). Yet despite its attractiveness the use of data from online sources in the economic research remains rather limited (Steinmetz et al. ,2012, Askitas and Zimmerman 2009, Bustillo and Pedraza 2010). In order to improve the

representativeness of web surveys, two approaches have been followed (Couper & Miller 2008). First, the “design-based” approach attempts to build probability web surveys by applying other methods for sampling and recruitment or by providing internet access to individuals without it (De Leeuw et al. 2008, Scherpenzeel and Das 2009). Second, the “model-based” approach attempts to correct the bias of non-probability web surveys by applying weighting techniques (Bethlehem and Stoop 2007, Pedraza et al. 2010, Lee and Valliant 2009, Loosvedt and Sonck 2008, Schonlau et al. 2009).

In the future it is expected that the importance of web surveys will rise along with the increasing number of people with internet connection worldwide. This development will clearly minimize the non-coverage error. Further it has been shown that in countries with high internet penetration, the participation in online surveys is determined by attitudinal variables referred as *webographics* (Duffy et al 2005, Schonlau et al 2007) rather than by the internet availability. According to that idea, respondents in web surveys may differ not only by their demographic characteristics but also in terms of attitudinal-subjective variables such as behavior control, social factors, political orientation, etc. This suggests that *webographics* should be considered together with demographic characteristics to calibrate samples collected in web surveys (Steinmetz and Tijdens 2009). Additionally, it has been shown that self-administered questionnaires can be more reliable in the measurement of sensitive issues like wages or life-satisfaction (Kreuter et al 2009, Tourangeau et al. 2000).

The data used in this paper has been obtained from a continuous voluntary web survey hosted at the Spanish site of the Wage Indicator (WI). Detailed information about WI project, the web survey characteristics, the questionnaire and variable description are found in Tijdens et al. (2010). In this paper we exploit information on more than 25,700 individuals who completed the questionnaire between 2005 and 2011. The advantage of the large sample size together with the wide spectrum of questions on working conditions makes it a relevant dataset for testing life-satisfaction models and for scientific community in general. Two above mentioned approaches, design-based and model-based measures have been implemented in the WI project. Design-based measures such as recruiting, marketing and incentive schemes

were successful in increasing the participation of underrepresented groups (e.g. women). While the WI data are collected on voluntary basis, measures were helpful to mitigate some biases (e.g. gender bias) and to increase the overall representativeness of WI sample (Pedraza et al. 2010). Model-based measures usually use an alternative representative dataset to construct different types of weights (Steinmetz et al 2012, Steinmetz and Tijdens 2009). It has been shown that estimated parameters from the conventional salary regression obtained by using the WI data compare well to parameters obtained by using a Spanish probabilistic sample – Structures of Earnings Survey (SES) without weighting the sample (Pedraza et al. 2010). Spanish WI sample is used in Bustillo and Pedraza (2010) to corroborate a subjective job insecurity theoretical model for Spain and other four European countries.

In order to demonstrate the quality of WI sample, we make use of the European Social Survey (ESS), a traditional probability survey data. In the comparison the four waves of the ESS conducted between 2004 and 2011 in Spain are used as a reference sample. ESS interviews all respondents on face to face basis.⁸ Importantly ESS includes relevant information on individual's family arrangements, work and different domains of well-being although not all questions are repeated in all waves. Yet the desirable time coverage makes ESS a suitable dataset to compare with WI sample. Table 1 informs about the time frame of survey data used in the analysis. The samples are limited to employed individuals 15 to 64 years old and to observations with complete information. As discussed above the main advantage of WI sample is that it is being collected continuously and in substantially larger numbers relative to traditional surveys like ESS (there are 5,379 observations in ESS compare to 25,768 in WI sample). The sample characteristics of both surveys are presented in Table 2. If ESS sample is taken as representative of Spanish population then high educated and younger participants are overrepresented in WI surveys., Individuals in WI sample are mostly working on a permanent contract and report higher salary. This is because WI website is mostly visited by young workers of higher education who seek the information about wages. Naturally some discrepancies between WI and ESS samples can be attributed to the lower

⁸ Based on ESS documentation report, the average response rate in Spain was about 65% in all waves.

internet accessibility among low-skilled and low-paid workers. Some sample characteristics like the share of females or the share of workers living together with parents are remarkably similar in both samples. On contrary samples differ largely in the share of workers with supervisory position or long working hours. The comparison further reveals that respondents in web surveys report substantially lower satisfactions with life. The average level of life-satisfaction in WI is lower throughout the observed period (Figure 1) but also the distribution of responses differs between samples (Figure 2). As stated above, it is widely accepted among surveyors that information provided in self-administered questionnaires is more reliable relative to the interviewer-assisted surveys especially when questions interfere with sensitive or private matters (notice also the differences in reported general health status). In addition the lower reported levels of life-satisfaction in WI may partly be caused by the sample composition. Despite the substantially large sample size of *WI*, Table 2 reveals that *WI* sample differs from *ESS* in several dimensions.

In the next step we contrast the quality of *WI* sample with *ESS* in the life-satisfaction regression framework. The measure of individual well-being used here is the answer to the question: “How satisfied with life as a whole are you?” Possible answers in both *ESS* and *WI* surveys come in a numerical scale from 1 to 10 where 1 is “Not satisfied at all” and 10 “completely satisfied”.⁹ The model specification includes generally accepted life-satisfaction determinants from well-being literature which are available in both surveys. Table 3 reports ordered probit estimates obtained from *ESS* and *WI* samples separately. Both data sets yield similar conclusions that are commonly found in the well-being literature. The most important factors are health status, marital status, age, and income¹⁰, which all are identified to have significant relationship and estimated with the expected sign in both samples. Maybe owing to its smaller sample size, estimates in *ESS* model do not identify significant effect of education. Having a permanent contract displays a positive and significant impact in both samples. In

⁹ The scale in *ESS* goes from 0 to 10 therefore zero is changed to one (0.6% cases).

¹⁰ Information on net monthly income is provided at the household level in the *ESS*, and is banded into eleven categories. In the regressions, we include log income calculated using the mid-point of each income bracket (same approach is adopted in Clark and Senik, 2009). *WI* sample includes information on individual gross monthly income.

addition model specification includes few variables that are not traditionally tested in the literature such as living with parents, working more than 40 hours a week, having an employed spouse, and having a supervisory position at work. These variables deliver expected effects in the WI model although they are not significant in ESS model. Still we consider them important and discuss them in the next section.

In this section we have discussed the validity and reliability of new datasets in general and WI web survey in particular. While the representativeness of WI sample is still a concern its qualities has been tested. Pedraza et al. 2010 show that conclusions obtained from WI sample match well to those obtained from SES, when estimating wage regressions. We find that WI model delivers estimates comparable to those obtained from ESS model, when studying life-satisfaction determinants. Moreover the use of WI sample enables to introduce additional explanatory variables into life-satisfaction models and thus study augmented life-satisfaction models for Spain. Yet it is necessary to bear in mind that the conclusions from this study could not be fully generalized to the whole Spanish population, while they are based on the sample of workers who voluntary decided to complete the WI questionnaire.

4.- Life-satisfaction models with work-related explanatory variables

In this section we establish the set of hypothesis regarding life-satisfaction determinants drawing from the existing literature on well-being. Our analysis is based on the sample of Spanish workers who participated in the web survey. Following this strategy we compare findings on each variable from our sample to results presented in the literature. In this way we aim both to provide further evidence on the quality of web survey sample as well as to obtain new conclusions on variables not widely presented in the life-satisfaction literature. In the later case we rely on generally accepted life-satisfaction principles and discuss phenomena like habituation, frustration and the importance of relative terms. Further

the outcomes are related to the economics of marriage, human capital and labor economics. By going beyond well-being literature we follow the idea that life-satisfaction may be considered as an empirical measure of utility (Blanchflower and Oswald 2004). Regarding the former, we provide evidence on the quality of WI sample by demonstrating that results align with available evidence and formulated hypothesis. Our estimation strategy is built on nested models for which we classify life-satisfaction determinants into 7 categories:

- 1) Personal determinants: gender, age, education, marital status, health status and gross monthly income.
- 2) Macroeconomic context, firm conjuncture and firm's exposure to shocks: regional GDP per capita, regional unemployment level, the indicator of whether labor force in the firm is increasing or decreasing, the indicator of privately owned firm.
- 3) Work related family arrangements and wealth: the indicator of main household earner, employed spouse, living with parents and house ownership.
- 4) Working conditions and job satisfaction: permanent contract, promotion in the current job, supervisory position, union membership, contract covered by collective bargaining, long working hours (more than 40 hours a week), work during nights, work on weekends, over-qualification, satisfaction with job.
- 5) Satisfaction with job-family specific characteristics: satisfaction with household income, satisfaction with family-work balance, satisfaction with working hours.
- 6) Future prospects in the working place and past experiences: on-the-job search, good career opportunities, current position will become redundant next year, worker has a previous experience of long-term unemployment.
- 7) Job preferences and personality at work: worker is eager to get promoted, values firm reputation, values nice co-workers, values permanent contract.

Below we discuss our hypothesis while in section 5 we compare them with results obtained after explaining the estimation strategy.

4.1.- Personal determinants

Relationship between personal characteristics and reported life-satisfaction is very consistent across literature. As presented in Table 3, we are able to replicate the main conclusions very well with the WI sample. In the section 5, we show that estimates preserve their pattern throughout different model specifications.

Regarding gender, most studies confirm no difference in reported well-being between men and women. Blanchflower and Oswald (2000, 2004) look at gender differences in well-being in US over long period and find the convergence process by which the positive impact of women has disappeared. It has been suggested that the process is attributed to the labor market issues (Peiró, 2006).¹¹ We test this hypothesis and study if gender impact changes when work characteristics are added in the model.

Regarding education, it is generally accepted that more educated individuals report higher levels of life-satisfaction. This outcome is in line with human capital literature that considers education as an investment that leads to a better job. The estimation of nested models allows to test whether the positive effect of higher education is particularly driven by working conditions.

Marriage is one of the most important institutions and there are a number of studies showing the positive relationship between marriage and subjective well-being (Diener et al. (1999); Myers, 1999; Stack and Eshleman, 1998; Coombs, 1991; Peiró, 2006). Economists explain the positive effect of marriage through its effect on household income. According to Becker (1973, 1974, 1981), the married individuals enjoy the benefits of household production and labor division. In addition sociologists and psychologists emphasize the increased emotional support and relational gratification (Stutzer and Frey, 2006). Following Becker's theory, living with a working spouse should convey an additional benefit. In the

¹¹ According to Blachflower 2008 the convergence process is also found among stay at home mothers which may be consider as an evidence against any labor related issue behind the convergence process between genders. However, there may also be different factors behind the convregence processes of each type of women. working women may converge to men due to worse labor conditions and because working time display higher U-indexes than housekeeping activities while stay at home women may convergence because they compare themselves with working women because they are an increasing proportion of women which make them feel frustrated.

model we test the positive effect of marriage after introducing the spouse employment status. If other factors such as those emphasized by psychologists play a role the indicator of marital status should retain its positive impact.

It is also generally accepted that well-being displays a U-shape relationship with age. Younger and older people are generally more satisfied while the lowest levels of well-being are reported by people in their mid-40s. The Spanish labor market has been characterized by the high level of protectionism towards senior workers. Hence, usually older workers enjoy better working conditions and higher job security. If working conditions are important determinants of life-satisfaction, including them in the model may alter the effect of age in two directions. First, it may move the minimum towards a higher age and, second, the relationship may change towards an L-shape by which older workers, after discounting the impact of working conditions, are not much happier than those in their 40s.

The individual health status is ranked as one of the most valued aspects in people's lives (OECD, 2012). It enhances people's opportunities to participate in the labor market as well as to have good social relationships. Individual health status is an important variable which is often neglected in the life-satisfaction models. WI sample includes the information on the self-perceived general health status, so we include the variable in every specification.

Personal income and wealth are essential components of individual well-being. Income allows people to satisfy their needs and pursue their goals while wealth helps to sustain it over time. We enter the income variable in the quadratic form to capture the diminishing contribution of higher income to the subjective satisfaction. The information on house ownership is used as the proxy for wealth.

4.2.- Macroeconomic context firm conjuncture and firm's exposure to shocks

Literature documents that the transition into unemployment generates a strong negative impact on life-satisfaction (Peiró 2006) but also that high unemployment rates indirectly affect the whole population. Di Tella et al. (2003) provide the international

evidence that high unemployment rates negatively influence the average reported life-satisfaction levels. Similarly Luechhinger et al. (2010), using regional unemployment fluctuations, find that regional unemployment reduces worker's reported life-satisfaction. In more recent study Blanchflower (2008) demonstrates that well-being across nations is negatively correlated with the unemployment rate. However, not every individual is affected equally. Di Tella and MacCulloch (2005) show different effects of high unemployment for left- and right-wing voters. In this paper we test whether the negative effects of unemployment fluctuations at the regional level can be identified in our sample of employed workers.

The well-known Easterlin paradox (Easterlin 1974, 1995, Clark et al. 2008) became one of the main issues in the well-being literature. Basically, Easterlin suggests that the increasing levels of GDP in developed countries do not translate to higher reported levels of well-being, while, at the same time, that there are positive correlations between individual income and satisfaction levels. The importance of relative terms is stated as an explanation to the Easterlin paradox. We include regional GDP per capita in the models to capture the income differences between regions and its effect on reported life-satisfaction. WI sample covers the period between 2005 and 2011, characterized by the changing economic conditions. All models include yearly dummies to capture year specific effects which may be assumed to be a proxy of aggregate economic performance of each year, on subjective well-being.

The negative economic conjuncture can have an impact on company development and hence affect workers themselves. We hypothesize that firm conjuncture constitute an important determinant of worker's well-being. The workers in the company that is growing can perceive an extra satisfaction (e.g. through having more job security). Conversely workers in the company that is shrinking may feel the opposite.

4.3.- Work related family arrangements

The ability to combine work, personal life and family commitments is important for the well-being of all household members. Heineck and Wunder (2012) demonstrate the existence of well-being spillovers within couples while looking at working time arrangements of spouses. We test the response of several variables to satisfaction within couples. A person supporting a family with his or her earnings bears the responsibility but also a difficulty with the reconciliation of family-work balance. For this reason we expect the variable identifying the principal earner of the household to have a negative association with well-being. As mentioned above, working is characterized by high U-index relative to other household duties such as child care, house work, cooking and shopping (Kahneman et al. 2004). Living with an employed spouse should generate a positive impact (through income effect) on the other side this variable is expected to lower the overall impact of marriage on well-being.

Living with parents is a Spanish phenomenon that has to do with labor market difficulties, instability and high house prices.¹² Young people continue to live with their parents at their thirties simply because they have no other choice. We expect that living with parents displays a negative impact on well-being. To capture the ability of individual to live independently we include a variable indicating a house ownership. This also captures the effect of wealth so the positive response to life-satisfaction is expected.

4.4.- Working conditions and job satisfaction

Having a good job provides people with a chance to fulfill their own ambitions, to develop skills and to build self-esteem. There are several characteristics of work-related domains which we test in the model. The Spanish labor market is characterized by a high degree of job instability reflected in the large share of workers employed on temporary contracts. Having a permanent contract is an aspiration of many, particularly of young workers below 40. Thus obtaining a job with a permanent contract can generate a positive impact on life-satisfaction. However, Oswald and Powdthavee (2008) find that adaptation and

¹² In 2008, approximately 52% of young adults aged 18-34 in Spain lived with at least one of their parents while the average in the EU is 46% (Eurostat calculations based on EU-SILC database).

habituation processes reduce the size of the effect and workers with the permanent status may not consider it important.

Having a job that matches one's aspirations and competencies is a universal aspiration of most people. The lack of recognition at work may lead to the higher incidence of frustration when worker's aspirations are not realized. One example is the situation of over-qualification which is very common issue in the Spanish labor market.¹³ We test if workers who feel over-qualified for their position also report significantly lower satisfaction levels.

Job promotion is positively perceived even if a new position often requires the higher degree of responsibility. To test this issue we introduce two variables indicating if worker holds a supervisory position and if worker was promoted in the company. As many other aspects in life, these events are subject to habituation so we may find a significant and positive effect for those who have been promoted but no impact for those that hold a supervisory position for a longer time.

Civic engagement, which refers to the activities that people perform to contribute to the functioning of society, is essential to individual well-being (OECD, 2012). One example is the active participation in the religion services (Kahneman and Krueger, 2006). We test if the involvement in the labor affairs, measured as trade union membership, displays a positive impact. Literature shows that the decision to join trade union is the consequence of low job security and job dissatisfaction. This implies that particularly less contented workers tend to join trade unions. As we have a direct measure of job security in the model, the trade union membership is expected to deliver a positive effect corresponding to the importance of civic engagement.

Irregular working schedules are considered to negatively impact the satisfaction of workers. The situations in which workers spent more than 40 hours a week at work, work at night or during weekends are marked with high U-index, meaning these are undesirable situations for most people. Unlike other studies we do not compared working hours to the preferred working time (Golden and Wiens-Tuers, 2006). We hypothesize that working long

¹³ A third of workers in our sample report they are overqualified while 6% of workers report the under-qualification.

hours in general displays a negative marginal utility for worker regardless of individual working time preferences.¹⁴

Besides the objective determinants, it is important to look at the subjective assessing on the quality of the working environment. The set of indicators includes measures of the stressful feeling at work and working in unhealthy or dangerous conditions (Namkee 2007). These variables are expected to have negative response to overall life-satisfaction.

Finally we admit there exist other domains not captured in the survey related to job characteristics and working conditions. Most likely it will not be even possible to capture all relevant questions in a survey. For this reason we include individual satisfaction with the job to the model.

4.5.- Satisfaction with job specific characteristics

WI survey asks about satisfaction with different aspect of life. These include satisfaction with working hours, household income and family-work balance. We expect that including this information into the model will help to improve the estimation and also identify the most important domains.

4.6.- Future prospects at the workplace and past working experiences

We include variables that reflect the future prospects of worker in the current position. On-the-job search process indicates that worker is less satisfied with the current position or it can signal higher job insecurity. Both options can translate negatively in the reported well-being. We test the hypothesis by including on-the-job search variable in the model together with the variable that identifies workers who think that their job will become redundant in the next year.

¹⁴ There is evidence to suggest that very long working hours can worsen personal health and increase stress (Spurgeon et al., 1997)

The length of unemployment spell can negatively affect the individual's well-being in the long-term for several reasons. Long-term unemployment places people at risk of social exclusion, poverty and deprivation. According to unemployment equilibrium theory (Pissarides, 1992) and theory on matching models (Pedraza, 2008), the experience of long-term unemployment is connected to the lower probability of finding a job, human capital eroding and impose strong negative psychological consequences on self-esteem. It has been found that unemployed individuals feel frustrated, rejected and left out (Layard et al. 1994). We test the hypothesis by including the variable that identifies workers who have a previous experience with long-term unemployment spell.

4.7.- Job preferences and personality at work

Working and economic conditions impose different effects on subjective well-being depending on personal preferences. Respondents in WI survey assign their taste for different job characteristics such as firm reputation, nice colleagues at the workplace and having a permanent contract that we can test in the model. The reason for including individual preferences is to test whether personality traits (e.g. patience, openness, ambition) are related to the satisfaction levels. Additionally we include a variable that identifies ambitious workers (those who indicate they are eager to get promoted).

5.- Estimations and Results

5.1.- The estimation strategy

The concerns about the definition of the well-being measures are often cited in the literature. Survey data on life-satisfaction and happiness are criticized because well-being measures are sensitive to the current mood, immediate context and, even the order of questions in the survey may cause particular domains of life to be temporarily salient

(Kahneman et al 2004). The relevance of these concerns depends on the intended goal of analysis. When one aims to identify the determinants of well-being, rather than to compare levels in an absolute sense, it is neither necessary to assume that the reported subjective well-being is cardinally measurable, nor that it is personally comparable (Frey and Stutzer 2005). This study follows the literature regarding dependent variable definition, model specifications and estimation methodologies. Regarding specification, we use nested models, beginning with a conventional happiness equation and later developing model by including work related variables. Given the nature of dependent variable we use ordered logit which is the appropriate model recommended in the literature.

Following the hypothesis introduced in section 4, we estimate six nested models using the sample of 25,768 observations collected between 2005 and 2011. Estimates are found in table 4. Additionally, we estimate a model that uses data from 2005 and 2006 a sample of 11,156 observations. This is because few explanatory variables were withdrawn from the questionnaire in 2008, namely working in a private firm, working in a firm where labor force is increasing or decreasing, work in stressful or dangerous environment and the indicator of subjective job insecurity. Estimates of these variables are found in Table 5. In the explanation below we generally refer to estimates in Table 4 unless otherwise specified.

5.2.- Results

In the baseline standard model (Table 4, Model 1) we include demographic, income and health variables and the estimated results are in line with the literature: the estimate of gender is essentially zero, age displays a U-shape effect, married people report higher satisfaction than not married (widowed, divorced and never married) and education has a clearly positive and increasing impact.¹⁵ The personal income enters the model in the

¹⁵ The variable indicating the presence of children in the household was not significant so it is not included in the model. Some studies include the presence of children as a determinant of well-being however the results are ambiguous. Negative or zero effect is found by some (Di Tella et al. 2003; Alesina et al. 2004; Clark 2007; Blanchflower 2008) while positive effect by others (Clark and Oswald 2002; Haller and Hadler 2006). Angeles

quadratic form to capture the diminishing return of higher income on well-being. Health status is being identified as a very strong predictor of life-satisfaction.

In the augmented models (Models 2-6) we introduce other variables and the estimates are compared with the Model 1. Few differences are worth noticing. First, the coefficient on female gender is estimated with positive and significant effect (Model 5) after variables indicating future career prospects and past experiences are introduced. This suggests that, although the difference in well-being between genders is very small and often not significant, the aforementioned convergence process between men and women is driven by work related variables, namely by past unemployment experience and the lack of future prospect at the work place. It is important to notice that these two variables refer to issues on which women are particularly affected. The first one is related to career breaks more often experienced by women due to events like maternity or elder care. The second variable captures the existence of *glass ceiling* by which the promoting is less prevalent among women and is more likely among men.

Similarly, the positive effect estimated by education variables partly reflects better working conditions to which higher education opens an access. Workers with acquired secondary education show higher satisfaction relative to those with primary education, while the effect completely disappears when working conditions are introduced in Model 3. Tertiary education remains positive and significant in all specifications but the estimated parameters decline significantly in Model 3-6.

Living in the marriage generates a premium to the well-being but also creates a burden of financial responsibility for the family. Having a spouse who is employed generates no impact. Importantly the effect of marriage remains significant in all models, although its size becomes almost 30% smaller in Model 2 after introducing variables on wealth and family arrangements. The positive and persistent effect of marriage points to other beneficial factors of marriage such as emotional support or relational gratification.

(2009) is one of few who show the effect of children on life-satisfaction is positive, large and increasing in the number children for married and widowed individuals while children make unmarried people worse off.

In accordance to most studies on well-being, we identify U-shape relationship of well-being in age in all models. In Model 1 the youngest (18-24) and the oldest (55-64) cohorts report highest well-being keeping all other variables constant. The minimum is achieved for mid-age group (35-44 years). However the results tend to change in Model 3-6 that includes working conditions and job-specific variables. In line with our hypothesis the minimum moves towards higher age (45-54 years). At the same time, a negative impact for the oldest cohort is clearly visible and age displays an L-shape rather than to a U-shape pattern. (Figure 3)

Finally, the positive impact of income is consistent across specifications but the size of impact declines between specifications. For example in Model 1 the increase of personal gross income by 1,000 EUR would be equivalent to 0.068 satisfaction points while the effect is 0.031 points in Model 3 and 0.018 points in Model 6 keeping all other variables constant.¹⁶

All models include the measures of regional economic development such as the logarithm of regional GDP per capita and regional unemployment rate. Variables capturing regional GDP per capita display a positive effect while unemployment is not identified to have significant effect despite the fact that some regions experience large increase of unemployment during economic crisis. This may be attributed to the fact that WI sample includes individuals who are employed and their well-being does not react negatively to worsening labor market conditions in the region. Firm conjuncture, captured by whether firm workforce is planned to increase or decrease in the following months, delivers an expected effect (Table 5).

Unlike traditional surveys, web survey data are collected continuously so they allow direct comparison of satisfaction levels over time. All models include year dummies. A closer look at year estimates shows an increasing tendency over time in satisfaction levels, although significant changes are noticeable between specifications. Surprisingly year 2009 delivers a strong impact. This upward tendency followed by slow decline (Figure 1) during an economic recession, can be justified calling upon Easterlin Paradox – people care about how they fare in

¹⁶ Effects are estimates from OLS regressions not presented in paper but available upon request.

comparison to others. Individuals in WI sample are all employed and therefore they are better off relative to their unemployed peers. This suggests that the decline of the upward trend may be due to adaptation in the situation when no additional satisfaction is recorded after some period. The well-being developments over time should be addressed in the future research. Blanchflower and Oswald (2004) relate economic performance and life-satisfaction over time.

Next we explain the variables additionally included in the model, some of which are not commonly present in the life-satisfaction models. Model 2 augments model 1 by introducing wealth and family arrangements. Variable indicating the main household earner captures the negative effect. This outcome may contribute to explanation of the gender well-being convergence as women are assuming the role of breadwinner more often. Peiró (2006) shows that in few countries a position of housewife has negative association with well-being. Similarly Blanchflower (2008) finds that the convergence of well-being between genders takes place also among stay-at-home mothers. The theory of comparative terms can help to explain this apparent contradiction: women at home are no longer better off because they are becoming a minority. They rather compare their situation with one of working women. Working women then compare themselves with men who have better working conditions and better career prospects.

Owning a house displays a positive impact in all models. On the other hand living with parents has a strong negative impact on well-being. Interestingly situation when one lives with parents generates two times higher disutility compare to the well-being gain in the situation of owning a house (and hence living independently).¹⁷

Model 3 additionally accounts for working conditions and general job satisfaction. Results confirm that job promotion (being promoted and holding a supervisory position) at the work place play a positive role in worker's life-satisfaction. The negative impact of over-qualification on worker's well-being can be reasoned in two ways. First, worker has invested in education and neither the expected revenue nor an aspired status in the company is realized.

¹⁷ OLS estimates of the variables *Living with parents* and *House owner* are -0.33 and 0.16 respectively in Model 3-6.

Second, in the comparative terms worker evaluates his/her status relative to his/her counterparts who have the same qualification but likely better positions.

Long-working hours (more than 40 hours a week) regardless whether it is required at the workplace or rather an individual labor supply decision, displays negative utility. This effect is quite strong while the personal income and the wide range of work characteristics are controlled for. Similarly other working schedules that are different from standard working arrangements such as work at night and work on weekends deliver significant and negative effects on life-satisfaction.

Workers with a permanent contract display higher satisfaction.¹⁸ The variable is significant in the baseline model that compares ESS and WI samples (Table 3) as well as in augmented Model 4 and marginally significant in Model 3. Several aspects are attributed to these results. First, it is important to note that temporary employees are often, low paid workers, with lack of recognition, working long hours, over-qualified and less satisfied with their job in general. In this respect permanent positions are associated with better working conditions. Therefore models which do not account for other working characteristics tend to overestimate the true effect of permanent contract per se (see the coefficient in the baseline model). In Model 5 and 6 coefficient on permanent contract drops to zero which confirms the hypothesis that permanent contract masks the wide spectrum of work characteristics. Second, due to adaptation and habituation processes the potential positive effects for workers with a permanent contract are reduced. Moreover according to Spanish legislation severance payments increase with job tenure that makes the permanent contract less approachable for young workers with short tenures. In this way, older workers with longer tenures are likely to habituate into having high severance rights.

The Spanish labor market, despite being criticized for being protective towards older workers, generates a positive gain for workers' well-being. We can show that the participation in the trade union and working contracts covered by collective agreement convey positive impact.

¹⁸ Ferrer-i-Carbonell and Praag (2006) confirms a strong positive effect on job satisfaction in the case of Spanish workers with permanent contract.

Subjective measures of satisfaction with working conditions are useful to assess how jobs are perceived to meet workers' professional, social and individual needs. In Model 3 we include worker's satisfaction with job that complements the measures of job quality not captured by previous variables. Satisfaction with job has a strong and positive response to life-satisfaction. Moreover WI survey includes explicit questions about satisfaction with other domains and these are introduced in Model 4. In particular satisfactions with household income and with family-work balance display a positive impact. The inclusion of these variables helps to disentangle the elements which are included in the overall job satisfaction. Hence naturally the impact of the overall satisfaction with job is diminished in Model 4. It is worth to notice that in Model 4 and 5 the impact of job satisfaction is roughly same as the impact of satisfaction with family-work balance. It points to the equal importance of family and work variables in the life-satisfaction models. The size of impact of satisfaction with working hours is small owing to the presence of variables describing current working schedule.

In Table 5 we present an augmented version of Model 4 with variables that are available only in 2005 and 2006 subsample. The indicator of subjective job insecurity shows a negative response with life-satisfaction. Job insecurity refers to concerns about job continuation however it does not necessarily lead to job loss or unemployment. This result is explained as a psychological burden of the contract (García et al. 2007). As expected, work under stress conditions and in unhealthy or risky environment delivers a negative effect.

Model 5 further includes variables covering future career prospect and past working experiences. The estimated parameters have all expected effects on the well-being. If current position offers a perspective career opportunity it delivers a positive effect. Conversely worker in search for another job and those knowing their current position becomes redundant next year show less satisfaction. The past experience of long-term unemployment (LTU) displays a significant negative effect. This is an important outcome since it shows that the effect persists even after the worker finds a job and working conditions are controlled. The effect may also signal a low-ability as well as the unhappy type of worker.

In general the results discussed in this section are not interpreted to have causal relationship. One can argue that individuals more satisfied with life are also more successful in life in general and also likely to secure jobs with objectively better conditions.¹⁹ To partly address the causality issues, we include worker's individual preferences which characterize the type of personality. In the model 6 we show that being an ambitious worker (i.e. eager to get promoted) delivers a positive impact on well-being. Further we include information on worker's preferences over firm characteristics such as firm reputation, nice colleagues or the stability of permanent contract.²⁰ The estimated effects of these variables are small but more importantly their inclusion does not alter the previous estimates in Model 5. A small positive effect is found for workers who value the prestigious firms, while a negative impact is found in case of workers aiming to have a permanent contract. The preference over co-workers has no relation to a personal well-being.

6.- Conclusions and discussion

Following the existing literature we have identified and explored work related variables as life-satisfaction determinants. We stress that existing survey data do not allow country specific well-being analyses. With few exceptions, samples are small and questionnaires do not inquire about work conditions. In this paper we explore an alternative sample of respondents who participated in the Wage Indicator web survey. Sample is tested against traditional probabilistic survey and the evidence of data reliability is provided. Several contributions are made to the existing well-being literature. First, and above all, we have accepted the hypothesis that the Spanish Wage Indicator sample can be used as an alternative data source for statistical inference about population well-being. Second, among others we

¹⁹ The causality is discussed in Stutzer and Frey (2006). Authors use longitudinal data to show that more satisfied individuals are also more likely to marry.

²⁰ Other preferences we tested but found insignificant: better salary, training opportunities and commuting distance.

identify income and general health status as two major life-satisfaction determinants. While the magnitude of health variables do change only by little across model specifications, the impact of income drops largely when work related variables are introduced. This outcome suggests that working conditions are important life-satisfaction determinants and helps to understand the impact of other variables generally introduced in life-satisfaction models such as individual and family characteristics. For example both elder and more educated workers are identified to be more satisfied due in part to their better labor conditions. As expected the inclusion of work characteristics diminishes the effect of age and education in the life-satisfaction model. Our results corroborate most of the hypothesis posted and give evidences of generally accepted principles referred to life-satisfaction such as the Easterlin Paradox, habituation to circumstances and the importance of relative terms and to other research streams such as long-term unemployment, long working hours, non-standard working schedules, the economics of marries, wealth measured (house ownership), Spanish phenomenon of living with parents, and channels by which economic conjuncture affect workers. Finally, results show that family-work balance is a strong predictor of life-satisfaction.

In the current context of globalization and quick changes it is well-advised to explore possibilities of new technologies in social sciences. This is especially true in research areas such as labor, international economics (Autor et al. 2011, Messenger 2007, Freeman 1995), and life-satisfaction where many consequences of globalization are still to be identified (Van Klaveren et al. 2009). Conclusions from this paper go beyond life-satisfaction research and can be used to inform researchers and methodologists responsible of existing surveys where the life-satisfaction question is included to consider both the inclusion of work related questions in their questionnaires and the use of web based sampling methods. In this sense, even if evidences given in section 3 cannot be used to generalize correlations to the whole Spanish employed population, the analyses are useful to identify several research directions: the need to include labor economics into life-satisfaction research and the urgency of existing surveys and labor economists to take advantage of web base methods. This can be done by

joining existing multidisciplinary networking process to give web data scientific validity (Steinmetz et al. 2012). This would be a step towards a quick, reliable and tailored access to a fast changing global data. Wage Indicator web surveys are already operating in more than 67 countries and, although sample characteristics differ across countries, the project opens many opportunities and serves as a laboratory in this direction.

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APPENDICES

Table 1 Number of observations in samples

year	ESS	WI
2004	1,061	
2005		6,795
2006	1,304	4,361
2007		6,090
2008	1,695	3,262
2009		1,688
2010		2,349
2011	1,319	1,223
Total	5,379	25,768

Source: European Social Survey 2004-2010, Wage Indicator 2005-2011.

Note: Sample is limited to employed Spanish individuals 18-65 years old.

Table 2 Descriptive statistics

	ESS		WI	
	mean	sd	mean	sd
Life-satisfaction	7.34	1.76	6.84	1.8
Female	0.47	0.5	0.43	0.49
Edu: Primary	0.22	0.42	0.12	0.32
Edu: Lower sec	0.27	0.45	0.09	0.28
Edu: Upper sec	0.26	0.44	0.24	0.43
Edu: Tertiary 1	0.2	0.4	0.51	0.5
Edu: Tertiary 2	0.05	0.22	0.04	0.2
Single	0.31	0.46	0.54	0.5
Married	0.61	0.49	0.42	0.49
Divorced	0.09	0.28	0.05	0.21
Age 18-24	0.09	0.29	0.07	0.26
Age 25-34	0.26	0.44	0.52	0.5
Age 35-44	0.28	0.45	0.28	0.45
Age 45-54	0.22	0.42	0.11	0.31
Age 55-64	0.14	0.35	0.02	0.14
Health: excellent	0.2	0.4	0.29	0.45
Health: good	0.51	0.5	0.34	0.47
Health: poor	0.24	0.43	0.24	0.42
Health: very poor	0.05	0.22	0.14	0.34
Lives with parents	0.23	0.42	0.22	0.42
Spouse is working	0.45	0.5	0.08	0.27
Works >40hrs	0.39	0.49	0.13	0.33
Has supervisory position	0.25	0.43	0.36	0.48
Has a permanent contract	0.53	0.5	0.76	0.42
Income/1000	2.04	1.26	2.3	4.05

Source: European Social Survey 2004-2010, Wage Indicator 2005-2011.

Note: In ESS information on net monthly income at the household level is calculated using the mid-point of each income bracket. WI includes information on individual gross monthly income. Information on income is not available for all individuals in ESS.

Table 3 Life-satisfaction equations: ESS and WI surveys

	ESS (1)	ESS (2)	WI (3)	WI (4)
Female	0.0452	0.0517	-0.0254 *	-0.0089
Edu: Primary	ref.	ref.	ref.	ref.
Edu: Lower sec	0.0732 *	0.0221	0.0201	0.0216
Edu: Upper sec	-0.0203	-0.1012 *	0.0318	0.0248
Edu: Tertiary 1	0.0804 *	-0.0191	0.1176 ***	0.0944 ***
Edu: Tertiary 2	0.0089	-0.0913	0.2027 ***	0.1685 ***
Single	ref.	ref.	ref.	ref.
Married	0.3465 ***	0.3547 ***	0.2585 ***	0.2545 ***
Divorced	-0.1554 **	-0.136 *	0.0626 *	0.0617 *
Age 18-24	ref.	ref.	ref.	ref.
Age 25-34	-0.2515 ***	-0.1606 **	-0.1343 ***	-0.1395 ***
Age 35-44	-0.3644 ***	-0.3023 ***	-0.2787 ***	-0.2909 ***
Age 45-54	-0.4093 ***	-0.3464 ***	-0.2545 ***	-0.2741 ***
Age 55-64	-0.2842 ***	-0.2087 **	-0.1081 **	-0.1394 **
Health: excellent	ref.	ref.	ref.	ref.
Health: good	-0.322 ***	-0.2538 ***	-0.4545 ***	-0.458 ***
Health: poor	-0.5347 ***	-0.4763 ***	-0.9037 ***	-0.9063 ***
Health: very poor	-0.9571 ***	-0.8058 ***	-1.2535 ***	-1.2574 ***
Lives with parents	0.0365	0.007	-0.1692 ***	-0.1617 ***
Spouse is working	0.0766 **	0.0162	0.04	0.0416
Year==2005	ref.	ref.	ref.	ref.
year==2006	0.1805 ***	0.2185 ***	0.0805 ***	0.0827 ***
year==2007			0.1057 ***	0.1015 ***
year==2008	0.0207	0.0113	0.1172 ***	0.1117 ***
year==2009			0.3013 ***	0.2946 ***
year==2010			0.2504 ***	0.2078 ***
year==2011	0.0738 *	0.0836	0.2453 ***	0.2076 ***
Works >40hrs	0.0171	-0.0097	-0.144 ***	-0.147 ***
Has supervisory position	0.1281 ***	0.0561	0.0985 ***	0.0857 ***
Has a permanent contract	0.1786 ***	0.1748 ***	0.0558 ***	0.0433 ***
Income/1000		0.1642 ***		0.0376 ***
Income/1000 sq.		-0.016 ***		-0.0008 ***
N	5405	3724	25768	25768

Source: European Social Survey 2004-2010, Wage Indicator 2005-2011.

Note: Presented are ordered probit estimates. * / ** / *** indicate significance at the 10% / 5% / 1% level.

Samples are limited to employed individuals 18-65 years old. In ESS information on net monthly income at the household level is calculated using the mid-point of each income bracket. WI includes information on individual gross monthly income. Information on income is not available for all individuals in ESS.

Table 4 Life-satisfaction equations: WI survey 2005-2011

	(1)	(2)	(3)	(4)	(5)	(6)
Female	-0.0066	-0.0212	-0.0062	0.0111	0.0289 **	0.0278 **
Edu: Primary	ref.	ref.	ref.	ref.	ref.	ref.
Edu: Lower sec	0.029	0.0304	0.0436	0.0266	0.0345	0.035
Edu: Upper sec	0.0373	0.0387 *	0.0197	0.0115	0.0217	0.0225
Edu: Tertiary 1	0.121 ***	0.123 ***	0.0855 ***	0.0721 ***	0.0821 ***	0.0837 ***
Edu: Tertiary 2	0.2001 ***	0.2107 ***	0.1695 ***	0.1597 ***	0.1647 ***	0.1625 ***
Single	ref.	ref.	ref.	ref.	ref.	ref.
Married	0.3181 ***	0.2333 ***	0.2349 ***	0.2289 ***	0.224 ***	0.2238 ***
Divorced	0.1002 ***	0.0648 *	0.0718 **	0.0825 **	0.083 **	0.0819 **
Age 18-24	ref.	ref.	ref.	ref.	ref.	ref.
Age 25-34	-0.0772 ***	-0.1274 ***	-0.1298 ***	-0.1052 ***	-0.0869 ***	-0.0846 ***
Age 35-44	-0.2004 ***	-0.2775 ***	-0.3036 ***	-0.2786 ***	-0.2445 ***	-0.241 ***
Age 45-54	-0.1857 ***	-0.26 ***	-0.3163 ***	-0.3287 ***	-0.2885 ***	-0.2834 ***
Age 55-64	-0.0549	-0.1244 **	-0.2077 ***	-0.2442 ***	-0.1975 ***	-0.1916 ***
Health: excellent	ref.	ref.	ref.	ref.	ref.	ref.
Health: good	-0.4568 ***	-0.4583 ***	-0.4557 ***	-0.4194 ***	-0.4292 ***	-0.4278 ***
Health: poor	-0.9059 ***	-0.9052 ***	-0.848 ***	-0.7418 ***	-0.7504 ***	-0.7496 ***
Health: very poor	-1.259 ***	-1.2556 ***	-1.1517 ***	-1.0234 ***	-1.0234 ***	-1.0224 ***
Income/1000	0.0436 ***	0.0401 ***	0.0206 ***	0.015 ***	0.0116 **	0.0117 **
Income/1000 sq.	-0.0009 ***	-0.0008 ***	-0.0004 ***	-0.0003 **	-0.0002	-0.0002
Regional unempl rate	0.0039	0.0039	0.0035	0.0044	0.005	0.0049
Regional GDP pc	0.1362 ***	0.127 ***	0.0896 *	0.1183 **	0.112 **	0.1107 **
Year==2005	ref.	ref.	ref.	ref.	ref.	ref.
year==2006	0.0597 ***	0.0801 ***	0.1008 ***	0.1074 ***	0.0943 ***	0.0941 ***
year==2007	0.0713 ***	0.0832 ***	0.1138 ***	0.1179 ***	0.0859 ***	0.0693 *
year==2008	0.068 ***	0.0827 ***	0.0944 ***	0.0962 ***	0.0664 **	0.0508
year==2009	0.2461 ***	0.2471 ***	0.2131 ***	0.1986 ***	0.1524 ***	0.1446 ***
year==2010	0.1394 ***	0.1326 ***	0.1187 **	0.1114 **	0.061	0.0611
year==2011	0.103 **	0.1026 *	0.0838	0.0575	0.0116	0.0066
Main household earner		-0.0356 **	-0.066 ***	-0.0323 **	-0.0352 **	-0.0339 **
Spouse is working		0.0311	0.0224	0.0014	0.0079	0.0078
Living with parent		-0.2145 ***	-0.2023 ***	-0.2164 ***	-0.2145 ***	-0.2143 ***
House owner		0.1487 ***	0.1289 ***	0.0956 ***	0.1003 ***	0.102 ***
Permanent contract			0.0241	0.0289 *	0.008	0.0084
Promotion in current job			0.0473 ***	0.0418 ***	0.0044	0.0024
Has supervisory position			0.0264 *	0.0362 **	0.0197	0.0167
Union membership			0.0374 **	0.0377 **	0.0453 ***	0.0476 ***
Covered by collective bargaining			0.0773 ***	0.0553 ***	0.0421 **	0.0427 **
Works >40hrs			-0.0891 ***	-0.0402 **	-0.0464 **	-0.0487 **
Works in night			-0.0848 ***	-0.028 *	-0.0297 **	-0.03 **
Works on weekend			-0.0813 ***	-0.0551 ***	-0.055 ***	-0.0547 ***
Over qualified for job			-0.1093 ***	-0.1027 ***	-0.0825 ***	-0.0839 ***
Satisfied with job			0.5635 ***	0.4514 ***	0.3789 ***	0.3783 ***
Satisfied with household income				0.2914 ***	0.2774 ***	0.2796 ***
Satisfied with family-work balance				0.3912 ***	0.3861 ***	0.3851 ***
Satisfied with working hours				0.077 ***	0.0707 ***	0.0702 ***
On-the-job search					-0.1268 ***	-0.1293 ***
Good career opportunities					0.2094 ***	0.1965 ***
Job will become redundant next year					-0.1663 ***	-0.1633 ***
Long-term unemployment experience					-0.0973 ***	-0.095 ***
Eager to get promoted						0.0472 ***
Preference: firm with reputation						0.0336 **
Preference: nice co-workers						-0.0035
Preference: permanent contract						-0.0638 **
N	25768	25768	25768	25768	25768	25768

Source: Wage Indicator 2005-2011.

Note: Presented are ordered probit estimates. * / ** / *** indicate significance at the 10% / 5% / 1% level.

Samples are limited to employed individuals 18-65 years old.

Table 5 Life-satisfaction equations: WI survey 2005-2006

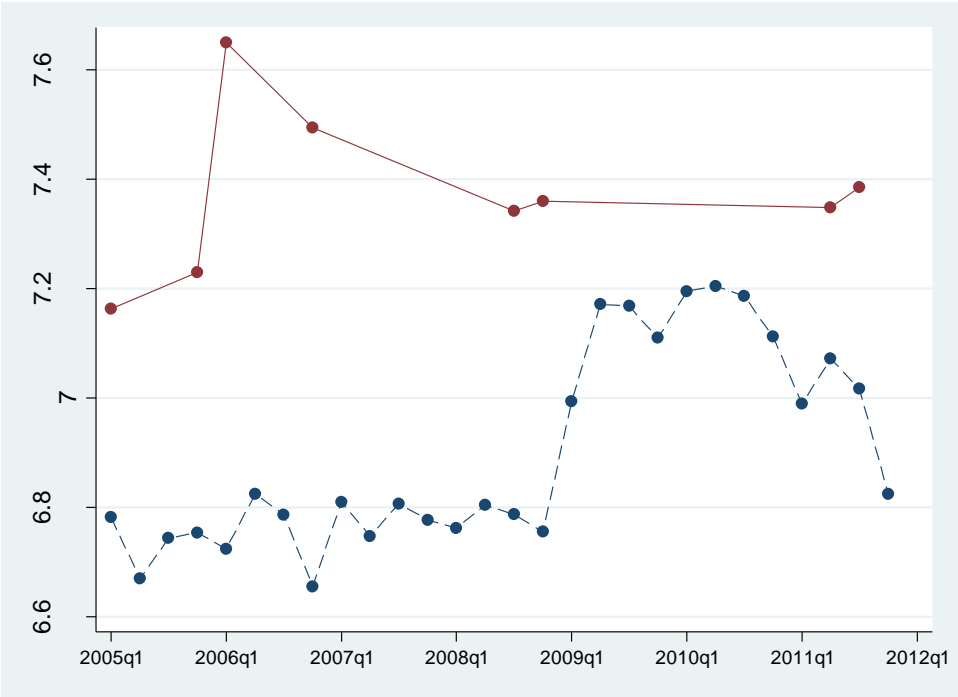
	(1)
Female	0.0235
Edu: Primary	ref.
Edu: Lower sec	0.0702
Edu: Upper sec	0.0482
Edu: Tertiary 1	0.0659 *
Edu: Tertiary 2	0.1521 ***
Single	ref.
Married	0.2238 ***
Divorced	0.0441
Age 18-24	ref.
Age 25-34	-0.0457
Age 35-44	-0.2585 ***
Age 45-54	-0.3274 ***
Age 55-64	-0.263 ***
Health: excellent	ref.
Health: good	-0.3251 ***
Health: poor	-0.5669 ***
Health: very poor	-0.8372 ***
Personal income in 1000	0.0347 ***
Personal income square	-0.0009 **
Regional unempl rate	-0.0066
Regional GDP pc	-0.0332
Year==2005	ref.
year==2006	0.2878 **
Main household earner	-0.0797 ***
Spouse is working	0.0006
Living with parents	-0.2445 ***
House owner	0.1146 ***
Permanent contract	0.0088
Has been promoted in current job	0.0471 **
Has supervisory position	0.0483 **
Member of labour union	0.0622 **
Job covered by collective bargaining	0.0573 **
Works >40hrs	-0.0786 **
Works in night	0.0006
Works on weekend	-0.0332
Over qualified for job	-0.0693 ***
Satisfied with job	0.4569 ***
Satisfied with household income	0.2881 ***
Satisfied with family-work balance	0.4724 ***
Satisfied with working hours	0.0502 **
Worry about job insecurity	-0.0414 **
Work: job is stressful	-0.0908 ***
Work: job is risky for health	-0.1871 ***
Firm workforce increasing	0.0522 *
Firm workforce decreasing	-0.1108 ***
N	11156

Source: Wage Indicator 2005-2006.

Note: Presented are ordered probit estimates. * / ** / *** indicate significance at the 10% / 5% / 1% level.

Samples are limited to employed individuals 18 and 65 years old. All models include year controls.

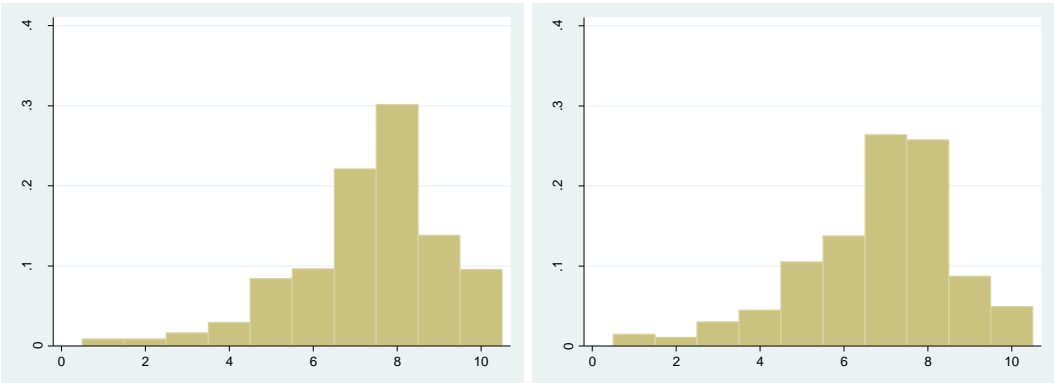
Figure 1. Reported life-satisfaction in the ESS and the WI



Source: European Social Survey 2004-2010, Wage Indicator 2005-2011 (dashed line).

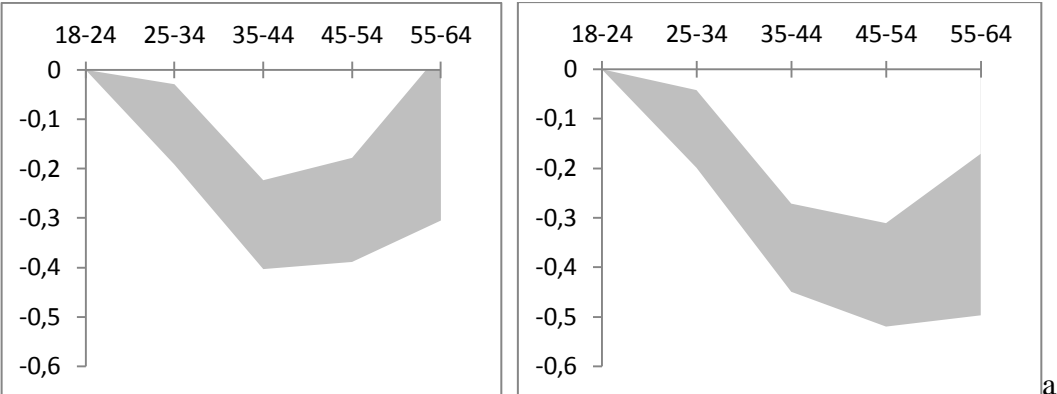
Note: Presented figure are quarterly averages.

Figure 2. Reported life-satisfaction in the ESS (left) and the WI (right)



Source: European Social Survey 2004-2010, Wage Indicator 2005-2011.

Figure 3. Marginal contribution to life-satisfaction by age (95% confidence intervals)



Source: Wage Indicator 2005-2011.

Note: Figure plots OLS estimates of age dummies from Model 1 (left) and Model 5(right) in Table 4.