

**DO EXTRINSIC CONDITIONS AFFECT JOB SATISFACTION IN THE SAME WAY FOR  
ALL WORKERS**

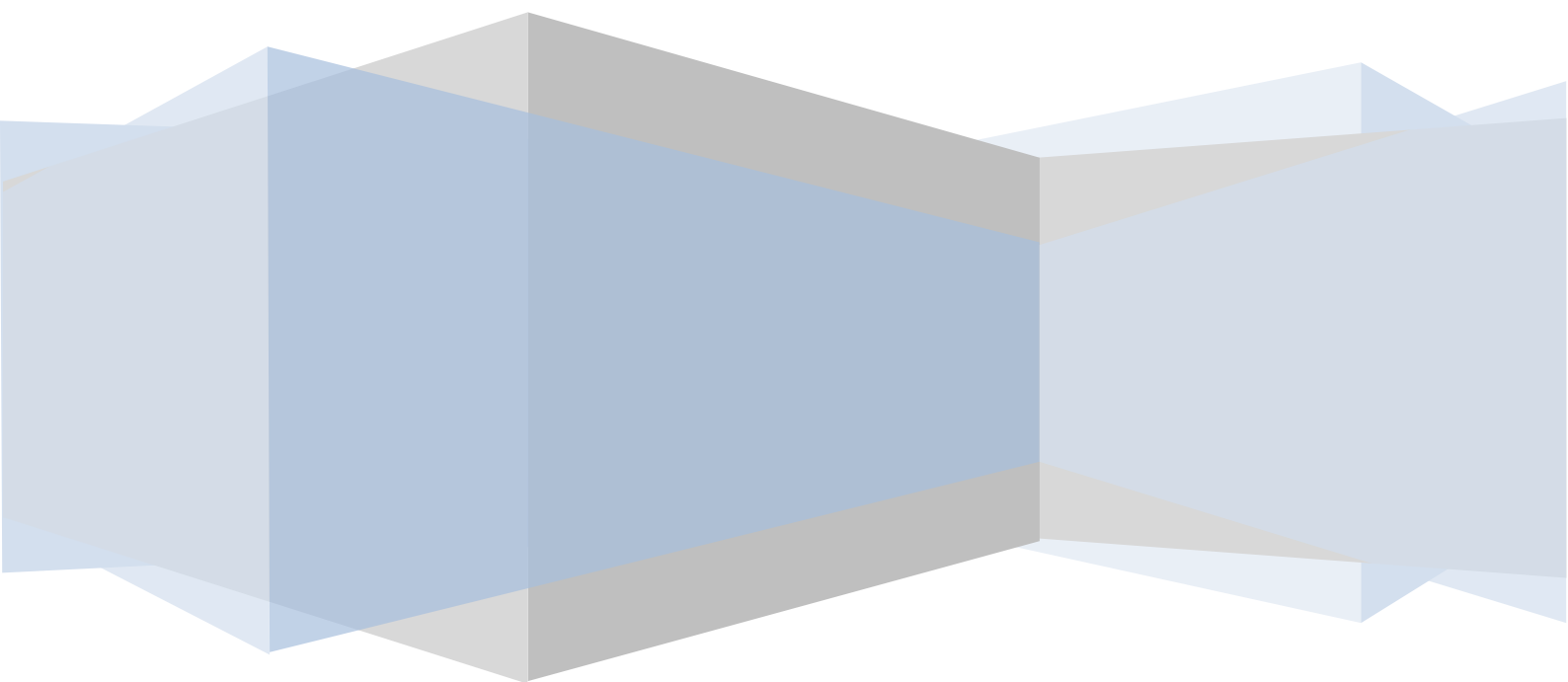
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## Do extrinsic conditions affect job satisfaction in the same way for all workers?

### **Section 1: Introduction**

How to improve job satisfaction has become a major concern for many employers. Many studies have shown that enhanced job satisfaction can result in better performance (Iaffaldano and Muchinsky, 1985; Wright and Russell Cropanzano, 2000; Judge et al. 2001) and lower turnover rates (Mobley, 1997; Carsten and Spector, 1987). As Cotton and Tuttle (1986) described, satisfaction with work-related factors such as payment, supervision, and organizational commitment, has a significant impact on the turnover rate, as people are less likely to quit their job when their expectations are met. Wright et al (2007) reported that employees perform better when they report high scores both on psychological well-being and job satisfaction. In an experimental study, Oswald et al. (2013) found that happiness promotes employees' performance, with effect sizes of up to 12% higher productivity. Claes and Loo (2011) stated that job-related affective well-being has a positive and significant effect on senior employees' retirement age. Results and evidence from these studies show that job satisfaction significantly affects employees' performance and likelihood of leaving. This thesis aims to learn more about the drivers of employees' job satisfaction. We are interested in the causes of enhanced and weakened job satisfaction.

In literature about the sources of job satisfaction, a distinction is made between extrinsic and intrinsic aspects. On the one hand, some studies have analysed how extrinsic conditions from work affect people's well-being. Argyle (1999) has shown that well-being enhances with increases in income, and happiness of people with low income is outstandingly affected by earnings. Judge et al. (2010) also showed similar results in their research. They reported that the level of payment has 0.15 marginal correlation with job satisfaction and 0.2 marginal variance relationship with payment satisfaction. Artz (2010) found that some fringe benefits from job are significantly and positively correlated with job

satisfaction. These fringe benefits comprises flexible working hours, good pension plan, parental leave, child care provided by employer, and firm profit sharing. On the other hand, intrinsic needs have also been studied frequently. For instance, Salinas-Jimenez et al. (2010) suggested intrinsic motivation plays a significant role in people's well-being. Baard, Deci, and Ryan (2004) found that a working environment that meets employees' intrinsic needs can promote job satisfaction.

As argued by Salinas-Jimenez et al. (2010), it is difficult to distinguish whether people's motivations are triggered by extrinsic conditions or their intrinsic needs. There have been more and more studies providing evidence that extrinsic rewards and intrinsic needs have combined effects on people's well-being. Considering the results reported by Fischer and Boer (2011), wealth only affects well-being of individuals who score high on individualism. When an individual has high intrinsic demand of self-satisfaction, meeting his wealth expectation has greater effect on his well-being. Analogously, extrinsic rewards such as earnings have less influence on a less individualistic person. Clark (2012) found that people mainly compare their income with that of peers who have similar positions or hierarchies. That is, their happiness depends on peer comparison (Becchetti et al. 2008). Considering these examples, it is clear that extrinsic conditions of work sometimes affect job satisfaction of different people in different ways.

This study aims to find out how extrinsic work conditions affects people's job satisfaction when taking into account people's intrinsic needs at their work. Relatedly, Luechinger et al. (2006) reported in their study that existing extrinsic motivations in the labour market affects people's well-being when these extrinsic motivations meet employees' preferences of intrinsic needs. They suggested that when people experience an optimal match between job characteristics and personal preference, they gain extra utility from this optimal match. In their study, they also found that people who have specific attributes choose to work in the public sector.

Data used in our study are taken from the European Social Survey. The data only provide subject's current work conditions without any information about

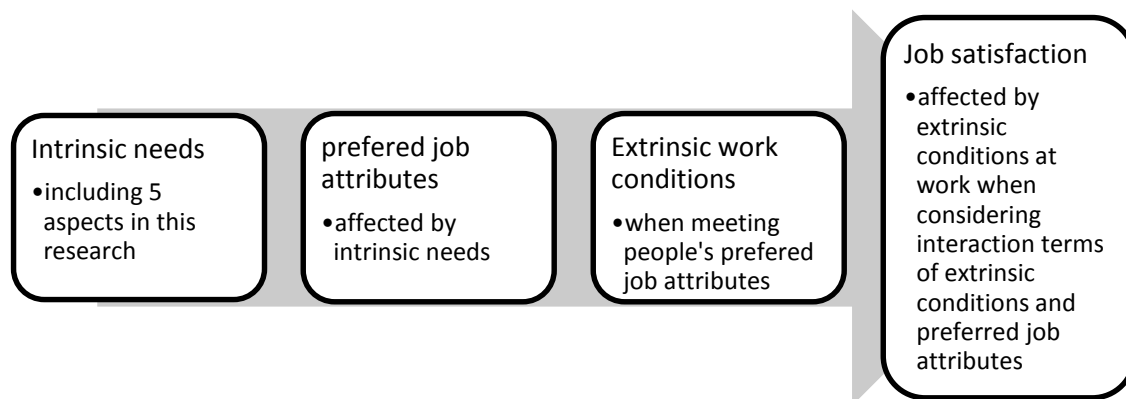
what they experienced in the past, and this study investigates people's job satisfaction rather than their well-being. Five different factors are selected as extrinsic conditions such as working sector (private and public), advancement opportunities, the balance between work and family, job security, and high income. Different from the study performed by Luechinger et al. (2006), I will investigate the relationship between people's intrinsic needs and their choice of job, this relationship did not discussed in the study of Luechinger et al. (2006). Moreover, this study do not focus on the utility gain from the match of job characteristics and personal needs, but analyse the relationship between job satisfaction and extrinsic conditions when introducing people's intrinsic needs.

The first objective of this study is to analyse whether choosing a particular job is related to people's intrinsic needs. The results show that on the one hand people who have a service attitude towards others have less likelihood of choosing a job on the basis of income and good promotion opportunities, because services attitude is negatively related to these two job attributes. On the other hand, people who consider salary as the most important aspect often neglect other aspects such as a long-term contract offered by firms (a secure job), good balance between work and private life. Other intrinsic needs, such as achieving success, expecting to be humble and modest, and caring about family life, have positive correlation with each job characteristics. It turns out that these three intrinsic needs always have impacts on people's selection of job characteristics.

The second objective of this study is to examine whether some extrinsic work conditions have different effects on job satisfaction for some types of subjects. That is, this study will consider interaction terms of work conditions and subjects' intrinsic needs into a regression of job satisfaction. We find that extrinsic work conditions are significantly related to job satisfaction, but not for all types of subjects in the same way. With regard to the effect of condition of work on one's personal time, only subjects who completely ignore a good balance between work and personal time, do not show lower job satisfaction when work occupies much time in their personal time. Moreover, income also has a conditional positive effect on job satisfaction. Income affects job satisfaction of subjects who consider wealth is "neither important nor

unimportant”, “important”, and “very important”. Income does not have a significant influence on job satisfaction for subjects who consider wealth as “not important” and “not important at all”. Our evidence further shows that subjects having a service attitude are more satisfied than other subjects who do not have this intrinsic need when they start a career in public sector. Subjects who desire good promotion opportunities are more satisfied than subjects who do not care about this whenever a good advancement opportunity is offered.

The following figure depicts the main objective and process of this research:



There are two main tests in this study. The first test investigates whether people’s intrinsic needs would dominate their behaviours of selecting a job which is also the first objective of this study. The second test explores how extrinsic conditions are related to job satisfaction referring to the second objective. Two regressions have been drawn in the second test and one of them is the benchmark condition. The first regression investigates the direct relationship between extrinsic work conditions and job satisfaction. Then, the interaction term of extrinsic work conditions and people’s preference of their intrinsic needs have been added to the second regression test.

In section 2, we review some related literatures, and describe the data used in this research. Then, two main tests about people’s behaviours and job satisfaction are displayed and analysed. Finally, main results of this study are discussed and some further researches are recommended.

## Section 2: Related literature

Recent studies discussed intrinsic needs through intrinsic motivation, and their relationship is straightforward. The phenomenon of intrinsic motivation was first acknowledged by White (1959)<sup>1</sup>, although Deci and Ryan (1985) were the first ones who clearly created the distinctive definitions between intrinsic and extrinsic motivation. In self-determination theory (SDT) of Deci and Ryan (1985), intrinsic motivation is a reaction of inherent interest; extrinsic motivation is a reaction leading to external outcomes. Later, Deci and Ryan (2000a, 2000b) suggested that people's innate psychological needs for competence, autonomy and relatedness can be used to understand human motivation. Becoming satisfied through these three innate psychological needs raises intrinsic motivation. Latham and Pinder (2005) suggested the concepts of intrinsic needs and values. They stated that needs are inherent and values are obtained by cognition and experience. Values affect the behaviour of people. Generally, a person first values his life according to his intrinsic needs, and then takes actions reflecting this value. Applying this concept into choosing a job, self-selection of searching job reflects people's preference of intrinsic needs.

Also, people will perform much differently motivated by intrinsic and extrinsic reasons. Evidence provided by Ryan and Stiller (1991) showed that students perform higher-quality learning and more creatively under intrinsic motivation rather than extrinsic motivation. Another early field research of Meir and Barak (1974) demonstrated that no correlation is found between persistence at work and extrinsic needs, whilst intrinsic needs play an important role across 10 different occupations<sup>2</sup>.

Many articles studied employees' well-being rather than job satisfaction, but Georgellis and Lange (2012) reported that job satisfaction and life satisfaction are positively and significantly correlated. As Diener et al. (2003) and Myers & Diener (1995) described in their paper: people's feelings are the reactions to environment, and the quality of life can be evaluated by their feelings. This is so called well-being or life satisfaction. Basic measure of well-being consisting

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<sup>1</sup> This was reported by Ryan and Deci (2000c). In their study, Ryan and Deci gave an insightful view of intrinsic needs and motivation, and discussed new research directions of this topic.

<sup>2</sup> Study of Meir and Barak (1974) chose 288 dentists, 31 nurses, 20 policewomen, 30 social works and 35 youth counsellors as experiment subjects.

of, inter alia, payment, health, unemployment and limited social contacts, can be considered as objective elements of individuals' utility functions (Lelkes, 2006). Therefore, job satisfaction is an emotional reaction regarding their needs for everything involved in a job.

In addition, the relationship between job satisfaction and intrinsic needs has been found and discussed in many previous researches. Briner (2000) reported that the psychological environment including affect, cognitions and behaviours, has an effect on how workers feel and think about their work. Lange (2012) used the data of the European Social Survey to show that autonomy brings higher job satisfaction to self-employed than independent workers. Gustafson and Mumford (1995) stated that motivation may be weakly depending on the matching value between characteristics of job and person's values. Baslevent and Kirmanoglu (2013) used the data of the European Social Survey to draw the relationship between hierarchies of needs<sup>3</sup>, preferred job attributes and basic personal values. They found that "having a secure job" and "getting a high income" have more weight on job attributes than other "luxurious" attributes<sup>4</sup>. In their study, they claim that if a person deviates from this needs hierarchy, it can be explained by his characteristics.

Previous research has shown evidence on how extrinsic conditions at work and people's intrinsic needs affect job satisfaction and well-being. This study focuses on people's intrinsic needs on job conditions rather than people's general attributes, such as marital status, gender, number of children in the family, education and so on. We first study whether intrinsic needs play a role when selecting a job that has some particular characteristics. A general view of the relationship between five intrinsic needs and five particular job characteristics is provided. The job characteristics include not only the type of the sector, but also job security, family conflict (work-influence-family), income, and advancement opportunities which are features people consider important

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<sup>3</sup> Their study was based on the theory of Maslow (1954) who introduced the concept of hierarchy of needs. Hierarchy of needs refers to: physiological needs, followed by security needs, social needs, esteem needs and self-actualization needs (whether the state of feeling that one has reached his/her career potential).

<sup>4</sup> "Having secure job" and "getting a high income" belongs to security needs in Maslow's hierarchy of needs. Social needs, esteem needs and self-actualization needs are included in "luxurious" attributes.

when choosing a job. Second, the extrinsic circumstances effects on job satisfaction are analysed under both conditions that includes and excludes people's intrinsic needs. Do extrinsic needs always directly affect job satisfaction for all people who have different intrinsic needs? Evidence from research will help us have a clear view on this.

### **Section 3: Data**

The data used in this research have been collected as part of the European Social Survey Round 5 conducted by City University London in 2010/2011<sup>5</sup>. This survey covering 27 countries comprises six main topics including demographics, work, and well-being. Most of the variables in this research were measured subjectively. This survey provides us with the subjective answers which were scored at large scale, as large scale of the answers' measurement could improve the accuracy of subjective responses. In total, there were 52,458 respondents taking part in this survey in round 5 in 2010/2011. After eliminating missing responses and variables that are not suitable for the research, the data set includes 12,268 valid subjects<sup>6</sup> and 16 key variables.

These 16 key variables comprise 5 aspects: (1) human value elements reflecting intrinsic needs, (2) self-selection factors about preferred job attributes, (3) working conditions, (4) job satisfaction and (5) respondents' demographic information such as gender, age, and total years of education. According to the ESS, human value questionnaires can be used to reflect people's intrinsic needs. In this study, intrinsic needs consist of five aspects such as service attitude or caring about other people's well-being, being successful, being humble and modest, following traditions, and being rich. Humble and modest imply subjects are not ambitious, such as wishing to become very successful. Following traditions implies subjects are willing to spend time on their family and partners, and they would not like to lose the balance between working time

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<sup>5</sup> The first round of ESS was fielded in 2002/2003 covering 30 nations, Round 2 in 2004/2005, Round 3 in 2006/2007, and Round 4 in 2008/2009. Researchers improved and refined questionnaires after each round for next round.

<sup>6</sup> Most of the respondents refused to report their gross pay. This is the main reason that almost three-fifths data has been eliminated.



and private time. The questions of intrinsic needs were quite similar for the different aspects. For example, one question was “It’s very important for him to help the people around him. He wants to care for their well-being. How much like you is this person?” The answers were measured by six points ranging from “very much like me” to “not like me at all”, where the former was given the highest value and the latter the lowest. With respect to the measurement of being successful, a scale from 2 to 12 is applied. It is based on two relevant questions about being admired and being recognised<sup>7</sup>. Furthermore, the variables of five preferred job attribute factors were obtained from the part of socio-demographics in ESS. The preferred attribute factors, “useful for others” and “good promotion opportunities”, are dummy variables. They are induced from the question: “The main reason I put effort into my work is...”. If the main reason of putting effort into work is “useful for others” or “good promotion opportunities” the variable value is 1 otherwise 0. All other three self-selection factors have a five point scale from “not important at all” to “very important”. There are five working condition factors which are coupled with five preferred job attribute factors. They are job sector, advancement opportunities, long-term contract (job security), good balance between work and family/partners and income. Working sector is a dummy variable where value 0 refers to work in private sector and value 1 for working in public sector<sup>8</sup>. Also, “advancement opportunities” and “work influence on private time” are measured by 5 points, and “job security” has 4 points. In the ESS survey, respondents reported their gross pay before tax converted into Euros. Gender variable has been adjusted as zero for female and one for male before analysing.

#### **Section 4: Method**

The first step in this study is to test whether and how people’s intrinsic needs affect their selection for a particular job. The hypothesis is that intrinsic needs of subjects have significant influence on their preference of selecting particular job characteristics. Because of using two dummy variables of preferred job

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<sup>7</sup> The question about being recognised is: being very successful is important to him. He hopes people will recognise his achievements.

<sup>8</sup> Public sector refers to central or local government departments and other public sector such as education and health departments. Private sector refers to a state-owned enterprise, a private firm and self-employed.

attribute factors, probit regressions are applied to test the probability of intrinsic needs influence on two dummy dependent variables-“useful for others” and “promotion opportunities”. The basic econometric model<sup>9</sup> is:

$$\Pr(y_i = 1|x_i, \beta) = 1 - F(-x_i'\beta)$$

F is a cumulative distribution function of  $y_i = 0$ , and  $x_i'$  is vector form of independent variables, for instance,  $\{x_1, x_2, x_3, \dots\}$ , each  $x_i$  presents an independent variable.  $\beta$  is coupled parameter of each independent variable. On the left hand side of this equation is the probability of the variable being equal to one. For instance, when people have a job in public sector, the sector variable  $y$  equals to one, and if people work in private sector, this sector variable  $y$  equals to zero. Then, this equation:  $\Pr(y_i = \text{public sector}|x_i, \beta) = 1 - F(y = \text{private sector}) = 1 - F(-\text{intrinsic needs}'_i\beta)$  calculates the probability of people working in public sector after influenced by their intrinsic needs. The regression equation is:

*Probit dummy variables of preferred job attribute factors*

$$\begin{aligned} &= \beta_0 + \beta_1 \times \text{service attitude} + \beta_2 \times \text{being successful} + \beta_3 \\ &\times \text{humble and modest} + \beta_4 \times \text{following traditions} + \beta_5 \times \text{being rich} \\ &+ \beta_6 \text{gender} + \beta_7 \text{education} + \beta_8 \text{age} + \beta_9 \text{age}^2 + \varepsilon \end{aligned}$$

where  $\beta_0$  is a constant value and  $\beta_k, k \in \{1, 2, 3, \dots, 9\}$  is the coefficient of independent variables. Except for the error term  $\varepsilon$  and variables of people's demographic information, other independent variables all reflect people's intrinsic needs. Although this equation is quite similar to standard linear regression, the values of the coefficients are not the direct marginal effects<sup>10</sup>. The marginal effects have to be re-calculated by econometric equation, and the calculation results interpret probability influence on dependent variables.

*Probit dummy variables of preferred job attribute factors* indicates the probability of a person having certain preference of job characteristics after affecting by his intrinsic needs. For instance, after calculation, the marginal effect on job

<sup>9</sup> Refer to Verbeek, M. (2012), A guide to modern Econometrics. John Wiley & Sons, Ltd

<sup>10</sup> The results of marginal effect will be calculated by particular equations:  $\frac{\partial F(x_t'\beta)}{\partial x} = \phi(x_t'\beta)\beta_k$ , where  $\phi(x_t'\beta) = \frac{1}{\sqrt{2\pi}} e^{-\frac{(x_t'\beta)^2}{2}}$ ,  $\phi$  is the probability distribution function. Refer to footnote 9.

characteristics of  $x_i$  equals to  $\alpha$ , the intrinsic need  $x_i$  affects probability of selecting some specific jobs by  $\alpha \times 100\%$  without any other effects.

Furthermore, simple linear regression is applied for other dependent self-selection variables such as long-term contract, good balance between work and family/partners and being rich, because they all have a five-point scale:

*Preferred job attributed factor*

$$\begin{aligned} &= \beta_0 + \beta_1 \times \text{service attitude} + \beta_2 \times \text{being successful} + \beta_3 \\ &\times \text{humble and modest} + \beta_4 \times \text{following traditions} + \beta_5 \times \text{being rich} \\ &+ \beta_6 \text{gender} + \beta_7 \text{education} + \beta_8 \text{age} + \beta_9 \text{age}^2 + \varepsilon \end{aligned}$$

where  $\beta_0$  is the constant term in this simple linear regression, and each  $\beta_k, k \in \{1, 2, 3, \dots, 9\}$  is the corresponding marginal variance of each independent variable on preferred attribute factors. In fact, this regression is tested three times because of three different attribute factors. Now, the value of the coefficients in these three tests can be directly interpreted as the marginal effect on dependent variables. For instance, if intrinsic need of “service attitude” increases by one unit, its influence on a preferred job attribute factor increases or decreases by  $|\beta_1|$  value when controlling other human value elements.

These two regressions mainly present the degree of influence of five intrinsic needs on subjects' preferred job characteristics.

The second step is the most important and interesting one in this study. This step is developed to clarify that enhancing job satisfaction depends on the extrinsic conditions of work and interaction terms of extrinsic conditions and intrinsic needs. It still includes two main tests, but this time, they are all standard linear regressions.

The hypothesis of the first regression is that extrinsic work conditions have significant impact on job satisfaction. This test aims to confirm extrinsic work conditions have influence on job satisfaction, and it will only include extrinsic work conditions and basic information of subjects. The first regression is below:

*Job satisfaction*

$$= \beta_0 + \beta_1 \times \text{sector} + \beta_2 \times \text{advancement opportunities} + \beta_3 \times \text{job is secure} \\ + \beta_4 \times \text{work influence on personal time} + \beta_5 \times \log(\text{income}) + \beta_6 \text{gender} \\ + \beta_7 \text{education} + \beta_8 \text{age} + \beta_9 \text{age}^2 + \varepsilon$$

where  $\beta_0$  is constant term in this standard linear regression and  $\beta_k, k \in \{1, 2, 3, \dots, 9\}$  are coefficients corresponding to work extrinsic conditions and people's basic information. Work extrinsic conditions include five aspects. The results of this test show the average effect of each variable on job satisfaction.

The second test hypothesis is that extrinsic conditions are significantly related to job satisfaction when considering the interaction terms of extrinsic conditions and intrinsic needs of subjects. To facilitate the interpretation of the coefficients, the variables included in interaction terms are mean-centred before testing (except for the dummy variables). The simple linear regression reads:

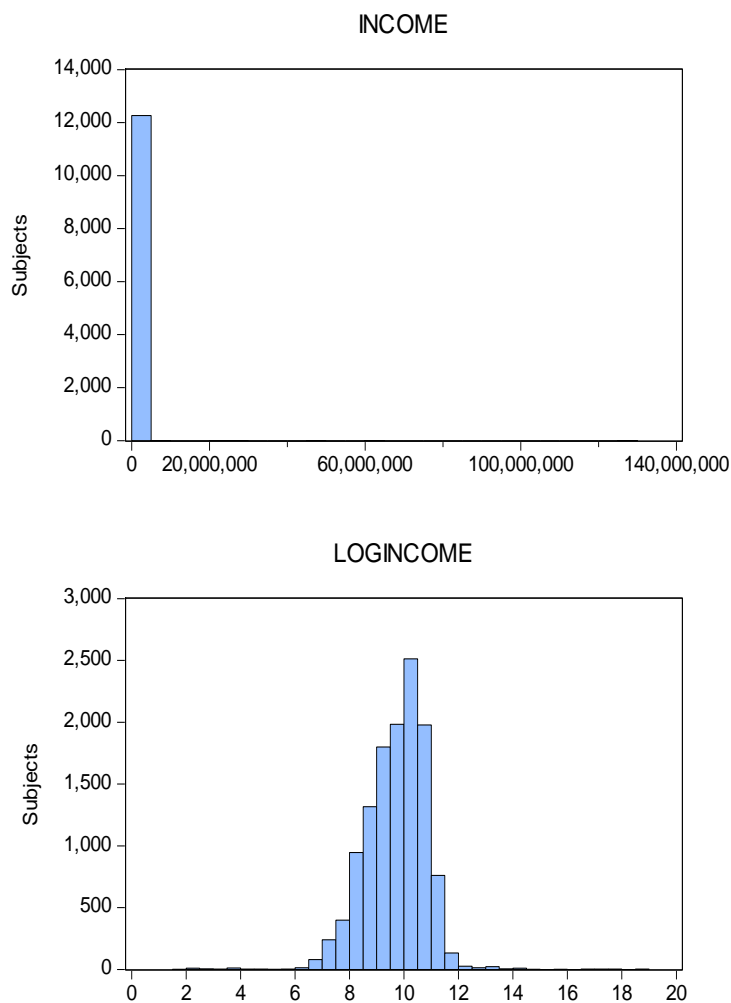
*Job satisfaction*

$$= \beta_0 + \beta_1 \times (\text{sector} * \text{useful for others}) + \beta_2 \\ \times (\text{advancement opportunities} * \text{good promotion opportunities}) + \beta_3 \\ \times (\text{job is secure} * \text{long term contract}) + \beta_4 \\ \times (\text{work influence on personal time} \\ * \text{good balance between work and family}) + \beta_5 \\ \times (\log(\text{income}) * \text{high income}) + \beta_6 \times \text{sector} + \beta_7 \\ \times \text{advancement opportunities} + \beta_8 \times \text{job is secure} + \beta_9 \\ \times \text{work influence on personal time} + \beta_{10} \times \log(\text{income}) + \beta_{11} \\ \times \text{useful for others} + \beta_{12} \times \text{good promotion opportunities} + \beta_{13} \\ \times \text{keeping job} + \beta_{14} \times \text{good balance between work and family} + \beta_{15} \\ \times \text{high income} + \beta_{16} \text{gender} + \beta_{17} \text{education} + \beta_{18} \text{age} + \beta_{19} \text{age}^2 + \varepsilon$$

where  $\beta_0$  is constant value,  $\beta_k, k \in \{1, 2, 3, \dots, 5\}$  are coefficients of joint effects of extrinsic conditions and people's preferred job attributes, and  $\beta_k$  represents the average marginal effects on affecting job satisfaction. Form (A\*B) is interaction term of preferred job attribute factors and work status, A represents the extrinsic conditions, and B refers to job attributes referring to subject's intrinsic needs. For example, (sector\*useful for others) is the joint effect of work sector (extrinsic condition of work) and subject's preference of job attribute factor "useful for others" on job satisfaction. This interaction term tests whether working in public sector would affect job satisfaction if people would put more

attention on increasing other people's well-being. Coefficients  $\beta_l, l \in \{6, 7, 8, 9, 10\}$  refer to the marginal effects of extrinsic conditions of work on job satisfaction.  $\beta_m, m \in \{11, 12, 13, 14, 15\}$  represent the coefficients of people's self-selection.  $\beta_n, n \in \{16, 17, 18, 19\}$  are the coefficients of people's basic information.

In order to have a normal distribution for income variable, a logarithmic scale is used. The top figure in graph 1 is the distribution graph of income variable, and the bottom displays the distribution result of income variable after taking logarithm. The result shows that the bottom figure is closer to normal distribution than the upper one. In the second step of this study, relationship of  $\log(\text{income})$  and job satisfaction is established, and the marginal effect of  $\log(\text{income})$  on job satisfaction can be interpreted as: increasing in 1 percent of income will enhance job satisfaction by  $\frac{\text{coefficient of } \log(\text{income})}{100}$  unit.

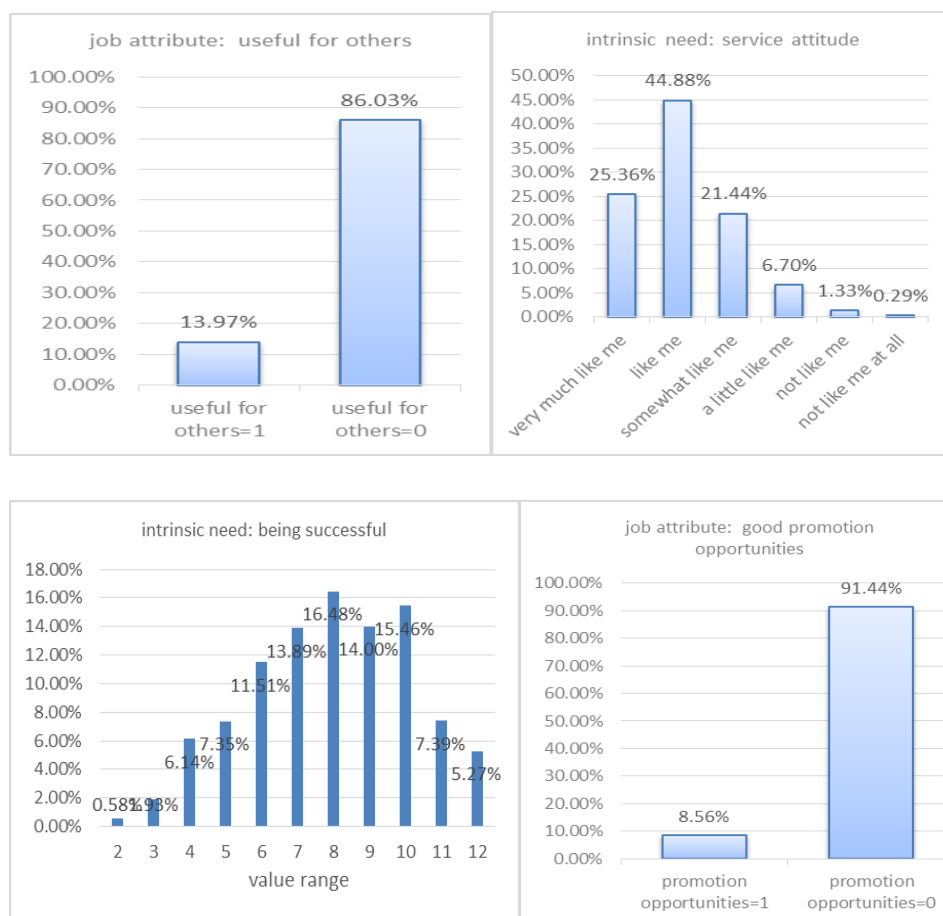


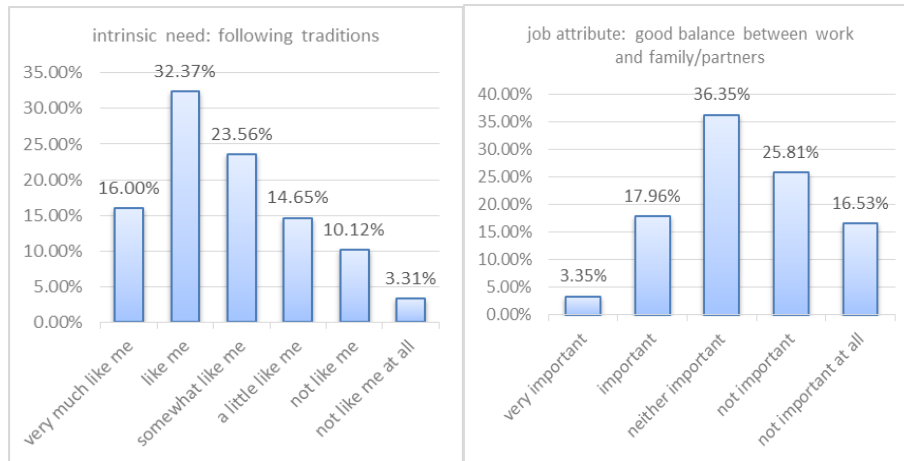
**Graph 1** Distribution of income and  $\log(\text{income})$  variables

The second test in the second step of this study is used to investigate whether extrinsic conditions have significant effect on job satisfaction for all subjects. Because each subject has his own weighting on job attributes, extrinsic conditions may have different effects on subjects' job satisfaction. This study helps to find out extrinsic conditions enhancing job satisfaction on the condition of how subjects value their intrinsic needs.

## Section 5: Results

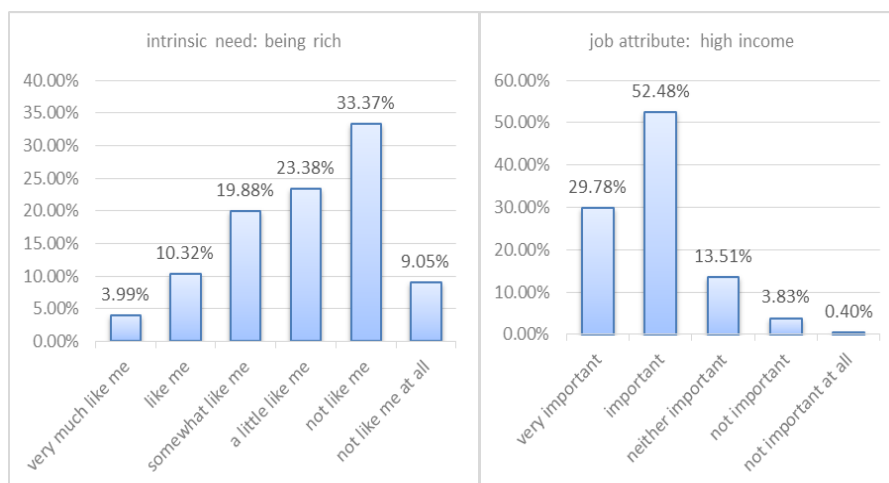
Graph 2 (a, b and c) consisting of ten bar charts gives a general view of the whole data set on subjects' intrinsic needs and their coupled job attributes. In the left part of the graph, most respondents attending in this survey select options that they are much like the person described by interviewers except the intrinsic need-“being rich”. The charts in right column display people's preference of selecting particular jobs.





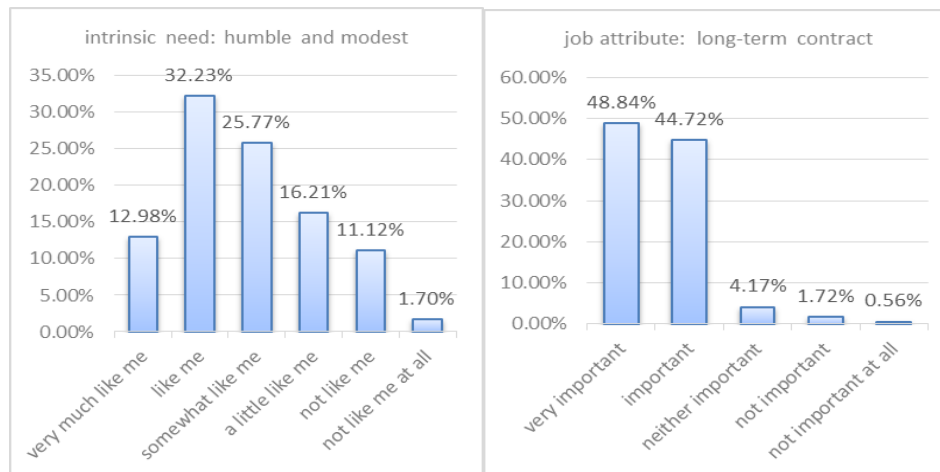
**Graph 2 (a):** General view of subject choices on intrinsic need and job attribute

There is a common point revealed in these six charts. On the left, most of subjects agree with the content that is described by interviewers, it means they have these intrinsic needs. However, more than fifty-percent of subjects choose preferred job attributes far from their intrinsic needs. For instance, 98.38% of subjects think they have service attitude towards others, but only 13.71% subjects report that they will choose a job which could increase other people's well-being. Moreover, although about 73% subjects consider they want to achieve, only 8.56% of subjects focus on good promotion opportunities when they select a job. Another obvious evidence for balance between work and family also reveals this "counter-choice". It is not important for about 86% subjects if there is no good balance between work and their personal life, but about 75% of respondents agree that they would like to spend more time with their families and partners.



**Graph 2 (b):** General view of subject choices on intrinsic need and job attribute

Interestingly, there is a contrary situation on “being rich” and “high income”. In previous 6 charts, subjects agree with the content of questionnaire on intrinsic needs, but in this two chart, subjects disagree with the content. Most people disagree that wealth is very important for them, but about 82% subjects are willing to have a high-income-job.



**Graph 2 (c):** General view of subject choices on intrinsic need and job attribute

Furthermore, viewing from the result of “humble and modest”, there are 87.19% of subjects who agree with being humble and modest, and 93.56% of subjects desire to have a long-term contract.

There might be two reasons for this counter-choice against subject’s intrinsic needs existing in this data. Generally speaking, subject’s intrinsic need does not have rigorous one-to-one relationship with its coupled self-selection. In other words, subjects have many different aspects of intrinsic needs, and although they may have strong demand on one of these aspects, it does not predict that it is the preferred intrinsic need. Suppose a person has service attitude towards others, it does not mean he seriously cares about whether a job would increase other persons’ well-being when he selects the job. His personality would affect his choice but not dominantly. Importantly, people’s reaction of the world would be affected under combining varied aspects of intrinsic needs. This study just preliminary discusses the relationship of intrinsic needs and people’s behavior. There is another reason that is relevant to human value questionnaires. In the ESS survey, these human value questionnaires were responded separately. Subjects did not need to rank their



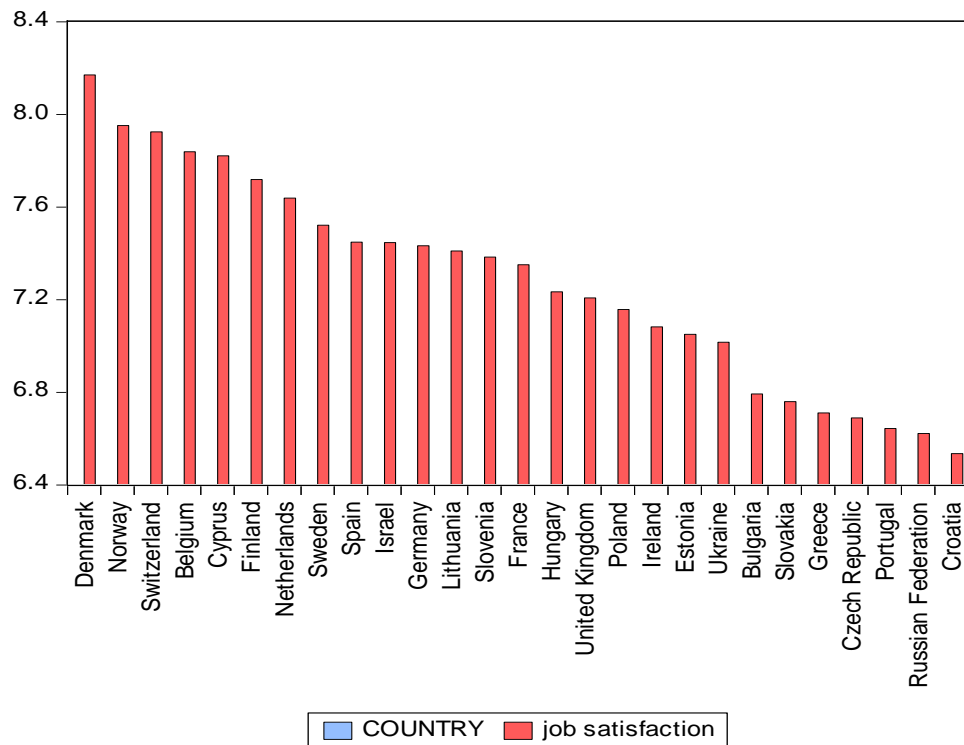
choices of human values. Therefore, the ranks of subjects' intrinsic needs were not reflected in their responses. When subjects gave their answers of self-selection on selecting job, they also did not need to arrange their answers except "useful for others" and "promotion opportunities", because these two factors are dummy variables. Consequently, counter-choice occurs in the ESS data under these two conditions.

**Table 1:** Statistic results of people's intrinsic needs

	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness
service attitude	4.84	5	6	1	0.95	-0.79
being successful	7.93	8	12	2	2.29	-0.22
humble and modest	4.15	4	6	1	1.26	-0.43
following traditions	4.20	4	6	1	1.33	-0.55
being rich	3.01	3	6	1	1.29	0.46

Table 1 provides statistical information on intrinsic needs. Willing to help others has the smallest standard deviation, it indicates more subjects' choices of this intrinsic needs are very close to the sample mean at 4.84 compared with other intrinsic need factors. These subjects participating in the European Social Survey agree that it is important for them to help others or improve other's well-being. On the contrary, being successful has the largest standard deviation. Subjects' choice of this intrinsic need are more dispersive in this sample. Positive skewness occurs in the intrinsic need of being rich, so the right tail of its distribution is longer or wider than the left tail. Other intrinsic needs have opposite trend.

(Graph 3 on next page)



**Graph 3:** Job satisfaction in each country

Graph 3 indicates the average value of job satisfaction in each country. This graph shows that subjects working in Croatia, Russian Federation, Portugal, Czech Republic, Greece, Slovakia and Bulgaria, have job satisfaction value below 6.8. Only subjects employed in Denmark exceeds 8. Subjects living in Norway, Switzerland, Belgium, Cyprus, Finland and Netherland also have relatively high job satisfaction, above 7.6. Generally, all of these 27 countries have satisfaction level over the median value (5), and the answers of job satisfaction are 10-point scaled from “extremely dissatisfied” to “extremely satisfied”, it implies that most of the people working in European Union are satisfied with their job.

(Table 2 on next page)

**Table 2:** Average value of extrinsic work conditions in each country

Country	Sector	Extrinsic Work Conditions				Gross Income per year (euro)
		Advancement opportunities	Job is secure	Work influence on family/partners		
Belgium	0.251656	3.27	3.07	2.76	33300.46	
Bulgaria	0.324675	2.56	2.32	2.66	3201.06	
Croatia	0.2891	3.01	2.35	2.73	8538.56	
Cyprus	0.298507	3.06	2.28	2.28	20072.67	
Czech Republic	0.251553	2.38	2.11	2.90	9706.52	
Denmark	0.414286	2.59	2.92	2.48	60872.49	
Estonia	0.294372	3.44	3.52	2.73	8908.74	
Finland	0.381503	2.79	3.13	2.83	34814.45	
France	0.233723	2.34	2.75	2.67	44946.23	
Germany	0.253425	2.70	2.92	2.86	31763.20	
Greece	0.203704	2.90	2.20	2.90	15421.74	
Hungary	0.236152	2.31	2.39	2.57	6357.52	
Ireland	0.295896	3.04	2.56	2.22	36870.67	
Lithuania	0.366972	2.99	3.01	2.65	20031.04	
Israel	0.169903	2.65	2.52	2.70	19101.73	
Netherlands	0.428241	3.28	2.88	2.60	34440.24	
Norway	0.356873	2.84	3.36	2.47	55946.45	
Poland	0.316109	2.74	2.89	2.81	9180.21	
Portugal	0.150215	2.69	2.50	2.30	9399.25	
Russian Federation	0.324324	2.67	2.58	2.93	4745.68	
Slovakia	0.275194	2.53	1.80	2.91	7482.34	
Slovenia	0.310044	2.65	2.90	2.59	17257.30	
Spain	0.279915	2.95	2.91	2.49	24347.07	
Sweden	0.410714	3.01	3.16	2.68	36446.67	
Switzerland	0.280778	3.18	3.36	2.53	57997.73	
Ukraine	0.225275	2.91	3.00	2.93	1961.12	
United Kingdom	0.346648	3.11	2.78	2.60	30169.44	

Furthermore, table 2 provides an aggregate view of average value of extrinsic working conditions accessed by subjects in 27 countries. From the column of sector, the Netherlands has the highest proportion of subjects employed in public sector followed by Denmark, and 15% of subjects taking part in ESS survey in Portugal have a job in public sector. Respondents employed in Estonia feel that they have the largest advancement opportunities (at 3.44) and the highest job security (at 3.52). However, subjects in Hungary think they are provided with the least promotion opportunities at 2.31 by their employers, and

subjects in Slovakia have least feeling of job security (value at 1.8). Respondents working in Russian Federation and Ukraine suffer a lot of influence from work on their personal life, but respondents working in Ireland have found a good balance in time between work and personal life. In the last column of income, respondents working in Denmark have the highest average gross income before tax, and Ukraine has the lowest which is 1961.12 euro.

**Table 3:** Relationship between preferred job attribute and intrinsic needs

	Preferred job attribute				
	(1)	(2)	(3)	(4)	(5)
	useful for others	good promotion opportunity	long term contract	good balance	high income
<b>Intrinsic needs</b>					
service attitude	0.105*** (0.017)	-0.105*** (0.019)	0.069*** (0.008)	0.084*** (0.008)	-0.019** (0.008)
being successful	-0.032*** (0.007)	0.030*** (0.009)	0.012*** (0.003)	0.014*** (0.004)	0.044*** (0.004)
humble and modest	-0.020* (0.012)	-0.040*** (0.014)	0.041*** (0.005)	0.019*** (0.006)	0.025*** (0.006)
following traditions	0.024** (0.012)	0.037*** (0.014)	0.024*** (0.005)	0.039*** (0.006)	0.034*** (0.005)
being rich	-0.049*** (0.013)	0.221*** (0.015)	0.009 (0.006)	-0.005 (0.006)	0.123*** (0.006)
constant	-1.499*** (0.214)	-0.999*** (0.228)	3.706*** (0.095)	2.702*** (0.103)	3.077*** (0.100)
gender	-0.250*** (0.030)	0.163*** (0.034)	-0.073*** (0.013)	-0.108*** (0.014)	-0.015 (0.014)
education	0.030*** (0.004)	-0.027* (0.005)	-0.009*** (0.002)	0.010*** (0.002)	-0.008*** (0.002)
age	-0.007 (0.009)	-0.018* (0.010)	0.009** (0.004)	0.039*** (0.004)	0.016*** (0.004)
age^2	0.000 (0.000)	0.000 (0.000)	0.000*** (0.000)	-0.001*** (0.000)	-0.000*** (0.000)
observations	12268	12268	12268	12268	12268
R-square	0.029	0.084	0.035	0.051	0.097
Log likelihood	-4,749.82	-3,362.56	-12,899.45	-13,992.40	-13,844.75

Note: White heteroskedasticity-consistent standard errors between parentheses.

“\*”, “\*\*”, “\*\*\*” stand for two-sided t-test significance levels at 0.10, 0.05, and 0.01 respectively.

Probit regression is applied for dependent variables “useful for others” and “promotion opportunities”.

Results in table 3 reveal the relationship between subject's intrinsic needs and subject's preference on job attributes. It is apparent that most of intrinsic need elements have significant correlation with each job attribute. It indicates that people's behaviours are affected by their intrinsic needs when they look for a job. Subjects would choose a job that could match their preference of intrinsic needs. In the first column of self-selection factors, only two parameters of intrinsic need elements-“service attitude” and “following traditions”-are positive. It is mentioned before that the marginal effects of probit regression have to be calculated instead of retrieved from existing table. The marginal effect of each variable is not constant (it depends on the value of variables) and the sign of coefficients shows the effect of independent variables, either positive or negative. As a result, only service attitude and following traditions have a positive effect on the job attribute of increasing happiness of the others. This result implies if a person chooses a job for the purpose of increasing other persons' well-being, his service attitude towards others would play a positive important role and affect his decision. The higher the weighting of caring about other's well-being, the higher the likelihood of that person would choose a job which can contribute his ability to others. In the second column, “being rich” has an important effect on job attribute factor-“good promotion opportunities”. An explanation could be that contracts offered by many firms stipulate that high income are related to high positions or hierarchies, a person who desires large wealth always cares about good promotion opportunities provided by firms. Being successful also shows significant influence on self-selection of good promotion opportunities. Furthermore, except human value of “being rich” in the third column, other human value elements show positive and significant relationship with the job attribute factor –“long term contract”. “Service attitude” and “humble and modest” have impact on this selection behaviour. Holding other two human elements which have significant impact on “long term contract”, suppose increasing “service attitude” and “humble and modest” by 1, people will consider more weight on finding a secure job at 0.069 and 0.041 respectively. In column (4), “service attitude” still plays important role at 0.084 in job attribute factor-“good balance between work and family”. Besides, “following traditions” have effect on this attribute factor. If the element of “following traditions” raises by 1, a person is forced to pay more attention (at

0.039) to whether the job would have a good balance between work and family. For preferred job attribute factor “high income”, it is the only factor which does not include gender difference. It indicates that there is no difference between male and female in seeking wealth. However, intrinsic need of willing to help others affects this selection negatively. Other intrinsic needs have significant effect on selecting a job with the feature of high income.

**Table 4:** Relationship between job satisfaction and extrinsic work conditions

<b>Dependent variable: Job satisfaction</b>		
	(1)	(2)
<b>Extrinsic conditions of work</b>		
sector(public or private)	0.202*** (0.037)	0.166*** (0.042)
advancement opportunities	0.296*** (0.017)	0.297*** (0.017)
job is secure	0.325*** (0.018)	0.316*** (0.018)
work influence	-0.303*** (0.017)	-0.292*** (0.017)
log(income)	0.296*** (0.018)	0.270*** (0.018)
<b>Preferred job attributes</b>		
useful for others		0.052 (0.068)
good promotion opportunities		-0.212*** (0.065)
long term contract		0.184*** (0.027)
good balance		0.071*** (0.024)
High income		-0.441** (0.230)
<b>Interaction terms</b>		
sector*useful for others		0.004 (0.093)
advancement opportunities *promotion opportunities		0.043 (0.058)
job is secure*keeping job		0.022 (0.024)
work influence*balance		-0.072*** (0.021)
log(income)*high income		0.029 (0.023)

constant	3.093*** (0.252)	4.354*** (0.255)
gender	-0.111*** (0.034)	-0.067* (0.034)
education	-0.006 (0.005)	-0.004 (0.005)
age	0.012 (0.010)	0.010 (0.010)
age^2	-0.000 (0.000)	-0.000 (0.000)
observations	12268	12268
R-square	0.160	0.168
log likelihood	-24,431.90	-24,371.28

Note: White heteroskedasticity-consistent standard errors between parentheses.

“\*”, “\*\*”, “\*\*\*” stand for two side t-test significance levels at 0.10, 0.05, and 0.01 respectively.

In table 4, two regressions, with and without interaction terms, test the influence of job status and preferred job attribute on job satisfaction. In the first column, all of the work condition factors play a significant role in job satisfaction which is at 1% critical level. Gender and education levels do not affect job satisfaction, and results do not show there is u-shape relationship between job satisfaction and age. From this test, we find that if subjects work in the public sector like government, they gain more satisfaction from work, and subjects have higher job satisfaction when they have a long-term contract. Evidence shows job satisfaction increases in good advancement opportunities and earnings. But respondents have lower job satisfaction when they suffer work influence on their personal time. The result show that when interaction terms of work extrinsic conditions and people's preference of intrinsic needs are absent, all extrinsic conditions in this study influence job satisfaction significantly. However, after adding interaction terms, these extrinsic conditions might have different results on job satisfaction.

Column 2 in table 4 gives an overview of people's job satisfaction regarding work status, preferred job attributes and their interaction terms. However, this tradition table provide less information about our main variables and we have to interpret separately whether extrinsic conditions have significant effect on job satisfaction, because we do not only have dummy variables but also

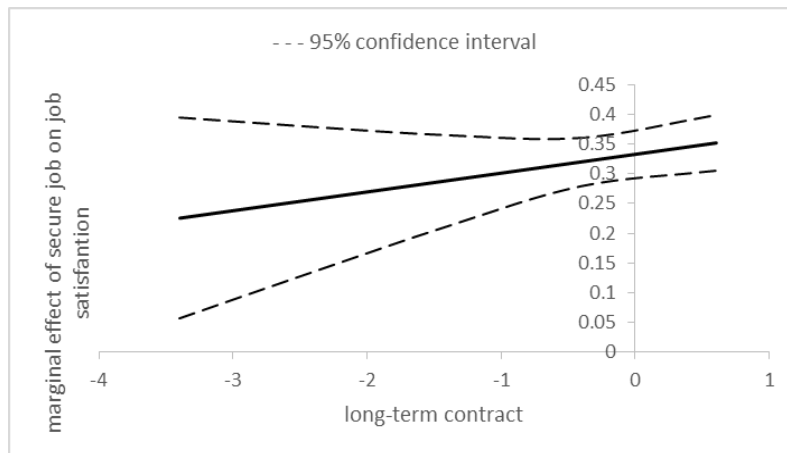
continuous variables. Table 5 help us to find out extrinsic work condition of the sector and advancement opportunities are significant or not.

**Table 5:** Significant effect on job satisfaction of two binary variables

Extrinsic work conditions	Preferred job attributes variable	Marginal effect on job satisfaction	St. Errors	Probability
	Useful for others			
	1	0.170	0.086	0.047
sector	0	0.166	0.042	0.000
	Good promotion opportunities			
Advancement opportunities	1	0.340	0.056	0.000
	0	0.297	0.017	0.000

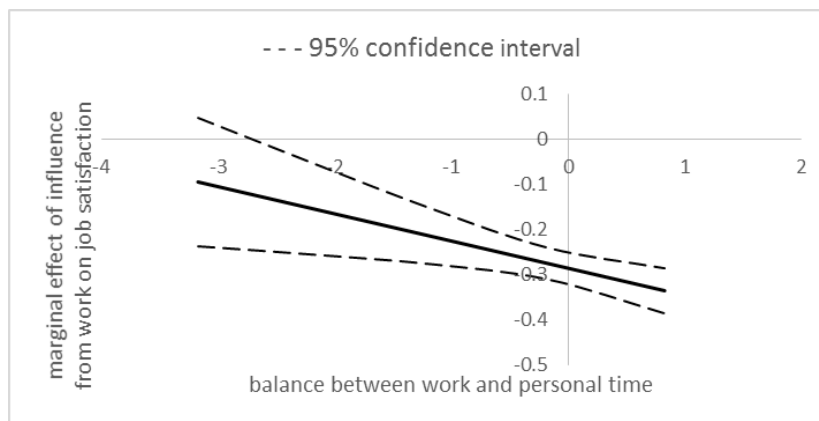
Results of effect on job satisfaction of sector and advancement opportunities are shown in table 5. Wald-test is applied here to investigate whether these two work conditions have significant influence on job satisfaction in 95% confidence interval when their corresponding dummy variables equal to 1 and 0. We find that whenever “useful for others” equals to 1 and 0, working in public sector has significant effect on job satisfaction, but when subjects consider service attitude is important, they will show a higher satisfaction level than subjects who do not pay attention on “useful for others”. When these two groups of subjects both work in public sector, its marginal effects are 0.170 and 0.166 respectively. Moreover, good advancement opportunity also has significant effect on job satisfaction regardless whether subjects consider it important or not, and the effects are both at 1% significant level. However, subjects who care about good promotion opportunities are more satisfied with their job than people who do not care if firms provide more chances of advancement. Consequently, working in public sector and advancement opportunities play an important role in job satisfaction regardless subjects’ intrinsic needs.





**Graph 4(a):** The marginal effect of secure job on job satisfaction (Wald-test)

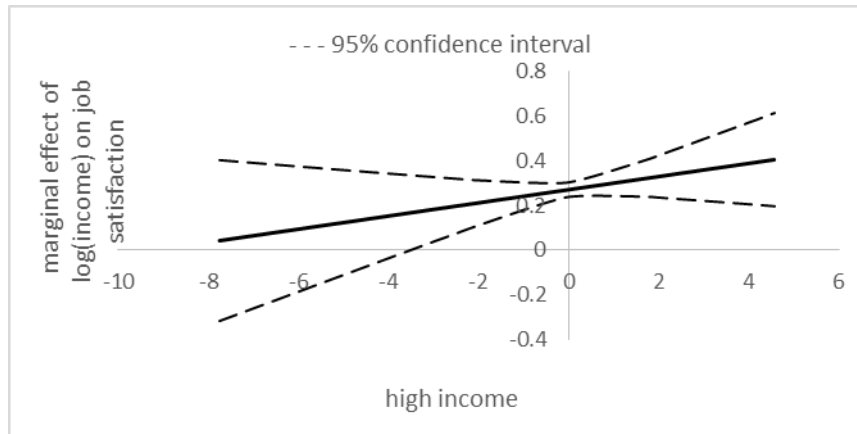
Graph 4(a) shows that secure job always has increasing effect on job satisfaction for people who are afraid of losing job. Two dash lines are respectively the upper limit and lower limit marginal value in 95% confidence interval, and these two dash lines are both above zero line. It indicates that no matter how people desire a secure job, secure job always have increasing effect on job satisfaction, and this increasing effects become stronger as the desire of secure job increases.



**Graph 4 (b):** The marginal effect of influence from work on job satisfaction (Wald-test)

Regarding graph 4(b), it is apparent that the negative marginal effect of influence from work is increasing in desire of a good balance between work and personal time, but only when people value their need of a good balance at 1 (the option of “not important at all”), this extrinsic work condition has insignificant effect on job satisfaction. Moreover, although some people choose a good balance between work and personal time is not important (the answer

measured by 2), influence from work still have significant negative effect on their job satisfaction, and this deductive effect is increasing as the need of a good balance between work and personal time increases.



**Graph 4(c):** The marginal effect of log(income) on job satisfaction (Wald-test)

Whenever upper limit and lower limit are both above or below zero, the significant effect exists. From graph 4(c), when subjects value the importance of high income higher than -3.44 calculated from log(income) after mean-centred, income has a significant positive influence on job satisfaction, and this marginal effect is increasing with people's wealth demand. Moreover, the upper and lower limit lines are very close to the solid marginal effect line when log(income) equals to 0, it implies when the mean-centred log(income) approaches to 0, the standard error is small, and the study results reflect the facts.

From the above results, extrinsic conditions at work have significant impact on job satisfaction after considering the interaction terms of extrinsic conditions and people's intrinsic needs. However, some of these extrinsic conditions occasionally play an important role on job satisfaction, they do not always have influence for all subjects. For a job with high income and a job with a good balance between work and family, subjects who do not pay any attention at these extrinsic conditions at work, do not gain or lose job satisfaction through these conditions. If only investigating the direct relationship with job satisfaction and extrinsic conditions, the significant results occur for all subjects. This is different from the results when subjects' intrinsic needs and interaction terms are considered.

## Conclusion

This research has demonstrated that intrinsic needs play a significant role in people's preference of job characteristics and some extrinsic work conditions have effect on job satisfaction but based on the condition of how people value their intrinsic needs. Interestingly, we find out that although some subjects consider certain extrinsic conditions at work are not important to them, these extrinsic conditions still significantly affect their job satisfaction. But the marginal effects are relative smaller for subjects who ignore these extrinsic conditions than subjects who value them importantly. Only the subjects who completely ignore the extrinsic condition do not suffer influence of it on job satisfaction. Our findings help clarify that extrinsic conditions do not always affect all employees. However, research results only show a small impact on dependent variables. Most of the marginal effects are below 0.5. Compared with scale points of dependent variables (self-selection variables: four points and five points scale; job satisfaction variable: 10 points scale), these intrinsic needs and extrinsic work conditions do not influence dependent variables too much. Most of the coefficients are significant at 1% level, even though effect sizes are small.

A possible concern about this study is that the data may not be representative. Concerning the question about gross income, about 80% of the original responses are lacking. Another concern relates to causality. While we have detected several statistically significant relations between variables, these need not represent causal relationships. For instance, it might be that there is a problem of reversed causality. We can also not rule out that some of the results are biased due to omitted variables.

Further to my research, there are another two studies that elaborate on human value and self-selection subjects. One study detect whether people's intrinsic needs would change with age and education level or not. For example, if elderly people would like to work in the public sector or youngsters might take up jobs with big challenges and difficult assignments; graduate students with higher education might choose jobs which offer them higher wage and good career prospect, people who have lower education level would care about

whether they could keep this job or not. But ESS data cannot be applied for this purpose, panel data must be used. Another study links education levels with job security. As Carr et al. (2011) explained in their study that highly qualified individuals (highly educated) or those with “in-demand” skills are less affected by job insecurity under the condition of national economic climate. Elsewhere, Fugate et al. (2004) also found that losing job is less harmful to individual who perceive themselves as more skilled. On the contrary, losing job is more painful to less qualified individuals. It is difficult for them to find a new job because they are less mobile in the labour market. Consequently, lower educated individual often share a concern whether this job is easy to keep. Based on these two previous studies, relationship between education levels, job security and job satisfaction could be detected through ESS data.

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