Labor earnings and Psychological well-being: An Empirical Analysis

Grimani, Katerina

National and Kapodistrian University of Athens

4 July 2014

Labor earnings and Psychological well-being: An Empirical Analysis

By

Katerina Grimani

University of Athens

July 2014

Abstract

The starting point of this paper is the idea that individuals are characterized by hierarchical behavior. The theory of hierarchical needs implies that individuals have a priority approach to psychological well-being. This means that the most important needs must be satisfied first before the secondary needs come into the picture. The theory can also offer additional insights to the research field which investigates the relationship between labor earnings and psychological well-being levels. The paper uses the *5th European Working Conditions Survey (2010)* which contains data from 33 European countries and Turkey. In the proposed models, psychological well-being and work related stress are placed as the dependent variables and labor earnings as the independent variable. The ordinary least squares (OLS) and ordered logistic regressions are the main statistical tools of the work. The empirical results indicate that there is a strong positive relationship between labor earnings and psychological well-being for low paid group, and a non-significant relationship between labor earnings and psychological well-being for well paid group. This result supports the presence of hierarchical behaviour. In addition, the labor earnings for low paid group show an insignificant effect on employees' work related stress, while a highly significant positive effect on the work related stress of well-paid group is implied, hilighting the stress of higher status hypothesis. The models also contains personal variables such as gender, age, educational level, type of occupation, working hours per week, country dummy variables and employment status. The relationship of these variables to psychological well-being and work-related stress levels is also examined. Finally, there is a comparison of the empirical findings to results in the relevant literature.

Keywords: Psychological well-being, Work related stress, Hierarchical needs, Stress of higher status hypothesis

1. Introduction

There is a growing body of evidence that earnings and other socioeconomic predictors can influence mental health. Understanding the employees' well-being is important because working exhibits a substantial psychological dimension for self-identity and sense of purpose. Furthermore, it contributes substantially to overall subjective well-being from a duration weighted perspective given that adults spend an average of about 33.6 hours per week at work (Kahneman et al., 2004; Tay & Harter, 2013). Health and well-being at work are key dimensions of the overall European strategies for growth, competitiveness and sustainable development. Without this, employers lose out on worker productivity and citizens are deprived of potential longevity and quality of life. In addition, work related stress is the focus of increased attention, as it can lead to incapacity for work (World Health Organization, 2011; Eurofound, 2012).

Employees' with high levels of psychological well-being tend to be more productive, confident and motivated, make higher quality decisions, show greater flexibility and originality, are more mentally and physically healthy and are less likely to engage in a variety of harmful and unhealthy behaviors (such as smoking, drinking alcohol, unhealthy eating). Moreover, high levels of psychological well-being are related to low levels of sickness absence and labor turnover. Hence, improving psychological well-being of a workforce has social and economic effects, since it brings benefits for both the employees and the organization and influences individual's social behavior, employment relations and productive performance in the workplace (Danna & Griffin, 1999; Lyubomirsky et al., 2005; Grant et al., 2007; Panos & Theodossiou, 2007).

Psychological well-being has been defined as a combination of feeling good (hedonic perspective) and functioning effectively (eudaimonic perspective). The hedonic component is concerned with subjective experiences of pleasure while eudaimonic component is concerned with fulfillment and the realization of human potential and actualization (Deci & Ryan, 2008; Steptoe et al., 2008; Huppert, 2009). High levels of psychological well-being at workplace allow employees to flourish and achieve their full potential for the benefit of themselves and their organization (Grant et al., 2007). Its relation with labor earnings has been the subject of many studies, highlighting the happiness paradox. The presence of hierarchical behavior, as an explanation of the paradox, is taken into account, offering additional insights.

On the other hand, work related stress is a state, which is accompanied by physical, psychological or social complaints or dysfunctions and which results from individuals feeling unable to bridge a gap with the requirements or expectations placed on them. It can be a significant cause of illness and is known to be linked with high levels of sickness absence, staff turnover and other issues such as more errors. In the European Working Conditions Survey (EWCS), work-related stress was found to be the second most common work-related health problem across the EU15 (European Foundation for the Improvement of Living and Working Conditions, 2010). Stress can hit anyone at any level of the business and recent research shows that work related stress is widespread and is not confined to particular sectors, jobs or industries. It assumes that work related stress results from an imbalance between work effort and work rewards, such as labor earnings (Johnston, 2012). The relationship

between work related stress and labor earnings is also investigated, highlighting the stress of higher status hypothesis, termed by Schieman et al. (2006).

This paper tests the above ideas by employing data drawn from the 5th European Survey on Working Conditions (2010). The structure is as follows: Section 2 will present an extensive literature survey concerning psychological well-being and work related stress, suggesting the stress of higher status hypothesis (sub-section 2.1). Moreover, the nature of the relationship between psychological well-being and labor earnings, discussing the happiness paradox, will be exhibited (sub-section 2.2). In addition, a sub-section (2.3) about labor earnings and hierarchical behaviour will be presented. The following sections (3, 4 and 5) will concentrate on the data and the empirical methodology as well as the research findings. A conclusion will close the section.

2. Theoretical Framework

2.1 Psychological well-being and work-related stress

The employees' psychological well-being in the workplace is an important concern and it deserves detailed study. Psychological well-being refers to an overall, long-term state of well-being that includes both cognitive and affective components (Ahuvia & Friedman, 1998; Malka & Chatman, 2003). In addition, psychological well-being essentially stresses pleasant emotional experience and can be treated in terms of two independent dimensions which are called pleasure and arousal. Competence, autonomy, aspiration and self-esteem are other aspects which determine the level of an individual's affective well-being as they tend to be valued as indicators of good mental health (Danna & Griffin, 1999).

Aristotle has been cited as the first written source of the idea that all human action is implicitly motivated by a desire to increase individuals' subjective well-being or eudaimonia, which is related to specific psychological experiences that constitute the essence of a good life. He believed that only ethical actions were successful in achieving this goal (see also Ryan & Deci, 2000; 2001; Bruni & Porta, 2007). In more modern times, contemporary Rational choice theory suggests that revealed preferences imply motivation. Hence, individuals, who strive for money, believe (at some conscious or unconscious level) that it will increase their happiness as the final goal underlying all human action (Ahuvia, 2008).

Stress has been defined in different ways over the years. Originally, it was conceived as pressure from the environment, and as strain within the person. It is the psychological and physical state that results when the resources of the individual are not sufficient to cope with the demands and pressures of the situation (Michie, 2002). It can be a reaction exhibited by the people who have to face excessive pressures originating from various demands placed on them. It can also be labeled as the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the workers. Job stress can lead to poor health and even injury (Yahaya et al., 2010; Ganster & Rosen, 2013).

Occupational stress has been established as a major issue for both companies and workforce since it is amongst the most frequent health problems related to work. The most obvious consequences are: financial burden for firms and individuals, lost working hours, medical expenses and reduction in productivity. The development of work related stress may be due to the personal characteristics of the

employees and the workplace features (Harnois & Gabriel, 2000; Danna & Griffin, 1999). According to a study by the American Psychological Association (2011), more than one third (36%) of employees report they are typically stressed out during the workday and one in five (20%) employees report that their average daily workplace stress is high. Low salaries were selected as having a significant impact on work stress, more than any other factor.

The epidemic of workplace stress can be seen as a result of changing workplace and economic conditions over the past 20 to 30 years. During the 1990s, a major restructuring of work was beginning to take place, as many organizations engaged in substantial downsizing. This new economic culture has created more stressful work environments, as seen through the increasing physical and mental tolls on employees, as well as increasing costs for employers in the way of lost productivity, absenteeism, turnover, and disability leave (Bickford, 2005; Ganster & Rosen, 2013).

The three most influential and prevalent theories of occupational stress include the person-environment (PE) fit theory, the framework of occupational stress, and the demand-control-support model. The basic premise of the person-environment (PE) fit theory is that stress arises from a misfit between person and environment, creating diverse strains which affect workers' health and well-being. The occupational stress theory is based to a similar framework as the PE fit theory, sharing two basic premises: a) stress arises from the misfit between person and environment, and b) subjective perceptions of work environments primarily determine strains. Finally, the demand-control-support model emphasizes the role of work content (such as high job demands, low job control and low social support) as the major source of workplace stress and health problems (Bickford, 2005; Johnson & Hall, 1988). High job demands produce job stress because employees have little or no discretion over the workplace and content of their work (Pfeffer, 2010).

Schieman et al. (2006) investigated the possibility that individuals in higher status work conditions are exposed to higher levels of stress. Specifically, professional jobs are more likely to experience other forms of high workplace status, high levels of authority, autonomy, nonroutine work and better pay. A key point in the stress of higher status argument is that the very autonomy associated with professional work contributes to greater permeability and job overload. According to Kohn and Schooler (1973), an increased risk of being held responsible for things outside one's control is the price one pays for holding an interesting and responsible job. Thus, the stress of higher status hypothesis predicts that workers in higher status occupations with more authority, autonomy, nonroutine work, demands, involvement, longer hours and better pay tend to have higher levels of work-to-home conflict and time strain (Moen et al., 2013; Schieman, 2013; Schieman et al., 2006).

2.2 Literature Review of Psychological well-being and labor earnings relationship

Although happiness was perceived to be the subject matter of other social sciences, and mainly of psychology, in the last two decades, an increasing number of economists have started to study the concept of happiness at both the microeconomic and the macroeconomic level. The terms "job satisfaction", "subjective well-being", and "happiness" are used interchangeably in most recent studies. One of the most important topics of happiness research is the study of the relationship between income and happiness levels. In recent years there has been notable interest in well-being as a determinant of individual economic behavior. The relationship between economic variables and well-being has been

subject to rigorous empirical analysis, with data for different countries, different points in time and using different model specifications (Ahuvia & Friedman, 1998; Cummins, 2000; Diener & Biswas-Diener, 2002; Malka & Chatman, 2003; Senik, 2005; Ferrer-i-Carbonell, 2005; Layard, 2005; Ahuvia, 2008; Dunn et al., 2011; Al-Zoubi, 2012; Diener et al., 2013).

The existing empirical research reveals that the richer countries are happier than poorer countries and within each country, the richer members of the society are happier than the poor. Yet on the other hand, time-series analyses show that higher per capita incomes have failed to generate any noticeable improvement in happiness levels throughout the developed countries. In particular, within a country at a given time those with higher incomes are, on average, happier. However, many studies have found that raising the incomes of all does not increase the happiness of all. This presents researchers with a paradox, termed usually as the happiness or the Easterlin paradox (Easterlin, 1995; 2001; Cummins, 2000; Mentzakis & Moro, 2009; Diener et al., 2013).

Three different theories are advanced to explain this happiness paradox. These are: the theory of adaptation, social comparison theory and the aspiration level theory. Adaptation theory maintains that an increase in the income will temporarily increases people's well-being, but overtime they will adjust to their higher income such that their well-being reverts back towards its original level (Mentzakis & Moro, 2009). According to the research of Di Tella et al. (2010), the size of adaptation is sufficiently large that no significant income effects on happiness remain after the fourth year. As an example, the long-term paraplegics and the lottery winners who do not report themselves as unhappy nor particularly happy, respectively (Kahneman & Krueger, 2006; Gardner & Oswald, 2007).

On the other hand, the aspiration level theory states that it is the gap between aspirations and achievements, rather than the achievements themselves which determines well-being. If an increase in income leads to a commensurate increase in income aspirations, the magnitude of this gap will remain constant, hence well-being will not increase (Mentzakis & Moro, 2009). This view is based on the idea that individuals tend to form expectations early in adulthood, which is configured by their education, accumulated experience and social interaction (Panos & Theodossiou, 2007). The reported evidence for the formation of individuals' aspiration levels and their effects on well-being offers an explanation for various empirical observations. For instance, if average aspirations in society increase at the same rate as income per capita, it can be understood why people in industrialized societies did not become happier over the last decades, despite substantial growth in their economic wealth (Stutzer, 2004).

The concept of comparison income is another idea which can also contribute to an explanation of the happiness paradox (Clark & Oswald, 1996). The main thrust of the comparison income argument in the context of happiness research is that individuals do not extract much happiness from their absolute income but from their position relative to other people's incomes. Thus, raising everybody's income might not result in an increase of general happiness (Ferrer-i-Carbonell, 2005).

Current income alone is an unstable predictor of well-being as it does not accurately reflect consumption or saving behavior nor other components of financial security which contribute to well-being. Family income is positively related to overall life satisfaction as well as to its economic and non-economic domains (Douthitt et al., 1992). Although there is a large body of research on income and happiness, few researchers have investigated the relation between income inequality and

happiness, which has produced mixed results. Some researchers have found a negative association between income inequality and happiness, but other researchers have found no association (Oishi et al., 2011). Ott (2005) suggested that inequality is apparently not required for achieving higher levels of happiness. Americans were on average less happy in years with more societal income inequality than in years with less societal income inequality (Oishi et al., 2011). Moreover, theories of interdependent preferences claim that individuals' earnings can affect well-being in two opposite ways, through the affective, relative deprivation (negative effect), and the cognitive (positive) effect (Panos & Theodossiou, 2007). In addition, according to Ahuvia & Friedman (1998), income correlates weakly with subjective well-being because among the prosperous, money seems to have little unique value in helping individuals achieve their goals. In addition, the hedonic perspective states that money leads to well-being primarily to the extent that it enables individuals to use their time in more satisfying ways. Money correlates weakly with desirable experiences because enjoyable leisure is available at all price points, while enjoyable work is not always highly paid. It has also been found that rising income led to higher divorce rates, greater stress, lower global well-being, and less enjoyment of small activities (Diener & Biswas-Diener, 2002).

Furthermore, Binswanger (2006) attempted to explain the paradox of happiness using various treadmill effects. The positional treadmill and the hedonic treadmill describe how people's concern about status and rising aspirations keep happiness from rising along with income. The multi-option treadmill explains why the emergence of more options to spend time and money does not add to people's happiness beyond a certain threshold level. In addition, the time-saving treadmill captures the fact that time-saving technological progress fails to mitigate time pressure in people's life. Another suggested explanation of happiness paradox is that the things that bring happiness simply are not for sale. Nevertheless, money allows people to live longer and healthier lives, to buffer themselves against worry and harm, to have leisure time to spend with friends and family, to control the nature of their daily activities, and to have better nutrition and better medical care, all of which are sources of happiness. However, they are not that much happier than those who have less. A potential explanation is that individuals do not spend their money right (Aaker et al., 2011; Dunn et al., 2011). The purpose of money is not to boost happiness. Its function is to aid autonomous goal attainment. Money is not a happiness-giver but rather a fungible facilitator of unfettered goal pursuit. Even if money does not make people happy, it seems able to make people less unhappy, since it is a resource that enables its owner to solve problems and avert suffering (Vohs & Baumeister, 2011).

An additional explanation regarding Easterlin paradox is the idea of hierarchical choice. The hierarchical approach implies that there are some basic human needs which must be satisfied before non-basic needs come into the picture (Maslow, 1954). This might also be an alternative explanation of empirical findings showing a positive relationship between income and happiness up to certain level of income (Drakopoulos, 2008; Drakopoulos, 2013). According to Ahuvia and Friedman (1998), income above a fairly low threshold has a measurable but extremely small relationship with overall subjective well-being. There have been many explanations of the curvilinear relationship (see Layard, 2005; Drakopoulos, 2008). The incorporation of Maslow's theory could provide an important additional

insight, if we make the reasonable assumption that basic needs are best satisfied by income (Drakopoulos and Grimani, 2013).

2.3 Labor earnings and Hierarchical behavior

The above approach of hierarchical choice has been used in this paper to investigate the relation between labor earnings and psychological well-being of employees. In particular, once a level of labor earnings that satisfies the basic needs has been reached, further increases of labor earnings do not provide the same increases on psychological well-being because secondary needs come into the picture (Drakopoulos and Theodossiou, 1997; Drakopoulos, 2013). The standard approach to an employee's psychological well-being can be written as:

$$PWB = PWB\ (LE, LE^*, X) \quad (1)$$

where PWB is psychological well-being, LE is the level of labor earnings, LE* is the level of labor earnings which satisfies basic needs and X is a vector of characteristics comprising variables that affect psychological well-being. The target level of labor earnings LE* satisfies the basic needs and its inclusion in equation (1) reflects the essence of hierarchy (see Ferrer-i-Carbonell, 2005). The other variables (X) satisfy secondary needs and are taken into consideration only when LE reaches a satisfactory level or target LE*. We can incorporate all the above by taking a two-part function:

$$PWB\ (LE, X) = \{PWB^L\ (LE, X), PWB^H\ (LE, X)\} \quad (2)$$

where

$$PWB\ (LE, X) = PWB^L \quad \text{for } LE \leq LE^* \quad \text{and} \quad PWB\ (LE, X) = PWB^H \quad \text{for } LE > LE^*$$

with the following conditions (which are also our hypotheses to be tested in the empirical part of the paper)

$$\partial PWB^L/\partial LE > 0, \quad \partial PWB^H/\partial LE > 0 \quad \text{and} \quad \partial PWB^L/\partial LE > \partial PWB^H/\partial LE \quad (3)$$

The conditions provide the essence of the hierarchical approach to psychological well-being. The first two conditions imply that labor earnings have a positive effect on psychological well-being. The last condition infers that labor earnings do not provide the same rate of psychological well-being once a given level (le*) has been reached (although it continues to have a positive effect), implying that other factors start playing a role. Thus, labor earnings have an impact on psychological well-being, however after a certain level of labor earnings, the effect becomes much weaker. In the following sections of this paper, we will test this idea by using a large European dataset.

3. Data and Participants

The data used in this paper was drawn from the 5th European Survey on Working Conditions[1], which aimed to provide a comprehensive picture of the everyday reality of men and women at work. The research was conducted in the first half of 2010 (face to face interviews) and contains data from thirty three European countries and Turkey. The target sample size of 1000 interviews was set for most countries. The participants were adults (aged 18 to 65), were in employment at the time of the survey and were selected by the method of multi-stage stratified random sample. They responded to a questionnaire of about 44 minutes duration, comprising of 89 questions relating to issues such as

[1] Further information on the project can be found at www.eurofound.europa.eu/surveys/ewcs/index.htm

working time duration and organization, work organization, learning and training, physical and psychosocial risk factors, health and safety, work-life balance, worker participation, earnings and financial security, as well as work and health.

The questionnaire data of interest included psychological well-being, work-related stress and labor earnings variables. It also included type of occupation (four dummy variables: high skilled white collar, low skilled white collar, high skilled blue collar, low skilled blue collar), previous occupational status (seven dummy variables: employed with an indefinite contract, employed with a fixed term contract, employed with a temporary employment agency contract, employed, unemployed, in education or training, other) and working hours per week. In terms of countries, the sample consisted of thirty four dummy variables: Albania, Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Kosovo, Latvia, Lithuania, Luxembourg, Former Yugoslav Republic of Macedonia or FYROM, Malta, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Turkey, United Kingdom. Finally, the data contained personal variables such as age and age squared, gender and educational level (three dummy variables: none & primary education, secondary, including lower, upper & post secondary education and tertiary, including advanced level of tertiary education (see Table 1; Table 2 and Table 6, Appendix).

The psychological well-being (PWB) variable covers five positively worded items, related to positive mood (good spirits, relaxation), vitality (being active and waking up fresh and rested) and general interests (being interested in things), all experienced over the previous two weeks. Each of the five items is rated on a 6-point Likert scale from 1 (= at no time) to 6 (= all of the time). In addition, of the five scores created an index, which was linearized by using z-scores transformation. The negative values of the z-scores were transformed into positive and the natural logarithm (ln) was estimated. Reliability and validity estimations were conducted prior to index variable construction. The internal consistency approach (Cronbach's a) was employed in order to assess the reliability of the scale. According to the results, the Cronbach's a of the psychological well-being scale was 0.8814. This suggests that the internal reliability of the scale is high, since an instrument with an internal consistency coefficient of 0.80 (scale total) or higher is considered to be adequate (Nunnaly, 1978; Cronbach, 1951). The validity of the scale was assessed by construct validity, using factor analysis. The results are considered to be satisfactory, since the loadings were far from 0 and uniqueness less than 0.50. In addition, work-related stress was measured by self-reports ("*you experience stress in your work*"), using a 1-5 Likert scale (1 was "Never" and 5 was "Always").

The labor earnings variable was assessed by reports on the level of weekly, monthly or annual net earnings from main paid job of the participants (exact figure, an estimate or an approximate range). Given that the labor earnings variable is not continuous, we applied the required transformation by assessing the median from each of the reported approximate weekly range and the natural logarithm (ln) was estimated. Furthermore, a variable referred to whether the worker is well paid for the work he does is used to disaggregate the sample of individuals to those who reported themselves as well paid and to those who reported themselves as low paid. The variable was measured by self-reports ("*I am well paid for the work I do*"), using a 1-5 Likert scale (1 was "strongly disagree and 5 was "strongly

agree"). It appears that the performed split to low paid and well paid groups is appropriate given that the Kolmogorov-Smirnov non-parametric test indicated that the labor earnings distributions are different.

4. Empirical Methodology

In the econometric models which will be employed in this paper, psychological well-being and work related stress will be the dependent variables. Both are determined by a number of variables including labor earnings. The methodological tool for analysing psychological well-being data is the ordinary least-squares (OLS) regression. The work related stress variable is categorical (ordinal) with ranked categories from low to high, which implies that the weak assumptions of the linear regression model are not satisfied, giving very misleading results. Therefore, the Ordered Logistic regression model, one of the most popular ordinal regression techniques, has been suggested as more appropriate for dealing with ordered categorical variables (see for instance, Greene, 1993). Moreover, because of the lack of interpretation of the coefficients in the Ordered Logistic regression, the marginal effects method will be utilized, estimating the partial effects on the predicted probabilities. Therefore, separate ordered logistic equations are estimated for each group of low paid and well paid workers respectively in order to assess whether the level of labor earnings affects the level of individuals' work related stress with a different intensity. The marginal effects methodology is employed in order to interpret the statistical output substantively and also to report standard errors and discrete changes (Williams, 2008; Green & Hensher, 2010).

Theoretically, labor earnings can simultaneously be affected by psychological well-being as well as by work related stress (De Neve & Oswald, 2012). Thus, there might be an issue of endogeneity, which can be dealt with by also employing an instrumental variables (IV) regression model. More specifically, we first estimate a labor earnings equation using the same variables as our basic equations with the addition of a variable which should be correlated to labor earnings but which does not affect psychological well-being and work related stress variables. Consequently, we will use the predicted values of labor earnings, which we then place in the psychological well-being and work related stress estimations in order to overcome the endogeneity issue. Before we proceed to the report of the results, we should also mention a limitation of the present study that needs to be acknowledged. The limitation concerns the survey instrument employed, which was a self-reporting measure of psychological well-being and work related stress. This implies that the information presented by the participants is based upon their subjective perceptions. Although participants were assured of confidentiality, it is possible that they either over- or underreported their level of psychological well-being and work related stress. However, self-reporting measures are widely used in many similar contemporary empirical studies (for instance, see Fordyce, 1988; Charness & Grosskopf, 2001; Senik, 2005; Kahneman & Krueger, 2006; Danna & Griffin, 1999).

5. Results

In line with the theoretical part and with our discussion of the empirical methodology section, our equation of interest for low paid group is:

$$PWB^{L}_{i}=\alpha_0+\alpha_1 LE_i+\alpha_2 X_i+\varepsilon_i \quad (4a)$$

whereas for well-paid group is:

$PWB^{H}_i = b_0 + b_1 LE_i + b_2 X_i + \varepsilon_i$ (4b)

It is assumed that the psychological well-being is determined by a variety of factors. These factors are: LE is the labor earnings, which is the basic independent variable; X is a vector of other individual socioeconomic variables, such as *age, age^2, gender, education level, type of occupation, hours of work, country dummy variables*, assumed to influence psychological well-being (Dolan et al., 2008; Panos & Theodossiou, 2007; Ferrer-i-Carbonell, 2005). The α and b are the associated coefficients, and ε_j is a normally distributed error term.

The results of the OLS regression models (with robust standard errors, Table 3, Appendix), which are very similar for both groups, reveal a positive statistical significant effect of (ln) labor earnings on psychological well-being. Most of the predictors exhibited significant relationship to (ln) psychological well-being at 1% or 5% level. The predicted value is higher for males, which implies that women's psychological well-being is worse than that of men. With regards to age, a negative relationship with psychological well-being is revealed. In addition, individuals of high skilled white collar jobs have higher psychological well-being. Employees of tertiary education from low paid group have higher psychological well-being, while from well paid group have worse. Moreover, working hours are associated with a decrease in the levels of psychological well-being. Greece being the omitted country, seems to have lower psychological well-being than Kosovo, Malta and the Former Yugoslav Republic of Macedonia and higher than Baltic and eastern European countries.

As has been mentioned in the empirical methodology section, other equations of interest are:

$WS^{L}_i = \alpha_0 + \alpha_1 LE_i + \alpha_2 X_i + \varepsilon_i$ (5a)

$WS^{H}_i = b_0 + b_1 LE_i + b_2 X_i + \varepsilon_i$ (5b)

for low paid and well paid group respectively.

As before, it is assumed that work-related stress, the ordinal dependent variable (scale points 1-5) is determined by a variety of factors: LE is the labor earnings, which is the basic independent variable; X is a vector of other individual socioeconomic variables, such as *age, age^2, gender, education level, type of occupation, hours of work, country dummy variables*, assumed to influence psychological well-being (Dolan et al., 2008). The a and b are the associated coefficients, and ε_j is a normally distributed error term.

The results of Ordered Logistic model (with robust standard errors [Table 7, Appendix]) are not straightforward (see also Greene, 1993; Green & Hensher, 2010). We can identify the significance of the variables but neither the signs nor the magnitude of the coefficients are informative about the results, and this makes the direct interpretation of coefficients fundamentally ambiguous. Therefore, we will report the marginal effects for better interpretation.

The empirical results, which are very similar for both groups, indicate that labor earnings have a positive statistical significant impact on work related stress. In addition, high educated and high skilled white collar female workers are more prone to work related stress. Age and working hours are also positively correlated to work related stress. With respect to Greece, work related stress level is significantly higher compared to all other countries.

As was mentioned earlier, there might be an issue of endogeneity in the labor earnings psychological well-being relationship as well as in the labor earnings work related stress relationship, which can be resolved by adopting the following equation:

$$LE_j=\gamma_1+\gamma_2 Z_j+\gamma_3 X_j+\varepsilon_j \quad (6)$$

Z is a vector of individual characteristics that influences LE and contains one variable that is not in X above. The X variables that are used are the same as before: *age, age^2, gender, education level, type of occupation, hours of work, country dummy variables.* The Z variable has to be highly correlated to labor earnings but it should not affect psychological well-being nor work related stress directly. The previous occupational status was used as Z variable. Several studies have found a significant effect of work experience on workers earnings (Mincer, 1974; Heckman & Robb, 1985). The results from the OLS models (Tables 4; Table 8), with robust standard errors, reveal a significant correlation between labor earnings and Z variable (previous occupational status). Employees who were unemployed before their current job reported the lowest labor earnings. In addition, all the independent variables exhibit significant relationship to labor earnings.

From the above equation, labor earnings are predicted from each individual. Then, these predictions $L\hat{E}$ are placed in the psychological well-being estimations (for low paid and well paid group respectively):

$$PWB^L_j=\alpha_0+\alpha_1 L\hat{E}_j+\alpha_2 X_j+\varepsilon_j \quad (7a)$$

$$PWB^H_j=b_0+b_1 L\hat{E}_j+b_2 X_j+\varepsilon_j \quad (7b)$$

The empirical results (Table 5, column B), with robust standard errors, indicate that the coefficient of the labor earnings has a highly significant positive effect on the psychological well-being of the low paid group. However, the coefficient of the labor earnings for the well paid group has a positive sign but it has an insignificant effect on employees' psychological well-being. Men of secondary education, as well as high skilled white collar workers, have higher psychological well-being. With regards to age, a negative relationship with psychological well-being is revealed. Furthermore, working hours are associated with a decrease in the levels of psychological well-being. Greece being the omitted country seems to have higher psychological well-being than Nordic countries and lower than Malta, Kosovo and Former Yugoslav Republic of Macedonia.

In addition, instrumental variable (IV) estimations (with robust standard errors [Table 5, column A]) that control for the endogeneity problem have also been estimated. Comparing the instrumental variable regression models with the OLS regressions considering the issue of the endogeneity in the labor earnings psychological well-being relationship, we found very similar results.

We also test the instrument validity by using Hansen's J statistic of over-identifying restrictions. Overidentifying restrictions produce more efficient estimates in large samples, assessing the adequacy of instruments in an overidentified context with a test of overidentifying restrictions. The Hansen's J statistic is used because of its consistency in the presence of autocorrelation and heteroscedasticity (Hansen & Tarp, 2001). The results are far from rejection of the null hypothesis, giving greater confidence that the instrument set is appropriate and satisfactory. In addition, the Anderson Canonical Correlation statistics easily reject the hypothesis that the equations are underidentified. Therefore, we conclude that the instruments are reasonably valid (Baum, 2006; Baum et al., 2007).

From Equation (6), labor earnings are predicted from each individual. Then, these predictions $L\hat{E}$ are placed in the estimations below (for low paid and well paid group respectively):

$WS^{L}_{j}=\alpha_0+\alpha_1 L\hat{E}_j+\alpha_2 X_j+\varepsilon_j$ (8a)

$WS^{H}_{j}=b_0+b_1 L\hat{E}_j+b_2 X_j+\varepsilon_j$ (8b)

The results of Ordered Logistic model, considering the endogeneity problem, (with robust standard errors [Table 9, column A]) are not straightforward, hence, we will report the marginal effects for better interpretation (Table 9, column B). Importantly with respect to this study, the coefficient of the labor earnings for low paid group has an insignificant effect on employees' work related stress, but it has a highly significant positive effect on the work related stress of well-paid group. Females were more likely than men to experience the negative effects of stress. Age and working hours were positively correlated to work-related stress. Moreover, high skilled white collar workers seemed to be more prone to work-related stress. Regarding Greece, work-related stress is higher compared to all other countries.

6. Discussion and Concluding Comments

The main aim of this paper was to test the ideas that variables which affect the workers' psychological well-being are hierarchical ordered, while the stress of higher status hypothesis is present in the relationship between labor earnings and work related stress.

According to Maslow's psychological theory, the hierarchical structure of needs implies that the most important needs must be satisfied first before the secondary needs are considered. In the framework of labor earnings - psychological well-being relationship, the theory would predict that labor earnings are very important for psychological well-being up to a certain level of labor earnings. In other words, more important variables must reach a certain level before lower order variables come into the picture. In addition, individuals of higher socioeconomic status with higher-status occupations and income have more decision-making authority, more demands, working hours, excessive work pressure and time strain. Hence, they tend to have higher levels of stress, termed as stress of higher status hypothesis (Moen et al., 2013; Schieman, 2013; Schieman et al., 2006; Van Vegchel, et al., 2005; Van der Doef and Maes, 1999).

The paper utilized a large sample to test the above labor earnings – psychological well-being relationship by using data from thirty three European countries and Turkey. In particular, the results indicate that the labor earnings for well paid group have an insignificant effect on employees' psychological well-being but they have a highly significant effect on the psychological well-being of low paid group, indicating the presence of hierarchical behavior. On the other hand, the labor earnings for low paid group show an insignificant effect on employees' work related stress, while a highly significant positive effect on the work related stress of well-paid group is implied.

Although the relevant literature is not very extensive, some prior empirical research on psychological well-being and work related stress in general provides some insights regarding the main variables. Our results are consistent with the theoretical predictions found in related research. In particular, males demonstrated higher levels of psychological well-being than females. Previous evidence on gender differences in their associations with psychological well-being has been inconsistent. Available literature implies that women tend to report higher happiness (for instance,

Dolan et al., 2008; Huppert, 2009) but worse scores on mental health assessment scales (Alesina et al, 2004), although a few studies report no gender differences (for instance, Louis & Zhao, 2002). On the other hand, Stevenson and Wolfers (2009) study showed that measures of subjective well-being indicate that women's happiness has declined both absolutely and relative to men. One of the main explanations for these results might be that women may simply find the complexity and increased pressure in their modern lives to have come at the cost of happiness.

Furthermore, our findings indicated a negative relationship between age and psychological well-being, which is consistent with other studies such as Van Praag et al. (2003). Many studies on the determinants of happiness and wellbeing, suggest a U-shaped relationship between age and well-being where the youngest and the oldest are happiest while the middle age groups are the least happy. One explanation here has to do with the higher expectations of the younger age group compared to older individuals (Clark and Oswald, 1994; Gerdtham and Johannesson, 2001). In addition, middle level education was related to the highest psychological well-being, which is consistent with other empirical research such as Stutzer (2004). Clark and Oswald (1996) suggested that education has a negative impact on job satisfaction because increased education is associated with higher expectations. A negative relationship was also found between working hours and psychological well-being, implying that individuals who have longer work hours report lower psychological well-being. The evidence is consistent with other empirical work such as Galay (2007). Finally, psychological well-being is higher for Malta, Kosovo and Former Yugoslav Republic of Macedonia and lower for Nordic countries compared to Greece. According to Veenhoven (2000), political factors and personal freedom are important drivers of happiness. Thus, an explanation of their very high score may be connected to the recent declaration of independence after decades of conflict.

With regard to work-related stress, females were more likely than men to experience the negative effects of stress. There are several factors such as workload, family responsibilities, lower levels of control in their jobs, prejudice and discrimination issues, which magnify the effect of workplace stress on females (Bickford, 2005). Age and working hours were positively correlated to work-related stress. Age seemed to influence workplace stress especially under specific circumstances such as too many demands, many working hours, work intensification, new knowledge acquisition (Bickford, 2005). Furthermore, high skilled white collar workers seemed to be more prone to work-related stress. With reference to Greece, work-related stress is higher compared to all other countries, which is consistent with Eurofound (2012) report.

In spite of ample evidence linking psychological distress issues to financial loss, companies have nonetheless been slow to adopt innovative mental health management practices in the workplace (Williams, 2003). It needs to be recognized that psychological distress is a serious crisis for employees, and it demands a serious response from employers. Rising psychological well-being not only benefits the employees themselves, but it can also save companies substantial costs, since employees will show up for work and be more efficient and productive on the job.

The main empirical findings of this paper support the notion of needs hierarchy and its relation to labor earnings level. Labor earnings seem to be more important for psychological well-being for low paid workers. Furthermore, it seems that labor earnings loose their importance for well paid group and

this is consistent with the incorporation of Maslow's ideas in the context of happiness research. On the other hand, the stress of higher status hypothesis is highlighted. Although, some studies indicated that stress is associated with low income, it is implied that well paid workers have higher levels of work related stress. It is anticipated that these results will provide the stimulus for further research on this important topic.

Acknowledgements

An earlier version of the paper has been presented to the Scottish Economic Society Conference in Perth, April 2013. Special thanks to Professor S. Drakopoulos (University of Athens) for useful comments.

References

Aaker, J. L., Rudd, M. and Mogilner, C. (2011), If money does not make you happy, consider time, *Journal of Consumer Psychology*, 21: 126-130

Ahuvia, A. (2008), If money doesn't make us happy, why do we act as if it does?, *Journal of Economic Psychology*, 29: 491-507

Ahuvia, A. C. and Friedman, D. C. (1998), Income, consumption, and subjective well-being: Toward a composite Macromarketing Model, *Journal of Macromarketing*, 18(2): 153-168

Alesina, A., Di Tella, R. and MacCulloch, R. (2004), Inequality and happiness: Are Europeans and Americans different?, *Journal of Public Economy* , 88(9): 2009–2042

Al-Zoubi, M. T. (2012), The shape of the relationship between salary and job satisfaction: A field study, *Far East Journal of Psychology and Business*, 7(3): 1-12

American Psychological Association (2011), *Stress in the workplace*, Psychologically Healthy Workplace Program

Baum, C. F., Schaer, M. E. and Stillman, S. (2007), Enhanced Routines or Instrumental Variables: GMM Estimation and Testing*, Stata Journal*, 7(4): 465-506

Baum, F. C. (2006), *An Introduction to Modern Econometrics Using Stata*, Texas: Stata Press

Bickford, M. (2005), *Stress in the Workplace: A general overview of the causes, the effects and the solutions*, Canadian Mental Health Association

Binswanger, M. (2006), Why does income growth fail to make us happier? Searching for the treadmills behind the paradox of happiness, *The Journal of Socio-Economics,* 35: 366-381

Bruni, L. and Porta, P. L. (2007), Handbook on the Economics of Happiness, UK: Edward Elgar Publishing

Charness, G. and Grosskopf, B. (2001), Relative payoffs and happiness: an experimental study, *Journal of Economic Behavior & Organization*, 45, 301–328

Clark, A. E. and Oswald, A. J. (1996), Satisfaction and comparison income, *Journal of Public Economics*, 61: 359-381

Clark, A. E., Oswald, A. J. (1994), Unhappiness and unemployment, *Economic Journal,* 104: 648-659

Cronbach, L. J. (1951), Coefficient alpha and the internal structure of tests, *Psychometrica*, 16: 297-334

Cummins, R. A. (2000), Personal income and subjective well-being: A review, *Journal of Happiness Studies*, 1: 133-158

Danna, K. and Griffin, R. W. (1999), Health and well-being in the workplace: A review and synthesis of the literature, *Journal of Management*, 25(3): 357-384

De Neve, J. E. and Oswald, A. J. (2012), Estimating the influence of life satisfaction and positive affect on later income using sibling fixed effects, *Proceeding of the National Academy of Sciences of the United States of America*, 109(49): 19953–19958

Deci, E. L., and Ryan, R. M. (2008), Hedonia, eudaimonia, and well-being: An introduction, *Journal of Happiness Studies*, 9: 1-11

Di Tella, R., Haisken-De New, J. and MacCulloch, R. (2010), Happiness adaptation to income and to status in an individual panel, *The Journal of Economic Behavior & Organization*, 76: 834-852

Diener, E. and Biswas-Diener, R. (2002), Will money increase subjective well-being?, *Social Indicators Research*, 57: 119-169.

Diener, E., Oishi, S. and Tay, L. (2013), Rising income and the subjective well-being of Nations, *Journal of Personality and Social Psychology*, 104(2): 267-276

Dolan, P., Peasgood, T. and White, M. (2008), Do we really know what makes us happy? A review of the economic literature on the factors associated with subjective well-being, *Journal of Economic Psychology*, 29: 94-122

Douthitt, R. A., Macdonald, M. and Mullis, R. (1992), The relationship between measures of subjective and economic well-being: A new look, *Social Indicators Research*, 26: 407-422

Drakopoulos, S. A. (2008), The paradox of happiness: towards an alternative explanation, *Journal of Happiness Studies*, 9(2): 303-315

Drakopoulos, S. A. (2013), Hierarchical needs, income comparisons, and happiness levels, *A Positive Psychology Perspective on Quality of Life*, 51: 17-32

Drakopoulos, S. A. and Grimani, K. (2013), Maslow's needs hierarchy and the effect on income on happiness levels, in *The Happiness Compass: Theories, Actions and Perspectives for Well-Being*, F. Sarracino (ed), Nova Science Publ., New York

Drakopoulos, S. and Theodossiou, I. (1997), Job satisfaction and target earnings, *Journal of Economic Psychology*, 18: 693-704

Dunn, E. W., Gilbert, D. T. and Wilson, T. D. (2011), If money doesn't make you happy, then you probably aren't spending it right, *Journal of Consumer Psychology*, 21: 115-125

Easterlin, R. A. (1995), Will raising the income of all increase the happiness of all?, *Journal of Economic Behavior & Organization,* 27: 35-47

Easterlin, R. A. (2001), Income and happiness: Towards a unified theory, *Economic Journal*, 111: 465-484

Eurofound (2012), *Health and well-being at work: A report based on the fifth European Working Conditions Survey*, Dublin

European Foundation for the Improvement of Living and Working Conditions (2010), *Work Related Stress: A report based on the forth European Working Conditions Survey*, Dublin

Ferrer-i-Carbonell, A., (2005), Income and well-being: An empirical analysis of the comparison income effect, *Journal of Public Economics*, 89: 997-1019

Fordyce, M. (1988), A review of research on the happiness measures: a 60 s index of happiness and mental health, *Social Indicators Research,* 20, 355–381

Galay, K. (2007). *Patterns of Time Use and Happiness in Bhutan: Is there a link between the two?*, Visiting Research Fellows Series No. 432, Institute of Developing Economies, Japan External Trade Organization

Ganster, D. C. and Rosen, C. C. (2013), Work stress and employee health: A multidisciplinary review, *Journal of Management*, 39(5): 1085-1122

Gardner, J. and Oswald, A. J. (2007), Money and mental well-being: A longitudinal study of medium-sized lottery wins, *Journal of Health Economics*, 26: 49-60

Gerdtham, U-G. and Johannesson, M. (2001), The Relationship Between Happiness, Health and Socio-Economic Factors: Results Based on Swedish Micro Data. Journal of Socio-Economics, 30: 553-557

Grant, A. M., Christianson, M. K. and Price, R. H. (2007), Happiness, health or relationships? Managerial practices and employee well-being tradeoffs, *Academy of Management Perspectives,* 21(3): 51-63

Green, W. H, Hensher, D. A. (2010), *Modeling Ordered Choices: A primer*. Cambridge University Press

Greene, W. (1993), *Econometric Analysis*. Second Ed., Macmillan Publishing Company, New York

Hansen, H. and Tarp, F. (2001), Aid and Growth Regressions, *Journal of Development Economics*, 64(2): 547-570

Harnois, G. and Gabriel P. (2000), *Mental Health and Work: Impact, issues and good practices*, WHO Publications, Geneva

Heckman, J. and Robb, R. (1985), Using Longitudinal Data to Estimate Age, Period and Cohort Effects in Earnings Equations, *Cohort Analysis in Social Research*, 137-150

Huppert, F. A. (2009), Psychological well-being: Evidence regarding its causes and consequences, *Applied Psychology: Health and Well-being*, 1(2):137-164

Johnson, J. V and Hall, E. M. (1988), Job strain, workplace social support and cardiovascular disease: A cross-sectional study of a random sample of the Swedish working population, *American Journal of Public Health*, 78: 1336-1342

Johnston, D. (2012), *Extra Status and Extra Stress: Are promotions good for us?,* IZA Discussion paper, no 6675

Kahneman, D. and Krueger, A. B. (2006), Developments in the measurement of subjective well-being, *Journal of Economic Perspectives*, 20(1): 3-24

Kahneman, D., Krueger, A. B., Schkade, D., Schwarz, N. and Stone, A., (2004), Toward National Well-Being Accounts, *The American Economic Review*, 94(2): 429-434

Kohn, M. L. and Schooler. C. (1973), Occupational Experience and Psychological Functioning: An Assessment of Reciprocal Effects, *American Sociological Review*, 38: 97-118

Layard, R. (2005), *Happiness*. New York: The Penguin Press

Louis, V. V. and Zhao, S. (2002), Effects of family structure, family SES and adulthood experiences on life satisfaction, *Journal of Family Issues*, 23: 986-1005

Lyubomirsky, S., King, L. and Diener, E. (2005), The Benefits of Frequent Positive Affect: Does Happiness Lead to Success?, *Psychological Bulletin*, 131(6): 803-855

Malka, A. and Chatman, J. A. (2003), Intrinsic and extrinsic work organisations as moderators of the effect of annual income on subjective well-being: A longitudinal study, *Personality and Social Psychology Bulletin*, 29(6): 737-746

Maslow, A. (1954), *Motivation and Personality*, New York: Harper and Row

Mentzakis, E. and Moro, M. (2009), The poor, the rich and the happy: Exploring the link between income and subjective well-being, *The Journal of Socio-Economics*, 38: 147-158

Michie, S. (2002), Causes and management of stress at work, *Occupational and Environmental Medicine*, 59: 67–72

Mincer, J. (1974), *Schooling, Experience and Earnings,* New York: Columbia University Press

Moen, P., Lam, J., Ammons, S. and Kelly, E. L. (2013), Time work by overworked professional: strategies in response to the stress of higher status, *Work and Occupations*, 40(2): 79-114

Nunnaly, J. (1978), *Psychometric theory*, NY: McGraw Hill

Oishi, S., Kesebir, S. and Diener, E. (2011), Income inequality and happiness, *Psychological Science*, 22(9): 1095-1100

Ott, J. (2005), Level and inequality of happiness in nations: Does greater happiness of a greater number imply greater inequality in happiness?, *Journal of Happiness Studies*, 6: 397-420

Panos, G. A. and Theodossiou, I. (2007), Earnings Aspirations and Job Satisfaction: The Affective and Cognitive Impact of Earnings Comparisons, Business School Working Paper Series

Pfeffer, J. (2010), Building sustainable organizations: The human factor, *Academy of Management Perspectives,* 24(1): 34-45

Ryan, R. and Deci, E. (2000), Self-determination theory and the facilitation of intrinsic motivation, social development and well-being, American Psychologist, 55: 68-78

Ryan, R. and Deci, E. (2001), On happiness and human potential: A review of research on hedonic and eudaimonic well-being, Annual Review of Psychology, 52: 141-166

Schieman, S. (2013), Job-related resources and the pressures of working life, *Social Science Research*, 42: 271 – 282

Schieman, S., Whitestone, Y. K. and Van Gundy, K. (2006), The nature of work and the stress of higher status, *Journal of Health and Social Behavior*, 47: 242-257

Senik, C. (2005), Income distribution and well-being: what can we learn from subjective data?, *Journal of Economic Surveys*, 19(1): 43–63

Steptoe, A., O'Donnell, K., Marmot, M. and Wardle, J. (2008), Positive affect, psychological well-being, and good sleep, *Journal of Psychosomatic Research*, 64: 409-415

Stevenson, B. and Wolfers, J. (2009), *The paradox of declining female happiness*, National Bureau of Economic Research, working paper

Stutzer, A. (2004), The role of income aspirations in individual happiness, *Journal of Economic Behavior & Organization,* 54: 89-109

Tay, L. and Harter, J. K. (2013), Economic and labor market forces matter for worker well-being, *Applied Psychology: Health and Well-Being*, 5(2): 193-208

Van der Doef, M. and Maes, S. (1999), The job demand-control(-support) model and psychological wellbeing: a review of 20 years of empirical research. *Work and Stress*, 13(2): 87–114

Van Praag, B. M. S., Frijters, P. and Ferrer-i-Carbonell, A. (2003), The anatomy of subjective well-being, *Journal of Economic Behavior & Organization,* 51: 29-49

Van Vegchel, N., de Jonge, J., Bosma, H. and Schaufeli, W. (2005), Reviewing the effort-reward imbalance model: drawing up the balance of 45 empirical studies. *Social Science and Medicine*, 60(5): 1117–31

Veenhoven, R. (2000), *Freedom and happiness: a comparative study in 44 nations in the early 1990s*, in Diener, E. and Sush, E.M. (eds.), *Culture and subjective well-being*, MIT Press, Cambridge, MA

Vohs, K. D. and Baumeister, R. F. (2011), What's the use of happiness? It can't buy you money, *Journal of Consumer Psychology*, 21: 139-141

Williams, C., (2003), Sources of workplace stress, *Perspectives on Labour and Income*, 4(6): 5-12

Williams, R., (2008). *Ordinal regression models: Problems, solutions, and problems with the solutions*, German Stata User Group Meetings, available at: http://www.stata.com/meeting/germany08/GSUG2008-Handout.pdf

World Health Organization (2011), *Impact of economic crisis on mental health*, WHO Publications, Denmark

Yahaya, N., Yahaya, A., Tamyes, F. A., Ismail, J. and Jaalam, S. (2010), The Effect of Various Modes of Occupational Stress, Job Satisfaction, Intention to Leave and Absentism Companies Commission of Malaysia, *Australian Journal of Basic and Applied Sciences*, 4(7): 1676-1684

Table 1. Definitions of variables.

Variables/ Definitions	
Ln Psychological well-being	Sweden = 1, otherwise = 0
Work-related Stress (self-reported experience on a 5 point scale)	France = 1, otherwise = 0
Males = 1, Females = 0	Ireland = 1, otherwise = 0
Age (18 – 65 years)	Italy = 1, otherwise = 0
Age^2	Luxembourg = 1, otherwise = 0
Primary Education = 1, otherwise = 0	Netherlands = 1, otherwise = 0
Secondary Education = 1, otherwise = 0	UK = 1, otherwise = 0
Low skilled blue collar = 1, otherwise = 0	Bulgaria = 1, otherwise = 0
Low skilled white collar = 1, otherwise = 0	Cyprus = 1, otherwise = 0
High skilled blue collar = 1, otherwise = 0	Czech republic = 1, otherwise = 0
Working hours per week (1 – 84)	Estonia = 1, otherwise = 0
Employed with an indefinite contract = 1, otherwise = 0	Hungary = 1, otherwise = 0
Employed with a fixed term contract = 1, otherwise = 0	Latvia = 1, otherwise = 0
Employed with a temporary contract = 1, otherwise = 0	Lithuania = 1, otherwise = 0
Self-employed = 1, otherwise = 0	Malta = 1, otherwise = 0
In education or training = 1, otherwise = 0	Poland = 1, otherwise = 0
Other = 1, otherwise = 0	Romania = 1, otherwise = 0
Ln Labor earning predictors (weekly)	Slovakia = 1, otherwise = 0
Ln Labor earnings (weekly)	Slovenia = 1, otherwise = 0
Belgium =1, otherwise = 0	Turkey = 1, otherwise = 0
Denmark =1, otherwise = 0	Croatia = 1, otherwise = 0
Germany =1, otherwise = 0	Norway = 1, otherwise = 0
Spain = 1, otherwise = 0	FYROM =1, otherwise = 0
Finland = 1, otherwise = 0	Albania = 1, otherwise = 0
Austria = 1, otherwise = 0	Kosovo = 1, otherwise = 0
Portugal = 1, otherwise = 0	Montenegro = 1, otherwise = 0

Table 4. OLS model: dependent variable: Ln labor earnings.

Variables	Low paid		Well paid	
Employed with an indefinite contract	0.117**	(7.64)	0.129**	(7.29)
Employed with a fixed term contract	0.097**	(5.66)	0.095**	(4.79)
Employed with a temporary contract	0.091**	(2.81)	0.101**	(3.45)
Self-employed	0.021	(0.71)	0.113**	(4.17)
Employed in education or training	0.137**	(7.53)	0.117**	(6.14)
Other	0.001	(0.06)	0.022	(0.83)
Males	0.202**	(18.05)	0.222**	(22.89)
Age	0.042**	(12.69)	0.052**	(17.24)
Age^2	-0.0005**	(11.55)	-0.0005**	(15.08)
Primary Education	-0.469**	(14.27)	-0.482**	(17.19)
Secondary Education	-0.224**	(15.92)	-0.229**	(20.04)
Working hours	0.013**	(21.38)	0.018**	(32.22)
Low skilled blue collar	-0.277**	(14.40)	-0.310**	(18.34)
Low skilled white collar	-0.171**	(10.66)	-0.169**	(14.25)
High skilled blue collar	-0.298**	(13.92)	-0.226**	(13.26)
Belgium	0.478**	(14.94)	0.389**	(13.91)
Bulgaria	-1.492**	(36.89)	-1.349**	(27.88)
Czech Republic	-0.393**	(10.81)	-0.399**	(11.56)
Denmark	0.829**	(19.39)	0.718**	(22.49)
Germany	0.221**	(5.71)	0.255**	(7.52)
Estonia	-0.778**	(21.04)	-0.545**	(13.61)
Spain	0.154**	(3.35)	0.241**	(7.13)
France	0.350**	(10.17)	0.365**	(11.40)
Ireland	0.653**	(13.39)	0.554**	(14.47)
Italy	0.281**	(7.47)	0.264**	(6.91)
Cyprus	0.281**	(5.97)	0.294**	(9.07)
Latvia	-1.120**	(31.72)	-0.911**	(17.53)
Lithuania	-1.104**	(29.81)	-0.948**	(19.43)
Luxemburg	0.721**	(12.21)	0.824**	(23.93)
Hungary	-0.943**	(28.03)	-0.828**	(15.29)
Malta	0.022	(0.55)	-0.076*	(2.21)
Netherlands	0.395**	(7.48)	0.441**	(13.12)
Austria	0.322**	(5.84)	0.330**	(9.07)
Poland	-0.824**	(19.17)	-0.691**	(18.38)
Portugal	-0.073	(1.89)	-0.187**	(4.24)
Romania	-1.575**	(33.63)	-1.322**	(24.55)
Slovenia	-0.241**	(7.08)	-0.216**	(5.97)
Slovakia	-0.668**	(17.52)	-0.539**	(13.35)
Finland	0.593**	(16.82)	0.502**	(14.13)
Sweden	0.616**	(16.95)	0.566**	(17.56)
UK	0.181**	(3.97)	0.308**	(8.62)
Croatia	-0.468**	(12.50)	-0.447**	(12.95)
FYROM	-1.538**	(32.29)	-1.431**	(29.96)
Turkey	-0.837**	(23.89)	-0.790**	(20.17)
Norway	0.988**	(28.94)	0.848**	(27.87)
Albania	-1.435**	(24.03)	-1.429**	(25.99)
Kosovo	-1.453**	(34.95)	-1.485**	(36.06)
Montenegro	-1.068**	(25.16)	-0.859**	(15.80)
Constant	4.061**	(50.56)	3.771**	(50.42)
Observations	11707		12854	
R^2	0.698		0.697	

Note: Robust t-statistics in parentheses. *Significant at 5%; **significant at 1%.

Table 5. Dependent variable – Ln Psychological well-being: Instrumental Variables OLS estimation (column A); OLS considering endogeneity (column B)

Variables	(A) IV OLS estimation				(B) OLS (*considering endogeneity*)			
	Low paid group		Well paid group		Low paid group		Well paid group	
Ln Labor earnings	0.402**	(3.15)	0.002	(0.02)				
Ln Labor earning (predictions)					0.403**	(3.31)	0.002	(0.02)
Males	0.001	(0.04)	0.047*	(1.99)	0.001	(0.04)	0.047*	(1.99)
Age	-0.029**	(4.73)	-0.011*	(1.82)	-0.029**	(4.98)	-0.011	(1.81)
Age^2	0.0002**	(4.13)	0.0001*	(1.86)	0.0003**	(4.34)	0.0001	(1.85)
Primary Education	0.064	(0.87)	-0.017	(0.31)	0.065	(0.92)	-0.017	(0.31)
Secondary Education	0.069*	(2.04)	0.003	(0.12)	0.069*	(2.14)	0.003	(0.12)
Working hours	-0.006**	(3.75)	-0.0001	(0.08)	-0.006**	(3.95)	-0.0001	(0.08)
Low skilled blue collar	-0.021	(0.49)	-0.046	(1.36)	-0.021	(0.51)	-0.046	(1.36)
Low skilled white collar	0.041	(1.47)	-0.007	(0.39)	0.041	(1.55)	-0.007	(0.39)
High skilled blue collar	0.081	(1.81)	-0.016	(0.65)	0.081	(1.90)	-0.016	(0.65)
Belgium	-0.279**	(3.80)	-0.054	(1.14)	-0.279**	(4.00)	-0.054	(1.14)
Bulgaria	0.382*	(1.92)	-0.061	(0.45)	0.382*	(2.01)	-0.061	(0.44)
Czech Republic	-0.138	(1.87)	-0.181**	(3.61)	-0.138	(1.95)	-0.181**	(3.61)
Denmark	-0.207	(1.79)	0.032	(0.42)	-0.207	(1.88)	0.032	(0.42)
Germany	-0.172**	(3.28)	-0.032	(0.89)	-0.172**	(3.52)	-0.032	(0.89)
Estonia	0.241*	(2.32)	-0.068	(1.06)	0.241*	(2.44)	-0.068	(1.05)
Spain	0.044	(0.82)	0.053	(1.51)	0.044	(0.89)	0.053	(1.51)
France	-0.191**	(3.29)	-0.048	(1.07)	-0.191**	(3.51)	-0.048	(1.07)
Ireland	-0.183	(1.92)	0.041	(0.64)	-0.183*	(2.05)	0.041	(0.64)
Italy	-0.264**	(4.38)	-0.085*	(2.09)	-0.264**	(4.57)	-0.085*	(2.09)
Cyprus	-0.399**	(4.29)	-0.106*	(2.42)	-0.399**	(4.40)	-0.106*	(2.42)
Latvia	0.279	(1.92)	-0.144	(1.50)	0.279*	(2.02)	-0.144	(1.50)
Lithuania	0.156	(1.06)	-0.167	(1.67)	0.156	(1.12)	-0.167	(1.67)
Luxemburg	-0.362**	(3.23)	-0.073	(0.78)	-0.362**	(3.48)	-0.073	(0.78)
Hungary	0.190	(1.53)	-0.094	(1.06)	0.190	(1.60)	-0.094	(1.05)
Malta	0.020	(0.44)	0.021	(0.86)	0.021	(0.47)	0.021	(0.86)
Netherlands	-0.105	(1.48)	-0.045	(0.82)	-0.105	(1.58)	-0.045	(0.82)
Austria	-0.322**	(3.64)	-0.038	(0.86)	-0.322**	(3.81)	-0.038	(0.86)
Poland	0.154	(1.36)	-0.064	(0.88)	0.154	(1.43)	-0.064	(0.87)
Portugal	-0.034	(0.73)	-0.031	(0.66)	-0.034	(0.78)	-0.031	(0.66)
Romania	0.519*	(2.52)	-0.065	(0.49)	0.519**	(2.63)	-0.065	(0.49)
Slovenia	-0.039	(0.81)	-0.078*	(2.05)	-0.039	(0.85)	-0.078*	(2.05)
Slovakia	0.133	(1.43)	-0.053	(0.88)	0.133	(1.50)	-0.053	(0.88)
Finland	-0.118	(1.39)	-0.023	(0.41)	-0.118	(1.47)	-0.023	(0.41)
Sweden	-0.146	(1.64)	-0.008	(0.13)	-0.146	(1.72)	-0.009	(0.13)
UK	-0.227**	(3.75)	-0.078	(1.84)	-0.227**	(3.88)	-0.078	(1.84)
Croatia	-0.038	(0.53)	-0.084	(1.52)	-0.038	(0.56)	-0.084	(1.52)
FYROM	0.561**	(2.74)	0.017	(0.12)	0.561**	(2.87)	0.017	(0.12)
Turkey	0.018	(0.16)	-0.166*	(1.94)	0.018	(0.17)	-0.166	(1.94)
Norway	-0.343*	(2.53)	0.011	(0.13)	-0.343**	(2.66)	0.012	(0.13)
Albania	0.299	(1.55)	-0.079	(0.55)	0.299	(1.63)	-0.079	(0.55)
Kosovo	0.655**	(3.31)	0.057	(0.37)	0.655**	(3.49)	0.057	(0.37)
Montenegro	0.281	(1.96)	-0.008	(0.09)	0.281*	(2.07)	-0.009	(0.09)
Constant	-0.258	(0.48)	1.422**	(3.70)	-0.258	(0.50)	1.422**	(3.69)
Observations	11707		12854		11707		12854	
R^2					0.062		0.026	

Note: Robust z-statistics (IV OLS) and t-statistics (for OLS) in parentheses. *Significant at 5%; ** significant at 1%.

Table 8. OLS model: dependent variable: Ln labor earnings.

Variables	Low paid		Well paid	
Employed with an indefinite contract	0.116**	(7.59)	0.130**	(7.39)
Employed with a fixed term contract	0.093**	(5.38)	0.097**	(4.88)
Employed with a temporary contract	0.091**	(2.83)	0.103**	(3.53)
Self-employed	0.014	(0.51)	0.109**	(4.06)
Employed in education or training	0.135**	(7.48)	0.119**	(6.27)
Other	0.007	(0.31)	0.019	(0.71)
Males	0.204**	(18.37)	0.223**	(23.08)
Age	0.042**	(12.65)	0.052**	(17.20)
Age^2	-0.0004**	(11.53)	-0.0005**	(15.07)
Primary Education	-0.473**	(14.41)	-0.484**	(17.33)
Secondary Education	-0.224**	(16.03)	-0.229**	(20.13)
Working hours	0.012**	(21.24)	0.018**	(32.22)
Low skilled blue collar	-0.277**	(14.49)	-0.309**	(18.36)
Low skilled white collar	-0.172**	(10.74)	-0.169**	(14.35)
High skilled blue collar	-0.298**	(13.99)	-0.224**	(13.17)
Belgium	0.478**	(15.04)	0.385**	(13.83)
Bulgaria	-1.483**	(36.88)	-1.345**	(27.78)
Czech Republic	-0.395**	(10.93)	-0.403**	(11.72)
Denmark	0.830**	(19.46)	0.714**	(22.42)
Germany	0.221**	(5.76)	0.251**	(7.41)
Estonia	-0.771**	(21.10)	-0.548**	(13.71)
Spain	0.157**	(3.41)	0.236**	(7.04)
France	0.349**	(10.21)	0.362**	(11.32)
Ireland	0.659**	(13.58)	0.552**	(14.40)
Italy	0.283**	(7.53)	0.260**	(6.82)
Cyprus	0.282**	(6.00)	0.291**	(8.99)
Latvia	-1.119**	(31.97)	-0.915**	(17.69)
Lithuania	-1.106**	(30.29)	-0.977**	(19.91)
Luxemburg	0.725**	(12.32)	0.823**	(23.98)
Hungary	-0.941**	(28.08)	-0.832**	(15.36)
Malta	0.023	(0.58)	-0.079*	(2.30)
Netherlands	0.396**	(7.50)	0.438**	(13.07)
Austria	0.330**	(6.25)	0.331**	(9.17)
Poland	-0.823**	(19.26)	-0.698**	(18.57)
Portugal	-0.070	(1.82)	-0.191**	(4.32)
Romania	-1.586**	(34.05)	-1.330**	(25.36)
Slovenia	-0.240**	(7.08)	-0.222**	(6.17)
Slovakia	-0.669**	(17.72)	-0.545**	(13.49)
Finland	0.594**	(16.94)	0.498**	(14.05)
Sweden	0.616**	(17.04)	0.563**	(17.50)
UK	0.181**	(3.99)	0.303**	(8.51)
Croatia	-0.465**	(12.49)	-0.447**	(12.97)
FYROM	-1.537**	(32.51)	-1.432**	(30.07)
Turkey	-0.835**	(23.85)	-0.794**	(20.28)
Norway	0.994**	(29.23)	0.843**	(27.52)
Albania	-1.465**	(25.36)	-1.441**	(26.16)
Kosovo	-1.465**	(34.71)	-1.486**	(37.14)
Montenegro	-1.021**	(24.10)	-0.858**	(15.75)
Constant	4.073**	(50.88)	3.779**	(50.53)
Observations	11825		12890	
R^2	0.697		0.697	

Note: Robust t-statistics in parentheses. *Significant at 5%; **significant at 1%.

Table 9. Dependent variable – work-related stress: Ordered Logit model considering endogeneity (column A); marginal effects (column B)

Variables	(A) Ordered Logit (*considering endogeneity*) Low paid group		Well paid group		(B) Marginal efects Low paid group		Well paid group	
Ln Labor earnings	0.565	(1.60)	1.297**	(3.21)	0.067	(1.60)	0.085**	(3.20)
Males	-0.183*	(2.23)	-0.394**	(3.98)	-0.022*	(2.23)	-0.026**	(3.87)
Age	0.034	(1.95)	0.004	(0.18)	0.004	(1.95)	0.0002	(0.18)
Age^2	-0.0004*	(2.29)	-0.00007	(0.26)	-0.00005*	(2.29)	-4.37e-06	(0.26)
Primary Education	0.053	(0.27)	0.272	(1.21)	0.006	(0.27)	0.020	(1.09)
Secondary Education	-0.114	(1.20)	0.067	(0.65)	-0.014	(1.18)	0.004	(0.65)
Working hours	0.016**	(3.42)	0.004	(0.56)	0.002**	(3.42)	0.0002	(0.56)
Low skilled blue collar	-0.269*	(2.23)	-0.243	(1.72)	-0.030*	(2.36)	-0.015	(1.85)
Low skilled white collar	-0.071	(0.88)	-0.015	(0.19)	-0.008	(0.88)	-0.001	(0.19)
High skilled blue collar	-0.392**	(3.10)	-0.181	(1.63)	-0.042**	(3.40)	-0.011	(1.72)
Belgium	-0.988**	(4.46)	-1.032**	(5.06)	-0.085**	(6.49)	-0.049**	(6.97)
Bulgaria	-0.764	(1.42)	-0.113	(0.20)	-0.069	(1.92)	-0.007	(0.21)
Czech Republic	-0.714**	(3.45)	-0.104	(0.47)	-0.066**	(4.59)	-0.006	(0.49)
Denmark	-1.994**	(5.70)	-1.906**	(5.82)	-0.119**	(14.19)	-0.065**	(12.41)
Germany	-0.371*	(2.26)	-0.394*	(2.30)	-0.038**	(2.58)	-0.022*	(2.68)
Estonia	-1.006**	(3.37)	-0.420	(1.55)	-0.084**	(5.05)	-0.023*	(1.86)
Spain	-0.898**	(4.92)	-0.821**	(4.36)	-0.078**	(7.13)	-0.039**	(6.25)
France	-0.907**	(4.98)	-1.388**	(6.85)	-0.082**	(6.67)	-0.056**	(11.62)
Ireland	-1.213**	(4.13)	-1.481**	(5.44)	-0.094**	(6.96)	-0.056**	(10.35)
Italy	-1.012**	(5.59)	-0.696**	(3.57)	-0.085**	(8.40)	-0.034**	(4.85)
Cyprus	-0.249	(1.12)	-0.546**	(2.86)	-0.027	(1.23)	-0.029**	(3.60)
Latvia	-0.473	(1.15)	0.263	(0.65)	-0.047	(1.37)	0.019	(0.59)
Lithuania	-1.073**	(2.62)	-0.410	(0.95)	-0.088**	(4.07)	-0.022	(1.15)
Luxemburg	-0.777**	(2.36)	-1.513**	(4.06)	-0.069**	(3.26)	-0.056**	(8.01)
Hungary	-0.162	(0.46)	0.364	(0.95)	-0.018	(0.49)	0.028	(0.82)
Malta	-0.606**	(3.58)	-0.388**	(2.50)	-0.058**	(4.54)	-0.022**	(2.94)
Netherlands	-1.646**	(7.38)	-1.395**	(6.00)	-0.111**	(15.07)	-0.055**	(10.69)
Austria	-0.246	(1.06)	-0.416	(2.00)	-0.027	(1.17)	-0.023*	(2.39)
Poland	-0.476	(1.48)	0.149	(0.47)	-0.048	(1.77)	0.011	(0.45)
Portugal	-0.715**	(4.70)	0.101	(0.49)	-0.066**	(6.21)	0.006	(0.47)
Romania	-0.564	(0.98)	0.425	(0.76)	-0.055	(1.23)	0.033	(0.65)
Slovenia	-1.015**	(6.51)	-0.785**	(4.58)	-0.086**	(9.53)	-0.038**	(6.41)
Slovakia	-0.391	(1.42)	-0.163	(0.60)	-0.041	(1.65)	-0.010	(0.64)
Finland	-1.573**	(6.02)	-1.388**	(5.43)	-0.110**	(11.55)	-0.054**	(10.03)
Sweden	-1.142**	(4.14)	-1.122**	(4.06)	-0.091**	(6.69)	-0.048**	(6.65)
UK	-0.879**	(5.06)	-0.997**	(5.19)	-0.076**	(7.21)	-0.045**	(7.86)
Croatia	-0.692**	(3.16)	-0.371	(1.57)	-0.064**	(4.14)	-0.021*	(1.85)
FYROM	-0.224	(0.39)	0.478	(0.79)	-0.024	(0.43)	0.038	(0.66)
Turkey	-0.066	(0.20)	0.934*	(2.62)	-0.007	(0.21)	0.089	(1.91)
Norway	-1.123**	(2.84)	-1.353**	(3.59)	-0.090**	(4.59)	-0.054**	(6.52)
Albania	-0.151	(0.28)	1.020	(1.68)	-0.017	(0.29)	0.102	(1.19)
Kosovo	-0.767	(1.39)	1.392	(2.21)	-0.069*	(1.90)	0.159	(1.47)
Montenegro	-0.927*	(2.34)	-0.333	(0.85)	-0.079**	(3.43)	-0.019	(0.98)
Observations	11825		12890		11825		12890	
Pseudo R^2	0.028		0.037					
Loglikelihood	-17523.165		-18397.774					
y					0.137		0.071	

Note: Robust t-statistics in parentheses. *Significant at 5%; **significant at 1%.

Appendix

Table 2. Summary statistics of variables

Variable	Low paid group		Well paid group	
	Mean	*SD*	*Mean*	*SD*
Ln Psychological well-being	0.899	0.645	1.166	0.407
Ln labor earnings	4.978	0.932	5.591	0.874
Ln labor earnings (predictors)	4.978	0.779	5.591	0.730
Employed with an indefinite contract	0.426	0.494	0.471	0.499
Employed with a fixed term contract	0.131	0.338	0.115	0.319
Employed with a temporary contract	0.021	0.145	0.022	0.149
Self-employed	0.048	0.214	0.055	0.227
Employed in education or training	0.160	0.366	0.186	0.389
Other	0.054	0.227	0.051	0.221
Males	0.463	0.498	0.548	0.497
Age	41.368	11.402	40.796	11.541
Age^2	1841.325	942.356	1797.523	957.6305
Primary Education	0.074	0.261	0.038	0.193
Secondary Education	0.683	0.465	0.592	0.491
Working hours	39.487	12.482	38.671	11.818
Low skilled blue collar	0.219	0.414	0.147	0.354
Low skilled white collar	0.427	0.494	0.424	0.494
High skilled blue collar	0.173	0.378	0.133	0.339
Belgium	0.051	0.219	0.122	0.328
Bulgaria	0.029	0.170	0.015	0.124
Czech Republic	0.021	0.141	0.019	0.138
Denmark	0.016	0.126	0.047	0.212
Germany	0.038	0.193	0.063	0.243
Estonia	0.032	0.177	0.016	0.127
Spain	0.016	0.127	0.022	0.148
France	0.095	0.294	0.056	0.230
Ireland	0.021	0.143	0.031	0.173
Italy	0.029	0.168	0.019	0.139
Cyprus	0.011	0.106	0.036	0.186
Latvia	0.040	0.196	0.013	0.114
Lithuania	0.029	0.169	0.011	0.105
Luxemburg	0.011	0.107	0.029	0.169
Hungary	0.044	0.205	0.009	0.097
Malta	0.018	0.133	0.027	0.163
Netherlands	0.017	0.132	0.039	0.194
Austria	0.010	0.099	0.026	0.162
Poland	0.026	0.160	0.028	0.165
Portugal	0.028	0.165	0.011	0.107
Romania	0.025	0.156	0.014	0.120
Slovenia	0.047	0.212	0.029	0.167
Slovakia	0.024	0.155	0.016	0.127
Finland	0.033	0.180	0.025	0.156
Sweden	0.023	0.151	0.029	0.169
UK	0.024	0.154	0.038	0.193
Croatia	0.027	0.163	0.023	0.152
FYROM	0.030	0.170	0.024	0.154
Turkey	0.064	0.245	0.033	0.179
Norway	0.021	0.145	0.036	0.187
Albania	0.021	0.144	0.016	0.127
Kosovo	0.020	0.140	0.027	0.163
Montenegro	0.022	0.149	0.014	0.120
Observations	11707		12854	

Table 3. OLS model: dependent variable: Ln Psychological well-being.

Variables	Low paid group		Well paid group	
	Ln Psychological well-being		*Ln Psychological well-being*	
Ln Labor earnings	0.028*	(2.38)	0.043**	(4.28)
Males	0.078**	(5.85)	0.038**	(4.65)
Age	-0.014**	(4.06)	-0.013**	(5.64)
Age^2	0.0001**	(2.95)	0.0001**	(5.18)
Primary Education	-0.121**	(3.45)	0.002	(0.12)
Secondary Education	-0.018	(1.23)	0.012	(1.53)
Working hours	-0.002**	(2.94)	-0.0009*	(2.37)
Low skilled blue collar	-0.129**	(5.55)	-0.033*	(2.33)
Low skilled white collar	-0.024	(1.44)	-0.0003	(0.04)
High skilled blue collar	-0.032	(1.42)	-0.006	(0.49)
Belgium	-0.094*	(2.52)	-0.071**	(2.96)
Bulgaria	-0.167**	(3.15)	-0.005	(0.12)
Czech Republic	-0.278**	(5.07)	-0.165**	(4.96)
Denmark	0.114**	(3.15)	0.002	(0.07)
Germany	-0.082*	(2.08)	-0.044	(1.85)
Estonia	-0.038	(0.97)	-0.046	(1.05)
Spain	0.105*	(2.23)	0.042	(1.74)
France	-0.053	(1.68)	-0.063*	(2.46)
Ireland	0.069	(1.82)	0.017	(0.56)
Italy	-0.158**	(3.47)	-0.096**	(3.07)
Cyprus	-0.292**	(3.38)	-0.118**	(3.76)
Latvia	-0.129**	(3.18)	-0.107**	(3.07)
Lithuania	-0.247**	(5.20)	-0.128**	(3.36)
Luxemburg	-0.082	(1.62)	-0.108**	(3.33)
Hungary	-0.152**	(3.97)	-0.061	(1.58)
Malta	0.035	(0.84)	0.024	(1.02)
Netherlands	0.051	(1.16)	-0.064*	(2.07)
Austria	-0.189**	(2.59)	-0.053*	(2.04)
Poland	-0.145**	(3.09)	-0.036	(1.13)
Portugal	-0.55	(1.29)	-0.024	(0.54)
Romania	-0.059	(1.15)	-0.011	(0.32)
Slovenia	-0.118**	(2.96)	-0.070*	(2.13)
Slovakia	-0.107*	(2.45)	-0.031	(1.01)
Finland	0.112**	(3.56)	-0.045	(1.79)
Sweden	0.094**	(2.73)	-0.032	(1.22)
UK	-0.153**	(2.83)	-0.091**	(3.30)
Croatia	-0.207**	(4.83)	-0.066*	(2.04)
FYROM	-0.022	(0.42)	0.077*	(2.40)
Turkey	-0.299**	(6.91)	-0.133**	(3.63)
Norway	0.037	(0.81)	-0.024	(0.94)
Albania	-0.244**	(4.49)	-0.020	(0.60)
Kosovo	0.103*	(2.04)	0.120**	(3.44)
Montenegro	-0.121**	(2.67)	0.027	(0.77)
Constant	1.311**	(14.94)	1.262**	(20.06)
Observations	11707		12854	
R^2	0.0612		0.029	

Note: Robust t statistics in parentheses. *Significant at 5%; **significant at 1%.

Table 6. Sum statistics of variables.

Variable	Low paid group		Well paid group	
	Mean	*SD*	*Mean*	*SD*
Work related stress	3.050	1.217	2.724	1.152
Ln labor earnings	4.974	0.932	5.587	0.873
Ln labor earnings (predictors)	4.974	0.778	5.587	0.729
Employed with an indefinite contract	0.427	0.494	0.471	0.499
Employed with a fixed term contract	0.131	0.337	0.115	0.320
Employed with a temporary contract	0.021	0.144	0.022	0.149
Self-employed	0.048	0.214	0.054	0.227
Employed in education or training	0.158	0.365	0.185	0.388
Other	0.055	0.229	0.051	0.220
Males	0.462	0.498	0.548	0.497
Age	41.409	11.384	40.809	11.539
Age^2	1844.351	941.592	1798.601	957.616
Primary Education	0.073	0.261	0.038	0.193
Secondary Education	0.685	0.464	0.593	0.491
Working hours	39.552	12.471	38.651	11.817
Low skilled blue collar	0.221	0.415	0.149	0.356
Low skilled white collar	0.426	0.494	0.424	0.494
High skilled blue collar	0.174	0.379	0.133	0.339
Belgium	0.050	0.219	0.123	0.328
Bulgaria	0.029	0.169	0.015	0.125
Czech Republic	0.021	0.143	0.019	0.138
Denmark	0.015	0.125	0.047	0.213
Germany	0.038	0.193	0.063	0.243
Estonia	0.033	0.179	0.016	0.127
Spain	0.016	0.126	0.022	0.149
France	0.095	0.294	0.056	0.230
Ireland	0.020	0.141	0.031	0.172
Italy	0.028	0.167	0.019	0.139
Cyprus	0.011	0.105	0.036	0.186
Latvia	0.040	0.197	0.013	0.114
Lithuania	0.030	0.172	0.011	0.108
Luxemburg	0.011	0.107	0.029	0.169
Hungary	0.043	0.204	0.009	0.097
Malta	0.017	0.132	0.027	0.163
Netherlands	0.017	0.131	0.039	0.194
Austria	0.010	0.103	0.027	0.163
Poland	0.026	0.159	0.027	0.164
Portugal	0.027	0.164	0.011	0.107
Romania	0.025	0.157	0.015	0.123
Slovenia	0.047	0.212	0.029	0.168
Slovakia	0.025	0.156	0.016	0.127
Finland	0.033	0.180	0.025	0.157
Sweden	0.023	0.150	0.029	0.169
UK	0.024	0.153	0.038	0.193
Croatia	0.027	0.162	0.023	0.152
FYROM	0.030	0.170	0.024	0.154
Turkey	0.063	0.242	0.033	0.178
Norway	0.021	0.143	0.034	0.182
Albania	0.023	0.151	0.016	0.126
Kosovo	0.020	0.138	0.028	0.163
Montenegro	0.023	0.151	0.015	0.121
Observations	11825		12890	

Table 7. Dependent variable – work-related stress: Ordered Logit model (column A); marginal effects (column B).

Variables	(A) Ordered Logit model				(B) Marginal effects			
	Low paid group		Well paid group		Low paid group		Well paid group	
Ln Labor earnings	0.198**	(5.92)	0.236**	(6.79)	0.023**	(5.91)	0.015**	(6.71)
Males	-0.108**	(2.88)	-0.150**	(4.15)	-0.012*	(2.89)	-0.010**	(4.10)
Age	0.049**	(4.65)	0.052**	(5.09)	0.005**	(4.64)	0.003**	(5.06)
Age^2	-0.0006**	(4.87)	-0.0006**	(5.33)	-0.00007**	(4.85)	-0.00004**	(5.29)
Primary Education	-0.144	(1.66)	-0.263*	(2.59)	-0.016	(1.73)	-0.015**	(2.88)
Secondary Education	-0.201**	(4.18)	-0.186**	(4.53)	-0.024**	(4.07)	-0.012**	(4.44)
Working hours	0.021**	(13.41)	0.024**	(14.36)	0.002**	(13.22)	0.001**	(13.66)
Low skilled blue collar	-0.376**	(5.90)	-0.579**	(9.54)	-0.041**	(6.35)	-0.032**	(10.94)
Low skilled white collar	-0.137**	(2.59)	-0.168**	(3.89)	-0.016*	(2.61)	-0.011**	(3.92)
High skilled blue collar	-0.503**	(7.53)	-0.426**	(6.89)	-0.053**	(8.46)	-0.024**	(7.76)
Belgium	-0.808**	(5.89)	-0.611**	(4.87)	-0.073**	(7.91)	-0.033**	(5.89)
Bulgaria	-1.307**	(8.15)	-1.531**	(8.41)	-0.099**	(13.77)	-0.055**	(16.03)
Czech Republic	-0.855**	(5.39)	-0.513**	(3.20)	-0.074**	(7.61)	-0.027**	(3.99)
Denmark	-1.678**	(9.76)	-1.129**	(8.16)	-0.110**	(19.69)	-0.049**	(12.50)
Germany	-0.283*	(2.02)	-0.110	(0.84)	-0.031*	(2.23)	-0.007	(0.88)
Estonia	-1.281**	(8.72)	-0.984**	(5.82)	-0.098**	(14.39)	-0.043**	(8.99)
Spain	-0.838**	(4.85)	-0.558**	(3.50)	-0.073**	(6.84)	-0.029**	(4.46)
France	-0.784**	(6.11)	-0.997**	(7.32)	-0.073**	(7.84)	-0.045**	(10.64)
Ireland	-0.966**	(5.76)	-0.891**	(5.88)	-0.081**	(8.57)	-0.042**	(8.54)
Italy	-0.910**	(6.01)	-0.423**	(2.58)	-0.078**	(8.62)	-0.023**	(3.10)
Cyprus	-0.145	(0.73)	-0.229	(1.56)	-0.016	(0.77)	-0.013	(1.72)
Latvia	-0.881**	(6.04)	-0.696**	(3.87)	-0.077**	(8.45)	-0.034**	(5.29)
Lithuania	-1.475**	(9.68)	-1.437**	(7.57)	-0.105**	(17.27)	-0.054**	(14.24)
Luxemburg	-0.501**	(2.56)	-0.620**	(4.06)	-0.049**	(3.12)	-0.032**	(5.28)
Hungary	-0.498**	(3.45)	-0.501*	(2.45)	-0.050**	(4.13)	-0.026**	(3.07)
Malta	-0.594**	(3.52)	-0.471**	(3.09)	-0.057**	(4.45)	-0.026**	(3.77)
Netherlands	-1.495**	(8.95)	-0.917**	(6.48)	-0.105**	(16.72)	-0.042**	(9.37)
Austria	-0.111	(0.58)	-0.037	(0.25)	-0.012	(0.60)	-0.002	(0.25)
Poland	-0.776**	(4.99)	-0.583**	(3.82)	-0.070**	(6.78)	-0.030**	(4.89)
Portugal	-0.733**	(4.86)	-0.086	(0.45)	-0.067**	(6.46)	-0.005	(0.46)
Romania	-1.134**	(6.91)	-0.975**	(5.42)	-0.091**	(10.96)	-0.043**	(8.37)
Slovenia	-1.093**	(7.97)	-1.011**	(6.74)	-0.090**	(11.97)	-0.045**	(10.27)
Slovakia	-0.628**	(4.07)	-0.722**	(4.23)	-0.059**	(5.19)	-0.036**	(5.83)
Finland	-1.348**	(9.36)	-0.847**	(5.57)	-0.101**	(15.80)	-0.039**	(7.99)
Sweden	-0.909**	(5.79)	-0.506**	(3.42)	-0.078**	(8.36)	-0.027**	(4.24)
UK	-0.804**	(5.05)	-0.663**	(4.63)	-0.071**	(6.96)	-0.034**	(6.08)
Croatia	-0.857**	(5.65)	-0.843**	(5.41)	-0.075**	(7.93)	-0.039**	(7.77)
FYROM	-0.801**	(4.96)	-1.055**	(6.25)	-0.071**	(6.80)	-0.046**	(9.84)
Turkey	-0.375**	(2.72)	0.082	(0.55)	-0.039**	(3.09)	0.005	(0.53)
Norway	-0.748**	(4.62)	-0.436**	(3.00)	-0.068**	(6.23)	-0.024**	(3.60)
Albania	-0.691**	(4.24)	-0.515**	(2.94)	-0.064**	(5.57)	-0.027**	(3.69)
Kosovo	-1.312**	(7.52)	-0.218	(1.31)	-0.098**	(13.04)	-0.013	(1.44)
Montenegro	-1.311**	(8.09)	-1.267**	(7.01)	-0.098**	(13.85)	-0.051**	(12.25)
Observations	11825		12890		11825		12890	
Pseudo R^2	0.029		0.039					
Loglikelihood	-17506.799		-18379.599					
y					0.137		0.071	

Note: Robust z-statistics in parentheses. *Significant at 5%; **significant at 1%.