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GEBZE TECHNICAL UNIVERSITY

INSTITUTE OF SOCIAL SCIENCES

# WORKFORCE ENTRY CONDITIONS AND JOB SATISFACTION

NAZİRE BEĞEN

MASTER THESIS

DEPARTMENT OF ECONOMICS

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ADVISOR

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2017

## YÜKSEK LİSANS TEZİ JÜRİ ONAY SAYFASI

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# ÖZET

İş tatmini bireylerin refahı üzerinde belirleyici bir role sahiptir ve tüketim faaliyetleri, iş davranışı, yatırımlarda risk alma gibi birçok önemli ekonomik kararları etkileyen önemli bir faktör olarak görülmektedir. Literatürde, meslek ve bireylerin özelliklerini kullanarak iş tatmininde meydana gelen değişimi açıklayan çok fazla çalışma yapılmıştır. Fakat, makroekonomik koşulların (işe giriş yılındaki işsizlik oranının) iş tatmini üzerindeki etkisi hakkında çok az çalışma bulunmaktadır. Bu tezin amacı çalışanların işgücüne katıldığı zamanda mevcut ekonomik koşullar ile iş tatmini arasındaki ilişkiyi incelemektir. Özellikle, işgücüne giriş koşullarının tamgün çalışan lisans derecesine sahip İngiliz çalışanların iş tatmini üzerinde kalıcı bir etkiye sahip olup olmadığını araştırılmasını amaçlamaktayız. İngiliz hanehalkı panel anketinin 18 yıllık verisi kullanılarak havuzlanmış sıradan enküçük kareler yöntemi ile tahmin yapılmıştır. Ayrıca sonuçların doğruluğu sabit etkiler ve sıralı probit tahmin yöntemleri kullanılarak desteklenmiştir. İşe giriş yılındaki işsizlik oranı ile iş tatmini arasındaki ilişki kullanılan tüm metodlarda negatif ve yüzde bir seviyesinde anlamlı bulunmuştur. Mesleki ve endüstri farklılıklar, yaş, cinsiyet ve gelir gibi iş tatminini etkileyen önemli faktörler kontrol altına alındığında bile ilişki negatif etksini ve anlamlılığını korumaktadır. Sonuçlar, işsizlik oranı yüksek olduğunda işgücüne katılan bireylerin ilerki yıllarda, işsizlik oranı düşük olduğu zaman işgücüne katılan bireylerin sahip oldukları iş tatminine kıyasla işlerinden daha az memnuniyet duyduklarını göstermektedir.

**Anahtar Kelimeler:** iş doyumu, İşsizlik, Panel veri modelleri

# SUMMARY

Job satisfaction has a determining role on subjective well-being and it is considered as an important factor for many significant economic judgments, like expenditure activities, work behavior, risk-taking in investment. In literature, there is extensive research on the effects of job and individual characteristics on job satisfaction. However, there is very little research on the effects of macroeconomic conditions (work entry unemployment rate) on job satisfaction. The purpose of this dissertation is to study the relation between work entry economic conditions and job satisfaction. Specifically, we aim to analyze whether work entry conditions have permanent effects on job satisfaction of working full time British employees with college degree. Pooled Ordinary Least Squares method is applied to eighteen waves of the British Household Panel Survey. In order to check robustness of the established results, we also use Fixed Effect and Ordered Probit Estimation techniques. The results of relationship between work entry unemployment rate and job satisfaction is found negatively statistically significant at ρ=.01 level in all methods. Even controlling for important factors on job satisfaction, such as industry and occupation differences, age, gender and income, the negative and significant effect of work entry conditions on job satisfaction continues to survive. The established results indicate that people who entered workforce when unemployment rate is high has less job satisfaction even in later ages compared to the ones who entered workforce when unemployment rate is lower.

**Keywords:** Job satisfaction, unemployment, panel data models

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# 1. INTRODUCTION

Subjective well-being, referring to how individuals undergo the quality of their lifes and involving both emotional reflexes and cognitive decisions, has been an extensively debated issue in literature for a long time. The subjective well-being is not important only for individuals, but also for the society as a whole. For instance, individuals' level of subjective well-being may significantly affect many economic judgments, such as their expenditure activities, work behavior, risk-taking behaviour or even taking part in policies and voting behavior (Bruni and Porta, 2005). From far in the Industrial Revolution of the eighteenth century, the world economies have undergone an unusual and permanent increasing in national income. Though in other respects, most of research indicated that subjective well-being of individuals does not increase at the same rate. Consequaently, this observation brings up the question of which factors may have played determining role in subjective well-being. One of the important indicators of personal well-being is job satisfaction because majority of nonretired adults spend most of their times at work, thus not any survey on subjective well-being can be perfect without taking into consideration subjective well-being at work (Judge and Klinger, 2008). There are too much research on this subject that have been studied in different fields of social sciences in the literature, for example, sociology (e.g., Tausky, 1992), psychology (e.g., Carsten and Spector, 1987), business administration (e.g., Locke, 1969; Hackman and Oldham, 1976), economics (e.g., Freeman, 1977; Oswald, 1997).In contrast to other social sciences, researches on job satisfaction have been recently started in economics literature. An emprical research on the issue was first carried out by Hamermesh (1977) which shows that employees attempt to maximize their expected lifetime utility by chosing professional prefence (as cited in Clark, 1996). Following this paper, the present literature put forwards that job satisfaction is related to job and individual characteristics. In addition to these variables, a third potential factor effecting job satisfaction is suggested as the early workforce experiences (Bianchi, 2013). Economic conditions at the time of first employment may have permanent influence on how individuals assign a meaning and interpret their work even if they have changed their jobs long ago. Bianchi

(2013) used General Social Survey, covering the years 1975 to 2007. The data offers are presentative sample of full time American workers who graduated from college and got a job in a stream of different economic moods. This research concludes that as work entry unemployment rate increases, Americans employees graduated from college during slack economic times are more satisfied with their jobs even in later ages compared to the ones who entered workforce when unemployment rate is lower.

However, it is not certain that this relation holds in developing countries or in countries with well-functionning welfare system. In our study, we aim to examine the validity of this finding for countries where individuals are less likely to affected the unemployment owing to having much better sanitation, food stamps, child care assistance, housing reinforcement, or unemployment compensation, etc. The finding are possible to be negative for two reasons. Firstly, in countries with this type of characteristics, people who entry workforce in recession may not feel very grateful for their jobs as workers in worse-functioned welfare system do. Secondly, as people who go through initial job experience in recession times can not be very selective and have to work jobs with lower characteristics than they deserved, so their work may not satisfed them. Specially, this study deals with the influence of workforce entry conditions on job satisfaction in Britain, a country with a better functioning welfare system than U.S. has, for the years between 1991 and 2008. We use Pooled Ordinary Least Squares Method, also Fixed Effect and Ordered Probit estimation techniques to make robustness checks.

To the best of our knowledge, our study is among the few that investigates macroeconomic experiences on job satisfaction and the first one providing evidence on the negative effect of entering workforce in worse economic conditions on later job satisfaction.

This dissertation is divided into five main sections. This introductory section provides a brief overview of the dissertation. It then goes on to describe in greater detail of the dependent variables and the effect of independent variables on job satisfaction. The third section introduces estimating methods, the data and the

model. The fourth section of this dissertation is divided into three parts and each of them presents the applied results of models estimated by using different technics: pooled ordinary least squares, fixed effect, ordered probit techniques, respectively. The final chapter provides the conclusion and presents final remarks.

# 2. LITERATURE REVIEW

## 2.1. Job Satisfaction

Recently, a considerable literature has grown up around the theme of subjective well-being variables. Job satisfaction is one of the most frequently stated issue in empirical analysis. A conventional definition of job satisfaction is given by Locke (1976: p.1300): "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences" (as cited in Clark, 1996). This issue has been processed much more in the many differents field of science such as in sociology, psychology, etc., but too less studies is available for economy in the early times. For economists, it can be describe using overall utility function,$v$, which psychologists might entitle a life satisfaction function as

$$v = v(u, \mu)$$

where $u$ denotes utility from job and μ represents utility from other fields of life such as person's health, property of family life, friendships (Clark and Oswald, 1996). The utility from job reflects the level of well-being that people obtain from all viewpoints of his or her job. It is generally thought to be the form

$$u = u(y, h, i, j)$$

where $y$ denotes income, $h$ is hours of work, $i$ and $j$ represents a set of individual and job characteristics, respectively. Also we know that individual utility from job rely positively on income,$y$, and negatively on hours of work (Clark, 1996; Clark and Oswald, 1996; Clark, 1997). In literature, job satisfaction have been thought of as proxy of an inviduals' utility from their job.

The emprical researches on job satisfaction use this function to show a number of common relationships. For example; women, not enroling any union inform significantly more larger levels of job satisfaction than do male, enrolling any union, respectively. The reason behind the increasing attention on the issue is due to a number of inducements. First, we know that the range of well-being is one of the fundemental interests of social life. To understand this phenomenon, according to Argle (1989), we can examine job satisfaction because it is one of the three

substantial predictors of overall well-being (the other two are marriage, family satisfaction) (as cited in Clark, 1996). Second, job satisfaction is associated with some economic variables in a way to ensure finding out how this factors impress employee behaviours (Freeman,1977). For instance, McEvoy and Cascio (1985), Akerlof et al. (1988) reveal that quits are estimated by this variable; in addition, giving responses to questions of satisfaction show that it is related with absenteeism negatively (Clegg, 1983). Thus, economists quest for the effect of workers' individual and job characteristic features, which are represent dispositional and situational factors respectively, on job satisfaction. Third, job satisfaction is akin to accept a proxy measures of utility from job and so taking the job satisfaction data might ensure us that indicate the structure of the prevalent utility function (Clark, 1997).

Moreover, in literature, to measure job satisfaction, applied studies utilize a set of Likert-type items that inquire the participants to form an estimate of their wage, the job they do, etc. Scales have been rest on a set of items inquiring participants how contented they were with distict characteristics of their works and how well the participants' works met their needs. The Job Descriptive Index, the Job Diagnostic Survey, the Minnesota Satisfaction Questionnaire, and the Index of Organizational Reactions stand for scales aiming to evaluate job attitude.

## 2.2. Individual Characteristics

### 2.2.1. Gender

Up to now a number of studies have been highlighted factors that are associated with job satisfaction and gender is one of the individual characteristics related to it. There is theoretical contradictory about this relation; generally, whilst we expect that women should be less satisfied because of discrimination against them in the labor market, a number of researchers have reported that women are more satisfied then their male counterparts in which it is called gender paradox.

A considerable amount of early literature has been mentioned on gender paradox. According to Clark (1996) and (Clark et al., 1996) who use the first wave of

the British Household Panel Survey, 1991, the correlation between being male and job satisfaction is negative and statistically significant; namely, males are less satisfied than women. Different studies having discrete United States of America dataset advocate this hypothesis (see, for example, Blanchflower and Oswald, 1999; Bedeian et al., 1992). A study conducted by Gazioğlu and Tansel (2006) used Workplace Employee Relation Survey, 1997, which is larger dataset than in a any previous studies including British employees and they accessed to same results. These results are likely to stem from difference between male's and female's work values, participation rate, expectation etc. In the other major study, Clark (1997) offers probably the most comprehensive empirical analysis of understanding gender different in Britain. According to the results of this study, there are three possible explanations accounting why females are more satisfied than male counterparts. Firstly, different work values for gender and sample selection don't clarify women employee's higher job satisfaction. Secondly, perhaps, as female employees' works have been so much worse in the past, and they might be have lower expectations than male counterparts about their jobs. Thirdly, in some workplace environments which have many more younger employee, higher educated worker and male worker have higher expectations on their job and gender paradox fade away in time.

In view of all that has been mentioned so far, previous studies which examine United States of America and United Kingdom data suggest significantly and negative correlation between being a male workers and job satisfaction. But, one study by A. Sousa-Poza and A. A.-Poza (2000) examined cross-national data on Work Orientations from the 1997, International Social Survey Program, and in contrast to results of previous researches, they found that in analysis of all 21 countries together, male has negative but insignificant coefficient, meaning that no gender paradox. The authors argue that work-role inputs (schooling in years, work time, exhousting job, physically demanding, dangerous job) and work role outputs (income level, job security, relation with management, relation with colleagues, etc.) do not account this case. They also state that only 4 countries including United Kingdom, United States of America, New Zealand, Hungry among 21 countries,

individually have significant gender coefficent and the biggest gender differente is in United Kingdom, and second is in United States of America. A possible cause of this situation is that females in these four countries appear to have higher work role outputs than male workers.

In summary, whereas general attitude is that male displays less work satisfaction than women counterparts, the relationship may be changed vice versa or not significant due to adding other explanatory variables.

### 2.2.2. Age-Age Square-Tenure

According to the related literature, age is another individual feature which has a greater effect on job stisfaction than other individual characteristics such as gender, income, education, etc. (Clark, 1997; Weaver, 1980). It is important to know whether this association exists with regard to the design and application of human resource initiatives.

There is a contradictory relationship between age and job satisfaction. In an investigation into age, Weaver (1980) found that American participants aged below 20 had the lowest satisfaction. Hunt and Saul (1975) showed that whilst male have positive correlation between age and overall satisfaction, female's age doesn't significantly associate with this variable. A similar case is valid for full-time city and country managers working in Florida (White and Spector, 1987). They ascertained that both job satisfaction and age are related to job congruence, work locus of control, salary, organizational tenure, but when these age-satisfaction explanatory variables affiliate in the multiple regression equation, only age does not have significant effect on job satisfaction. This means that age cannot explain satisfaction when the effects of these other variables were endured.

In one well-known research, Warr (1992) investigated the relationship between age and occupational well-being and found significantly positive correlation between both variables among British workers. On the other hand, he executed Multiple Regression Analyses to demonstrate interrelation is nonlinear. A consequence of this is that nonlinearity is existence; job satisfaction was in tendency to be higher in older employees than younger ones. But, when additional

variables such as job characteristics enter the Multiple regression, it can be seen that the nonlinearity features dissapears and only age remains a significant predictor.

A significant analysis and discussion on the subject was presented by Clark et al. in 1996. They confirmed that overall job satisfaction is U-shaped in relation to age and the coefficient of age, age square's are statistically significant, negative and pozitive, respectively. The substance of their study is that they use a large number of control variables and the first wave of British Household Panel Survey which has a extensive sample of employees and the authours specify that age's U-shaped effect on overall job satisfaction is strong even when 80 control variables are included in ordered probit regression. Some other studies presenting existence of age with different studies and for different countries, period are that Clark 1996, 1997; Clark and Oswald, 1996; Gazioğlu and Tansel, 2006. In contrast to earlier findings, however, Shields and W. Price (2002) using British National Health Service data found that there is no U-shaped relationship and ethnic minority nurses' work satisfaction increase positively with age.

Tenure is another important age-related variable because of two reasons. Firstly, it has been evaluated to be legitimate and preservable basis for staffing decisions. Secondly, it plays a role in the effective management of human resources (Gordon and Johnson,1982). In certain circumstances, correlation between tenure and job satisfaction were found negative in a linear way (Gibson and Klein, 1970; Hulin and Smith, 1965). An empirical demonstration of this relation was viewed by George J. Borjas (1979). He used the National Longitudinal Survey of Mature Man, 1971, taking only white worker men aged between 50 and 60 years and showed that if wages was held constant, the effect of tenure on job satisfaction was negative. However, previous research determined no significant relationship (Hulin and Smith, 1965; Peter et al., 1975). An experimental demonstration of this effect was carried out by Clark, Oswald and Warr (1996), by using 1991 waves of the British Household Panel Survey. They analyzed two different regression; in the first one, tenure coefficient was negatif and in the second one, after added marital status, number of children, number in household, a sign of coefficient turned into

positive. But in either cases, coefficients were insignificant; tenure couldn't affect job satisfaction. The study by Theodossiou and Zangelidis (2009) offers probably the most comprehensive empirical analysis of tenure, utilizing from British Household Panel Survey covering years between 1991-2004. It has been shown that tenure and tenure square were associated with job satisfaction significantly negative and positive, respectively, implying that there is U-shaped relationship between tenure and job satisfaction.

As seen above, early studies on age indicate inconclusive results but recent researches suggest that there is significant negative results about the effect of age on job satisfaction (e.g., Warr, 1992). The general findings on sign of tenure is that the correlation between them is significantly negative. This event might be result from type of sample, country, explanatory variables, etc.

### 2.2.3. Income

One of the important job characteristics is income which has considerable literature about its effect on job satisfaction. We would expected that an individual with higher income were satisfied in their job, but there is inconclusive results concerning this relationship in early papers. Some researches found out that positive, significant relationship; for instance, Beutell and Wittig-Berman (1999), using a dataset with small sample size, show that salary is associated with job satisfaction significantly and positively. Another example of showing the relation with similar association was done by Sanchez and Brock (1996). Findings of other researches indicate that a weak relationship. For example; Dunham and Hawk (1977) asserted that the relationship between organizational characteristics like tenure, income, job level, etc. and job satisfaction variables such as general, supervison, financial, etc. was much bigger than the relationship between organizational characteristics and demographic, environmental characteristics among employees working four day/40 hour.

In recent studies, income is divided into two part by researches; relative income (comparison income) and absolute income and there is contradictory results which one should be used when ones job satisfaction is evaluated. A study

conducted by Clark and Oswald (1996) examined which one, relative or absolute income, did affect job satisfaction. They found that job satisfaction is more strongly associated with relative income than absolute income. That is to say, an employee who earns less compared to similar employee but working the same would have less job satisfaction. In the same vein, Gazioğlu and Tansel (2006) revealed that a positive and significant nonlinear relationship between (log) weekly income and job satisfaction. According to Shields and Price (2002), as wage decreases, British National Health Service nurses' satisfaction with their job diminish. More recent argument accounting for this association have been carried out by Judge et al. (2010). The results obtained from the overall meta-analysis is that pay level is positively correlated with job satisfaction.

Common consensus on the relation between income (relative or absolute), wage, pay level and job satisfaction is that these factors play important role in as determinants of job satisfaction.

### 2.2.4. Education

It is expected that the more people gain higher education, the more they satisfied with their works. Because people with higher level of education is likely to have more secure job, qualified, income, etc. against their counterpart with lower education. However, literature mostly refers to reverse this case. Clark (1996), Clark and Oswald (1996) assert that workers with high level of education has the lowest job satisfaction in Britain in 1991. The latter study also suggests that job satisfaction diminishes while increasing years of education, when income added and hold constant. A broader perspective has been adopted by Gazioğlu and Tansel (2006) who point out that British employees with "degree and postgraduate degree" and "A-level–O-level" have lower job satisfaction than their counterparts, those with lower level of education. In further detailed studies by Clark et al. (1996) and Blanchflower and Oswald (1999), the authors argue that the sign of correlation between years of education and job satisfaction turn from positive into negative both United Kingdom and United States of America samples respectively when control variables, such as annually workers' pay, related job characteristics are put in the regressions.

In a recent study, education has been estimated using a structural equation model and dividing into seven education level. The results obtained from it is that the impact of seven education levels on job satisfaction is positively significant for Spanish workers in years between 1991 and 2001 because of employees expectations and indirect effect of determinants of satisfaction (Fabra and Camisón, 2009).

Considering all of this evidence, it seems that whether workers having higher education are satisfied or dissatisfied is uncertain and the effect of education can change with the addition of some explanatory variables in regressions and with regard to country, dataset, etc.

### 2.2.5. Health

The studies examining the effect of health on job satisfaction separate health into two parts; mental health (depression, anxiety, burnout, self-esteem, and general mental health) and physical health (cardiovascular disease, and musculoskeletal disorders). Some of them also look into the combination of two parts with the name of "strain" measure. Paying attention to three cases is important to understand whether workers evaluate their work wholesomely.

In the literature, findings show that there is significantly positively relationship between physical health and job satisfaction, in other sayings employees with poor health have lower job satisfaction than heltier employees (Gazioğlu and Tansel, 2006; Clark 1996). Detailed examination of health by Faragher et al. (2005) presents a variety of results on mental and physical healthy utilizing 485 studies and using Comprehensive Meta-Analysis. In this study, good health were found to cause an increase in job satisfaction. Specifically, satisfying with work was affected much more mental/psychosocial problems than physical complaints and the biggest correlation was shown to be between burnout and job satisfaction.

### 2.2.6. Marital Status

Economists generally focus on whether marriage leads to the increment in number of female workers in labor market, or different economic conditions cause the changes in family formation patterns, etc. Thus, they investigate economic

benefists and costs of marriage. There is scarce research on the relationship between job satisfaction and marital status (Mariani, 2014). Findings on the effect of marital status on job satisfaction have been inconclusive and contradictory. Early studies claim that married worker who live with a spouse or a partner has more overall job satisfaction than widowed, divorced or separated or single workers who live alone for the life (Clark, 1996). Morever, in a more detailed study by Clark (1997), he ascertains that marriage has significantly positive effect on job satisfaction for women, but not for men. Findings of the most recent studies suggests that married individuals are less satisfied with their job than singles (i.e., Gazioğlu and Tansel, 2006). In another important research, Georgellis et al. (2012) reviewed the influence of transition into marriage on job satisfaction and showed that only in two cases; for men who work in public sector and for women who work in private sector, marriage has significant positive effect on job satisfaction. They utilized eighteenth wave of British Household Panel Survey, covering the period 1991 to 2008. But this study provides deficient information in terms of investigating whether pre-marital cohabitation effects job satisfaction. If we look for how marital status affects job satisfaction, cohabitation should not be ignored, because it is getting prevalent many of country like United States of America and United Kingdom. Thus, Mariani (2014) used same data and paid attention to this situation and found that marriage female have significantly positive job satisfaction whether they cohabited before marriage or not. Also, she showed that there is no relationship between married male and job satisfaction.

To sum up, although the most of the studies on the relation between marriage and job satisfaction suggests a positive correlation between these two variables, the results are not conclusive.

### 2.2.7. Race

Previous researches has been ignored the effect of racial factor on job satisfaction. Investigating this issue can be important in two ways. Firstly, all over the world, members of various races work in organizations one within the other and thus whether theese work environment is managed better or not affect productivity, rates of retention, etc. (Ensher et al., 2001). Secondly, if employees

with a different race are object to interracial relation but work together, job satisfaction may be prevented in spite of positive job characteristics (Wilson and Butler, 1978).

Clark (1996) found that whites workers are more satisfied with their job than black and Indian workers do. He used the first wave of the British Household Panel Survey, collected in late 1991. These data must be interpreted with caution because of relatively small number of ethnic minority workers. Gazioğlu and Tansel (2006) analysed Workplace Employee Relations Survey, 1997,which is larger dataset than others and observed that value of overall job satisfaction was similiar among black, white and asian workers. Shields and Price (2002) observed that British National Health Service nurses suffer from racialism from work colleagues as well as patients or their families. Thus, they have less content with their work and a tendency to quit.

Together, these studies indicate that racialism is association with reduced levels of job satisfaction and this situation may cause absenteeism, quit, fruitlessness of work, etc.

## 2.3. Job Characteristics

### 2.3.1. Establishment Size

General findings about the effect of establisment size on job satisfaction is that employees working in larger establishments are less satisfied than counterparts in small establishments (Idson 1990; Clark and Oswald 1996; Clark, Oswald and Warr, 1996). The study by Gazioglu and Tansel (2003) offers probably comprehensive empirical analysis of that relation. They used the United Kingdom data from the 1997 Workplace Employee Relations Survey (WERS97) and the results of this study showed that a negative and statistically significant relationship didn't change even after adding work structure variables in the regression. This is meant that the greater rigidity in the work structure does notcertainly cause less job satisfaction in larger establishment. The following important conclusions can be drawn from that study is that employee-manager relationship variables, such as

stuffing ıssues, pay issues, health/safety at work, treating employees fairly, can explain the effect of the establishment size for all job satisfaction regressions including dependent variables; satisfaction with influence over job, satisfaction with amount of pay, satisfaction with sense of achievement, satisfaction with respect from supervisor.

Considering all of this evidence, it seems that there is negative correlation between establishment size and job satisfaction.

### 2.3.2. Work Hours

Glickman and Brown (1974), argued that “the starting and quitting times are flexible for the employee, but that he or she must be there during a core working time " (as cited in Orpen,1981). When viewed from this angle, work hours can have positive and negative impact on labor force. In other words, in addition, it can be cause lowered stress, increased job enrichment and autonomy, reduced tardiness and absenteeism, and improved job satisfaction and productivity, also it might be lead to increased costs, problems with scheduling and work coordination, difficulties with supervising all employees on flexible work hours, and changes in the organizational culture (Scandura and Lankau, 1997). Due to these possible contracting effects, many studies examine relationship between working hours and job satisfaction.

In a study which used narrow-scoped dataset argued that although, the impact of flexible working hours on job satisfaction was significat, its effect on performance and productivity was insignificant (Christopher Orpen, 1981). Recent researches investigating the effect of working hours on job satisfaction has found that the more hours of work causes the lower satisfaction (Clark, 1996; Gazioğlu and Tansel, 2006). On the other hand, a recently published article by Haile (2015) analysed the employer–employee data from 2004 Workplace Employment Relations Survey and concluded that British employees working least 48 hours per week have higher overall job satisfaction in the random-intercept models. The studies presented thus far provide evidence that increasing hours of work leads to less satisfaction with work.

### 2.3.3. Job Security

Job insecurity may be lead to change employees' aptitude and motivation to their work negatively. Researches on this issue found similar conclusions. An example experimental demonstration of this result was carried out by Blanchflower and Oswald (1999) who used General Social Surveys where lose job not too likely and lose job not at all likely; lose job fairly likely, find job somewhat easy, find job not easy at all are accepted as an proxy variables for job security and insecurity, respectively. The results of this investigation show that workers who have secure job are satisfied with their job in United States of America, and vice versa for insecurity job. Similarly, the study by Gazioğlu and Tansel (2006) found that job security brings on highly significantly positively job satisfaction in United Kingdom. In 2005, Green and Tsitsianis (2005) examine the trends in job satisfaction from 1972 to 2002 for United Kingdom and showed that as opposed to previous patterns, job security isn't adequate to explain increasing job satisfaction.

The generalisability of much published research on this issue is clear; having secure job plays an impressive role on employees job work satisfaction.

### 2.3.4. Union

Up to now, in job satisfaction literature , far too little attention has been paid to the effect of union on satisfaction as well as against other variables because it causes the endogeneity problem from two different angles. Firstly, as unions defend discontented employees' justice, they have increased their number of members. Secondly, if unions convince them to stay in their jobs and try to switch their working conditions, this event can boost the number of discontented employees' in labor market.

As mentioned in the literature review, because of above two reasons, there is strong negative correlation between union membership and job satisfaction in Britain (Clark, Oswald and War,1996; Clark, 1996; Clark and Oswald, 1996; Gazioğlu and Tansel,2006; Haile, 2015). Blanchflower and Oswald (1999) used International Social Survey Programme sample which is for only year 1989 and nine countries. The data reported there appear to support the hypothesis that being union member

is associated with less job satisfaction. However, this result differ from the results of some published studies such as one weak negative correlation found by Meng (1990) with Canadian data, by Miller (1990) with Australian data, by Borjas (1979) with National Longitudinal Survey.

In 2004, Bryson, Cappellari and Lucifora used British Workplace Employee Relations Survey 1998 and they found that union membership wasn't associated with job satisfaction, taking into consideration the endogeneity problem. But in another detailed study on this relation commited in 2010 using same data, they seperated employees having insured and un-insured jobs and found that the effect of being unionized on job satisfaction gears to whether members are insured by union bargaining or not (Bryson, Cappellari and Lucifora, 2010).

In view of all that has been mentioned so far, one may suppose that generally, employees with union membership have less satisfaction with their job.

## 2.4. Workforce Entry Conditions

Understanding the effect of workforce entry conditions on recent labor market intrants is important to obviate persistent stagnation in the national economic atmosphere and to arrange policy options to help employees. For this reason, increasing studies examine whether unfavourable initial labor market conditions can have short-term or long term effects on employed persons' economic and work conditions. To measure national economic mood, a lots of research uses national or state unemployment rate due to thinking of being best indicator. Investigating college graduates in surveys is more advantageous than other sample of employees owing to majority of them attend to labor market, giving priority to full time work, having more information such as about kind of college, working schedule, length of study, and we can classify sample into more and less advantaged classes based on predicted labor market success.

Using the National Longitudinal Survey of Youth, Kahn (2010) showed that when national unemployment rate increases, in both ordinary least squares and ınstrumental variable estimation, white male employees who graduated college during recession between 1979 and 1989 experience initial wage loss and this

situation was still statistically significant, 15 years after graduating from college. But, when using state unemployment rates, all results are same as above except for ordered least squares in which coefficient is insignificant. He also find that at the time of college graduation economic conditions for in both cases effect adversly labor supply. This view is supported by Philip Oreopoulos, Till von Wachter, and Andrew Heisz (2012) who used Canadian university employer-employee matched dataset of over 20 years of male college graduates. The findings indicates that people graduated in bad economic times could alter their work with better any of labor and in the circumstances, they suffer less from economic conditions. Another paper consistent with above reserarches is conducted by Paul Oyer, 2006. He shows that people who graduate at slack economic conditions may earn less money and take lower-quality jobs than deserved.

The study by Bianchi (2013) offers probably the unique empirical analysis of effect of work entry conditions on job satisfaction. She used General Social Survey, covering the years 1975 to 2007. The data offers are presentative sample of full time American workers who graduated from college and got a job in a stream of different economic moods. To examine this issue, she hypothesized whether people graduated from college during slack economic times are more satisfied with their jobs even in later ages compared to the ones who entered workforce when unemployment rate is lower.

She carried out analysis with two distinct job satisfaction measures that consist of diverse sample size for utilizing them single-item measures and a composite measures analysis, seperately. The results of intercorrelation table showed that there was significantly and positively correlation between workforce entry unemployment rate and both measures of job satisfaction. This means that workers who graduated in worse economic conditions were more satisfied with their job, even for many years after came to works. She create two different model for statistical analysis investigating the correlation between work entry conditions and job satisfaction. Firstly, she estimated model 1 including controls for income, age, age squared, gender, and survey year dummies both single-item measures and a composite measures in which tenure was affiliated as control variables. Secondly,

adding dummy variables for current occupation and industry into model 1, she generated model 2 and made same analysis.The outcomes of estimated models demonstrated that workforce entry conditions associated with job satisfacton variable significantly positive. The following conclusions could be acquired from examining the magnitude of these effects. According to findings, workers graduating from worst economy were more satisfied with their job than those graduating from both average economy and best economy; those graduating from average economy were more satisfied than graduating from best economy. But the greatest increase was in the second case.

# 3. METHODOLOGY

This chapter describes and discusses the methods used in this investigation. The first section gives an information on panel data models, the second part moves on to describe in greater detail the data, and third part depicts our model.

## 3.1. Panel Data Models and Estimating Methods

Various types of data are usable for empirical analysis; time series, cross section and panel data. Time series data is gathered on one individual/unit over multiple time periods such as annual national income, stock price trends, etc. Cross-section data is collected at a single point of time for several sample individuals/units such as unemployment rates of 25 Organisation for Economic Co-operation and Development countries in 2004. Panel data consists of observations of multiple phenomena acquired over multiple time periods for same units. If each cross-sectional units are observed for the same time period, the data is called a balanced panel; and If some of cross-sectional units are missing for some of time periods, the data is called a unbalanced. We examine in this section three models of panel data along with their assumptions and estimating methods.

### 3.1.1. Pooled Regression Model

Pooled data is a special form of panel data. It occurs time series of cross section, but the units in each cross section do not certainly mention the same observations. And we call regression model based on this data as *pooled regression model* (Gujarati, 2009, p.591) and is written as described below (Hill et.al., 2003, p.540):

$$y_{it} = \beta_1 + \beta_2 x_{2it} + \beta_3 x_{3it} + \cdots + \beta_n x_{nit} + e_{it} \quad n=1,2,\ldots,N \qquad (3.1)$$

where *i* indexes individual (*i=1,2,…,N*), *t* indexes time period (*t=1,2,…,T*) and the model's slope and intercept paremeters are constant for all observed units over the time periods, that is, there is no distinction between observations (Gujarati, 2009). The assumptions of pooled regression model's error terms are assumed as the following (Hill et al., 2003, p.541):

i)Their means are zero.

$$E(e_{it}) = 0$$

ii)Variance of $e_{it}$ is constant for all unit in all time period.

$$E(e_{it}e_{js}) = f(x) = \begin{cases} \sigma_e^2, & i \neq j, t \neq s \\ 0, & otherwise \end{cases}$$

(i) and (ii) shows that error terms are independently and identically distributed with zero mean and constant variance($e_{it} \sim iid(0, \sigma_e^2)$). Moreover, the error terms are assumed to be normally distributed (Gujarati, 2009).

iii)They are uncorrelated with eachother for all individual in all time periods.

$$cov(e_{it}e_{js}) = E(e_{it}e_{js}) = 0 \qquad i \neq j \text{ and } t \neq s$$

iv) Explanatory variables are uncorrelated with error terms.

$$cov(e_{it}x_{nit}) = 0 \qquad n=1,2,\ldots N$$

Under these assumptions, pooled regression model is identical to multiple regression model and then we can use least squares estimator to acquire efficient coefficients. Then, as the least squares estimator is implemented on pooled model, this method is called *pooled least squares*.

But, this method may be invalid. Before giving an example, we refer to regressors which are called *time constant variables* varies by units and are constant over time period. We can not observe them directly, and thus their effects on the model are not gauged. Owing to this characteristics, they are called also *unobserved effect*. In applied economics, we know that least squares estimator may overlook unobserved effects, that is, whilst they are required to introduce into model as explanatory variables, if not added in, it penetrates error term. And then this cause correlation between error terms and explanatory variables over different time periods for the same units. In other words we have neglected the assumption (iv) and thus (ii) and (iii) become as indicated below (Hill et al., 2003):

ii*) variance of error terms is different in distinct time periods and constant across units

$$cov(e_{it}e_{it}) = var(e_{it}) = \phi_{tt}$$

iii*) the correlation between error terms is not constant over time.

$$cov(e_{it}e_{js}) = \phi_{ts}$$

We still assume that the correlation between errors is zero over distinct units.

$$cov(e_{it}e_{js}) = 0$$

Under these assumptions, we can argue that in the existence of autocorrelation and heterokedasticity, the coefficients estimated using least squares approach are still consistent but standard errors will be invalid. We can use White's heterokedasticity-consistent standard errors and Newey-West standart errors to solve heterokedasticity and autocorrelation problems, respectively. After overcoming the problems, we can use least squares approach to obtain consistent coefficients and valid standart errors which are called also *panel-robust standart errors* or cluster-robust standart errors. One important issue is that, to acquire best linear unbiased estimator, the model have to provide strict exogenity assumption (Tatoglu, 2013). Also we utilize another methods such as pooled generilized least squares, feasible least squares, etc. but we do not mention on these methods in this study.

### 3.1.2. Fixed Effects Models

In some instances, unobserved effect may be observed and thus the coefficients of model is not likely to be constant for all units in all time periods. This type of model can be written as

$$y_{it} = \beta_{1i} + \beta_{2i}x_{2it} + \beta_{3i}x_{3it} + \cdots + \beta_{ni}x_{nit} + e_{it} \qquad (3.2)$$

When short and wide panel data where the number of observable units, *N*, is larger than the number of time periods, the numbers of explanatory variable's coefficients in the model (3.2) becomes much larger than cross-section observations, and thus model may not be estimated. To utilize this type of panel

data, the slope coefficients of the model are supposed to be constant across all individuals (Hill et.al., 2003, p.543);

$$y_{it} = \beta_{1i} + \beta_2 x_{2it} + \beta_3 x_{3it} + \cdots + \beta_n x_{nit} + e_{it} \qquad (3.3)$$

where $\beta_{1i}$ denotes *unobserved heterogeneity*. Equation (3.3) is called a *fixed effects model* and unobserved heterogeneity which is not change over time is seen as intercepts parameter that called *fixed effects*.

#### 3.1.2.1. The Least Squares Dummy Variables Estimator

For panels where the number of cross-section units is small, a technique of estimating (3.3) is to create intercept dummy variable (indicator variable) for each cross-section units, such as$d_{ni} = 1\ if n = i, d_{ni} = 0\ if n \neq i$. Then, a new form is (Gujarati, 2009)

$$y_{it} = \alpha_1 + \alpha_2 d_{2i} + \cdots + \alpha_2 d_{2i} + \beta_2 x_{2it} + \beta_3 x_{3it} + \cdots + \beta_n x_{nit} + e_{it} \qquad (3.4)$$

Note that, we creat *N-1* dummy variable for *N* cross-section units due to avoiding dummy-variable trap (perfect multicollinearity). $\alpha_1$ denotes intercept parameter of first unit, besides we can change this unit with another one. Then the model (3.4) is estimated using least squares approach owing to similarity of pooled reression model. In literature, this approach has been given a special name as *least squares dummy variable estimator* (Hill et al. 2008).

#### 3.1.2.2. The Fixed Effects Estimators

An alternative method for estimating model (3.3) is to acquire *fixed effects transformation* for this model by eliminating the fixed effect, $\beta_{1i}$. In contrast to least squares dummy variable estimator, this type of estimator is usable for panels including a large number of cross-section units. To obtain fixed effects transformation, we make some mathematical operations using equation (3.3) as the following;

First we take the average of data over time period and we find;

$$\bar{y}_i = \beta_{1i} + \beta_2 \bar{x}_{2i} + \beta_3 \bar{x}_{3i} + \cdots + \beta_n x_{ni} + \bar{e}_i \qquad (3.5)$$

where $\bar{y}_i = T^{-1} \sum_{t=1}^{T} \mathrm{y_{it}}, \bar{x}_{2i} = T^{-1} \sum_{t=1}^{T} \mathrm{x_{2it}}, \ldots, \bar{e}_i = T^{-1} \sum_{t=1}^{T} \mathrm{e_{it}}$.

Later, we subtract model (3.3) from (3.5) and we obtain;

$$y_{it} - \bar{y}_i = \beta_2(x_{2it} - \bar{x}_{2i}) + \beta_3(x_{3it} - \bar{x}_{3i}) + \cdots + \beta_{ni}(x_{nit} - \bar{x}_{ni}) + (e_{it} - \bar{e}_i)$$

In the end, we achieve special form of data is that called as *deviation from the unit's mean.* Notice that, this data has not intercept parameter, $\beta_{1i}$. If we can make same operations for other units, the *transformed model* above referred is

$$\tilde{y}_{it} = \beta_{1i} + \beta_2\tilde{x}_{2it} + \beta_3\tilde{x}_{3it} + \cdots + \beta_n\tilde{x}_{nit} + \tilde{e}_{it} \qquad (3.6)$$

where $\tilde{y}_{it} = y_{it} - \bar{y}_i$ , $\tilde{x}_{2it} = x_{2it} - \bar{x}_{2i}$,...,$\tilde{e}_i = e_{it} - \bar{e}_i$. The least squares forecasts of the coefficients are found consistent by using this transformation (Hill et al. 2008).

Literature has several different methods to estimate fixed effects models such as, generalized least squares. But we do not descend to paticulars of these methods in this study.

### 3.1.3. Random Effects Models

In random effects models, intercept coefficients are assumed to consist of *fixed population coefficients* that stands for the mean of the unobserved variables, $\bar{\beta}_1$, and *random effects* reflecting random heterogeneity for *i* th observation, $u_i$, (Hill et al., 2011). Using these definitions, we point out the intercept coefficients as

$$\beta_{1i} = (\bar{\beta}_1 + u_i) \qquad (3.7)$$

which is thought to represents all units differences in model (3.3) and is called as *the error components model*. Random effect, $u_i$, provide the characteristics of error terms and thus have similar assumptions:

i)It has zero mean,

$$E(u_i) = 0$$

ii)It has constant variance,

$$var(u_i) = \sigma_u^2$$

iii) There is no correlation between random effects across units.

$$cov(u_i, u_j) = 0 \quad i \neq j$$

We obtain random effects model inserting (3.7) into the fixed effect model (3.3). This is shown as the following;

$$y_{it} = (\bar{\beta}_1 + u_i) + \beta_2 x_{2it} + \beta_3 x_{3it} + \cdots + \beta_n x_{nit} + e_{it}$$

Moreover, in addition to what is mentioned above, we include the one property is that random effects are uncorrelated with eachother $E(e_{it}u_i) = 0$ (Tatoğlu, 2013).

To see the model's terms more explicitly, we rewrite it as indicated below:

$$y_{it} = \bar{\beta}_1 + \beta_2 x_{2it} + \beta_3 x_{3it} + \cdots + \beta_n x_{nit} + (e_{it} + u_i)$$

$$= \bar{\beta}_1 + \beta_2 x_{2it} + \beta_3 x_{3it} + \cdots + \beta_n x_{nit} + v_{it} \qquad (3.8)$$

where $v_{it}$ denotes as composite error term of the random effects model. The assumptions of composite error are consisted of characterictics of error term and random effect, as hereinbelow described[1](Hill et al., 2011)

i) It has zero mean

$$E(v_{it}) = 0$$

ii) The variance of composite error is constant

$$var(v_{it}) = \sigma_u^2 + \sigma_e^2$$

iii) The correlation between errors are zero for all unit in same time period

$$cov(v_{it}, v_{jt}) = 0 \qquad \text{for all unit in same time period}$$

iv) Composite error is not correlated with eachother for same unit at distinct time periods

$$cov(v_{it}, v_{is}) = 0 \qquad \text{for } t \neq s$$

[1]For proof see Hill et al., 2011, pp.553

v) The covariance of error is zero for all units in all time periods

$$cov(v_{it}, v_{js}) = 0 \qquad \text{for } i \neq j$$

vi) The correlation coefficient of composite error is

$$corr(v_{it} v_{is}) = \frac{cov(v_{it}, v_{is})}{\sqrt{var(v_{it}) var(v_{is})}} = \frac{\sigma_u^2}{\sigma_u^2 + \sigma_e^2} \qquad t \neq s.$$

Note that $u_i$ is assumed to be zero, model (3.1) don't include random heterogeneity and it ensure the assumptions of pooled regression model. But in the exact opposite situation, $u_i \neq 0$, the Lagrange multiplier (LM) principle can be devised to examine whether random effects model is appropriate. This test based on the ordered least squares residuals and has chi-squared distribution with one degree of freedom (Green, 2012).The hypotesis of Lagrange multipler are

$$H_0: \sigma_u^2 = 0$$

$$H_1: \sigma_u^2 > 0$$

If null hypotesis is rejected, it comes to mean that random effects model is appropriate (Hill et.al., 2003).

To sum up, we refer to three model using panel data by clarifing their assumption, differences, some forecasting methods. The last question is that which model is true. Hausman test that uses to measure orthogonality of the common effects and the explanatory variables is prevalently known as specification test. The hypotheses of this test are (Green, 2012, p. 379).

$H_0$: The random effects model is appropriate.

$H_1$: The fixed effects model is appropriate.

If we reject the null hypothesis, we think that using fixed effect model is appropriate, that is, this test is only given to support the model that utilizes. We do not have to say that this model is absolutely feasible by looking Hausman test because it has not sufficient statistical power (Clark and Linzer, 2015).

### 3.1.4. Ordered Probit Models

The assumption of multivariate linear model have need for interval level measurement of the dependent variable and owing to this situation the linear model is not feasible for many applied studies (McKelveyand Zavoina, 1975). For instance, dependent variables consists of more than two categories and in some cases some of these categories might be unordered (doesn't move, moves South, moves East) or ordered (self reported health status; excellent, very good, good, fair, poor). When dependent variables are ordinal, we can utilize this model.

Now, we mention theoretical information about ordered probit models. First, lets starts giving index model which is consists of observed and unobserved heterogeneity as the following:

$$y_i^* = x_i^{'}\beta + u_i$$

where explanatory variable, $x$, does not contain an intercept; $y_i^*$ represents latent index. As $y^*$ crosses a series of ascending obscure thresholds we promote the ordering of alternatives. Usual form of m-alternative orderd model is as described below;

$$y_i = j \text{ if } \alpha_{j-1} < y_i^* < \alpha_j,$$

where $\alpha_0 = -\infty$ and $\alpha_m = -\infty$ .Then

$$\begin{aligned} Pr[y_i = j] &= Pr\left[\alpha_{j-1} < y_i^* \leq \alpha_j\right] \\ &= Pr\left[\alpha_{j-1} < x_i^{'}\beta + u_i \leq \alpha_j\right] \\ &= Pr\left[\alpha_{j-1} - x_i^{'}\beta < u_i \leq \alpha_j - x_i^{'}\beta\right] \\ &= F\left(\alpha_j - x_i^{'}\beta\right) - F(\alpha_{j-1} - x_i^{'}\beta) \end{aligned}$$

where $F$denotes cumulative distribution function of $u_i$. The regression coefficients $\beta$ and (m-1) threshold coefficients $\alpha_1, \alpha_2, \dots, \alpha_{m-1}$ are acquired by maximizing the log-likelihood. Error term, $u$, have standard normal distributed and $F(.)$ is the standart normal cumulative distribution function.

We can explicate the sign of the regression coefficients $\beta$as whether or not the unobserved heterogeneity variable $y^*$ heightens with the explanatory variables. The marginal effects in the probabilities

$$\frac{\partial Pr[y_i = j]}{\partial x_i} = \{F'(\alpha_{j-1} - x_i'\beta) - F'(\alpha_j - x_i'\beta)\}\beta$$

where F' represents the derivative of F. The statement in braces might be positive and negative.

## 3.2. Data

Data for this study were retrospectively collected from British Household Panel Survey which conducted in 1991 and annually thereafter. By the end of the survey period from 1991 to 2008, data had been collected from 238.996 individuals, 14458 of whom were people working full time (more than 30 hours) and with college degree. The study was conducted in the form of a survey, with data being gathered via a wide range of information about individual and job characteristics, household demographics etc. Of the initial cohort of 14458 individuals, 6534 were female and 7924 male. All of the participants were aged between 17 and 85.[2]

### 3.2.1. Variables Measures

#### 3.2.1.1. Job Satisfaction

We use overall job satisfaction as the independent variable. Overall job satisfaction is usually described as an emotive response by an worker related to his/her particular job and stems from the worker's comparison of genuine outcomes with those that are anticipated, needed, desired, or perceived to be impartial or just (E. G. Lambert et al., 2001).

The job satisfaction data stems from the question asked of all workers in the British Household Panel Survey: "All things considered, how satisfied or dissatisfied are you with your present job overall using the same 1-7 scale?" A number from 1 to 7 measures level of job satisfaction where a value of 1 corresponded to 'not

[2]For more information see Rose et al. (1991).

satisfied at all', a value of 7 corresponded to 'completely satisfaction', and the whole numbers from 2 to 6 means intermediate level of job satisfaction.

Table 3.1 provides the distribution of reported job satisfaction levels. 12.55% of employees report overall job satisfaction of 3 or less. Also, median value (6) is 49.14% and highest value (7) is 7.23%.

Table 3.1: Distribution of Reported Job Satisfaction Levels

| | Overall Job Satisfaction | |
|---|---|---|
| | Observation | Percents |
| 1 | 143 | 1.10 |
| 2 | 465 | 3.56 |
| 3 | 1030 | 7.89 |
| 4 | 900 | 6.89 |
| 5 | 3157 | 24.19 |
| 6 | 6414 | 49.14 |
| 7 | 944 | 7.23 |
| N | 13,053 | 100.00 |

### 3.2.1.2. Measures of Workforce Entry Conditions

Studies shows that environmental events have impact on gratitute, for example, after the September 11 th terrorists attacks, Americans satisfaction increases and last for a while. Another important effect on satisfaction is macro economic conditions that people experience first career. In economic welfare or stagnation people have different point of view to their works and also these situations enable to them evaluating their situation in their jobs more carefully (Bianchi, 2013). For this reasons we take in consideration this variable our study and examine this effects on British people using British Household Panel Survey.

We specially restricted sample only taking full time worker with college degree. Because they are talented workers, utilizing them make its more suitable to analysing distinct trainning and human capital investment models.

Workforce entry conditions are calculated using the national unemployment rate drawn from Federal Reserve Economic Data in the year of entry to first job after graduation. The reason behind our consideration of the taking unemployment rate is that it has been accepted best factor to explaining economic conditions and recognized adversity of finding job. In recent years, there has been an increasing amount of studies in literature and have been found that graduate in bad economic times cause lower income (e.g., Kahn, 2010) and worse economic outcomes (e.g., Oyer, 2006) due to underemployment and job mismatching.

#### 3.2.1.3. Control and Dummy Variables

We embody control variables that seen as substantial forecaster of job atttudes in past studies. Some of them we included are age (Clark, 1997; Weaver, 1980 etc.), age squared (e.g., Clark et al., 1996), gender (e.g., Clark et al., 1996), income (Clark and Oswald 1996; Judge et al., 2010 etc.), tenure in current job (Theodossiou and Zangelidis, 2009). The tenure is composed of constituent variables obtained by variables related to the start date of each employment, date of each termination of employment and the number of jobs they have changed. Moreover, we draw annual income from the survey and take a logarithm after deflating it by using consumer price index (CPI). The reason of this transformation is due to that “changes in the income categories across years and the changes in the nominal income distribution wrought by inflation have caused changes in the income variable over the years.” (Ligon, 1989).

The table 3.2 below illustrates means, standard deviations, minimum and maximum values of variables, correlations for all variables. The unemploymet rate at workforce entry was negatively related with job satisfaction. This mean that person who graduted from college during worse economic conditions were less happier with their works, even though most participants were displaced from first business experiences.

Table 3.2: Means, Standard Deviation, Minimum and Maksimum Values, Correlations Tables

| Variable | Mean | SD | Min | Max | Overall Job Satisfaction | Work entry economic conditions | Age | $Age^2$ | Gender | Tenure | Income |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Overall Job Satisfaction | 5.26 | 1.26 | 1 | 7 | 1.0000 | | | | | | |
| Work entry economic conditions | 6.78 | 1.97 | 1.31 | 11.77 | -0.0605** | 1.0000 | | | | | |
| Age | 36.48 | 10.40 | 17 | 74 | 0.0319** | 0.0996** | 1.0000 | | | | |
| $Age^2$ | 1438.86 | 829.47 | 289 | 5476 | 0.0302** | 0.0914** | 0.9905** | 1.0000 | | | |
| Gender | 1.45 | 0.49 | 1 | 2 | 0.0480** | -0.0573** | -0.0943** | -0.0858** | 1.0000 | | |
| Tenure | 4.21 | 4.72 | 0 | 38 | 0.0205* | 0.2299** | 0.3253** | 0.3316** | -0.0705** | 1.0000 | |
| Income (ln) | 4.42 | 0.40 | -4083233 | 5.589058 | 0.0687* | 0.0459** | 0.4176** | 0.3688** | -0.1563** | 0.1268** | 1.0000 |

*ρ<.05:**ρ<.01

| Table 3.3: Standart Occupational Classification Categories 1990 (SOC) | |
|---|---|
| 1 | Managers & administors |
| 2 | Professional occupations |
| 3 | Associate professional &technical occupations |
| 4 | Clerical & secretarial occupations |
| 5 | Craft & related occupations |
| 6 | Personal & protective service occupations |
| 7 | Sales occupations |
| 8 | Plant & machine operatives |
| 9 | Other occupations |

Source: British Household Panel Survey User Manuel, 2010

| Table 3.4: Standart Industrial Classification Categories 1980 (SIC) | |
|---|---|
| 0 | Agriculture, forestry & fishing |
| 1 | Energy & water supplies |
| 2 | Extraction of minerals & ores other than fuels; manufacture of metals, mineral products & chemicals |
| 3 | Metal goods, engineering & vehicles industries |
| 4 | Other manufacturing industries |
| 5 | Construction |
| 6 | Distribution, hotels & catering (repairs) |
| 7 | Transport & communication |
| 8 | Banking, finance, insurance,business sevices & leasing |
| 9 | Other services |

Source: British Household Panel Survey User Manuel, 2010

Moreover, we include year dummy variables to remove the effects of time-trend and ındustry and occupatıonal dummies to investigate whether people who enter labor force in recession has more gratitude from their job, even after a long time from the initial labor experience. Occupational dummies for this study depend on 9 general categories from the 1990 Standart Occupational Classification (SOC)

and ten major ındustry dummies were created using 1980 Standart Industrıal Classification (SIC) (Clark and Oswald, 1996).

## 3.3. Model

Economists have interested in the determinants of job satisfaction over since the important paper of Hamermesh (1977) and Freeman (1977). The general framework adopted by previous researches is to define an individual's utility from working as:

$$u = u(y, h, i, j)$$

where *y* is income, *h* is hours of work, *i* and *j* represents a set of individual and job characteristics, respectively. In the course time, model is extented to include a vector of some variables. For instance, individual specific work-values such as promotion, relation at work, job security, etc. (Clark, 1996), job tenure (Clark et al., 1996), workforce entry unemployment rate (Bianchi, 2013), etc.

In light of the this discussion, our job satisfaction model is defined as below;

$$J = j(income, tenure, workforce\ entry\ conditions, age, age^2, gender)$$

To estimate this model, we use pooled ordinary least squaes method and fixed effect and ordered probit estimation techniques to make robustness checks.

# 4. EMPIRICAL RESULTS

This part of the thesis discusses the findings which emerged from the type of methods presented in the previous chapter. Thus, this is divided into three main sections, each of which presents the results relating to correlation between job satisfaction and work entry economic conditions.

## 4.1. The Results of Pooled Ordinary Least Squares Estimation Method

First study is about the results of pooled ordinary least squares method which estimated the parameters of three models whether or not individuals in each horizontal line are the same.

In all three model, the results of the relationship between work entry unemployment rate and job satisfaction obtained from the analysis are set out in Table 4.1. The important finding of the analysis is that work entry unemployment rate were found negatively statistically significant at ρ=.01 level. This means that an increment in unemployment rate at the time of work entry causes lower job satisfacton. Furthermore, we include additional industry and occupation dummies in model 3 because if economic conditions have an impact on industry and occupation where new graduates work and if the effect of dummies vary in average job satisfaction, this could constitute a reason for our hypothesis. In model 3, after controlling dummies, the negative sign of work entry conditions continues to survive, showing that people who entered workforce when unemployment rate is high has reported less job satisfaction in later ages compared to the ones who entered workforce when unemployment rate is lower.

Besides, satisfaction with job has a significant positive correlation with income, that is, increases in income enhances job satisfaction. Established results also indicate that female are more satisfied than male are in all models. Note that, the coefficient of tenure is only positively significant in the first model. Also, age and age square control variables have not any effect on job satisfaction.

Taken together, these results suggest important conclusions for the effect of graduating different economic conditions on job satisfaction. Below, we provide some interpretions of results established in model 3. First, when graduated from college in a recession (unemployment rate=11.7) as opposed to fair economy (unemployment rate=6.77), satisfaction of employees from their profession diminish at a level of 0.22. Second, the reduction in job satisfaction is .25, for workers that graduated in a fair economy as opposed to in job satisfaction of workers that graduated in booming economy (unemployment rate=1.31). Third, graduating in a recession as opposed to the booming economy results .47 decrease in job satisfaction. Similar explanations can be mentioned for the findings in model 1 and model 2.

We also investigate whether there is non-linear correlation between job satisfaction and work entry economic conditions by adding squared term to three models. The relationship is significantly positive at the $p = 0.05$ level for all models. This findings shows that job satisfaction decreases with deteriorative economic entry conditions up to a point and then increases.

Table 4.1: Pooled Ordinary Least Squares Overall Job Satisfaction Regressions

Overall Job satisfaction

| Variable | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Work entry unemployment rate | -0.044** | -0.045** | -0.046** |
| | (0.009) | (0.015) | (0.015) |
| Income (ln) | 0.266** | 0.266** | 0.162** |
| | (0.040) | (0.052) | (0.544) |
| Age | -0.005 | -0.005 | -0.021 |
| | (0.009) | (0.013) | (0.014) |
| $Age^2$ | 0.00007 | 0.0007 | 0.0002 |
| | (0.0001) | (0.0001) | (0.0002) |
| Female | 0.146** | 0.146** | 0.102* |
| | (0.024) | (0.041) | (0.044) |
| Tenure | 0.008** | 0.009 | 0.007 |
| | (0.002) | (0.005) | (0.005) |
| $R^2$ | 0.012 | 0.014 | 0.030 |

*ρ<.05, **ρ<.01.

[3]Models in table include control variables; work entry unemployment rate, income, age, $age^2$ , female, tenure, and year dummies but model 2 and model 3 involve occupational and industry dummies in addition with year dummies. Also, first model gives information on standard errors in parentheses and the others show robust standard errors.

Table 4.2: Pooled Ordinary Least Squares Overall Job Satisfaction Regressions with Work Entry Unemployment Rate Square

| | Overall Job satisfaction | | |
|---|---|---|---|
| Variable | Model 1 | Model 2 | Model 3 |
| Work entry unemployment rate | -0.307** | -0.307** | -0.327** |
| | (0.067) | (0.104) | (0.112) |
| Work entry unemployment rate square | 0.016** | 0.016* | 0.018* |
| | (0.004) | (0.0067) | (0.0071) |
| Income (ln) | 0.266** | 0.271** | 0.169** |
| | (0.040) | (0.052) | (0.054) |
| Age | -0.005 | -0.005 | -0.019 |
| | (0.009) | (0.013) | (0.0137) |
| $Age^2$ | 0.00007 | 0.00007 | 0.0002 |
| | (0.0001) | (0.0001) | (0.0001) |
| Female | 0.148** | 0.148** | 0.105* |
| | (0.024) | (0.04) | (0.043) |
| Tenure | 0.008** | 0.007 | 0.006 |
| | (0.002) | (0.004) | (0.005) |
| $R^2$ | 0.015 | 0.015 | 0.031 |

*ρ<.05, **ρ<.01.

[3]Models in table include control variables; work entry unemployment rate, income, age, $age^2$ , female, tenure, and year dummies but model 2 and model 3 involve occupational and industry dummies in addition with year dummies. Also, first model gives information on standard errors in parentheses and the others show robust standard errors.

## 4.2. The Results of Fixed Effect Estimation Method

Some of researches examine job satisfaction using fixed effects model because pooled least squares estimator may overlook unobserved effects and this situation may cause correlation between error terms and explanatory variables over different time periods for the same units (e.g. Haile, 2015). Therefore, we estimate same model using fixed effect method to look into whether it provides different results or not.

As it can be seen from the table 4.2, work entry unemployment rate is statistically negatively significant related to job satisfaction, that is, workers are less satisfied their jobs as work entry economic conditions get worse. These findings may help us to understand how individual's job satisfaction is changing according to the state of the economy. In other words, the coefficients of work entry unemployment rate variable in model 6 and model 7, respectively, depicts that graduating in a recession (unemployment rate=11.7) as opposed to in a fair economy (unemployment rate=6.77) results an increase in job satisfaction from .33 to .37. The other outcome on the coefficient is that employee graduates in the fair economy as opposed to booming economy (unemployment rate=1.31) results an increase in job satisfaction from .37 to .41. Another conclusion that can be drawn is that graduating in recession as opposed to the booming economy is caused .70 and .78 shortening in worker satisfaction with their job.

We also analyse these two models seperately, using random effects model to resort Hausman test. In both models, we reject the null hypothesis that there are random effects at ρ=.01 level and accept the alternative hypothesis suggesting the presence of fixed effects. This supports the results of fixed effect analysis we have done above.

We analyze non-linearity of work entry unemployment rate, as mentioned above, by using fixed effects method for two models. There is a significant positive correlation at the p = 0.01 level for all of them. This findings show~~s~~ that job satisfaction decreases with deteriorative economic entry conditions up to a point and then increases.

Table 4.3: The Results of Fixed Effects Analysis for Overall Job Satisfaction

| | Overall Job Satisfaction | |
|---|---|---|
| Variable | Model 4 | Model 5 |
| Work entry unemployment rate | -0.068**<br>(0.014) | -0.076**<br>(0.015) |
| Income (ln) | -0.073<br>(0.054) | -0.126*<br>(0.059) |
| Age | 0.017<br>(0.042) | -0.0012<br>(0.049) |
| $Age^2$ | -0.0006**<br>(0.0002) | -0.0006<br>(0.0002) |
| Female | (omitted) | |
| Tenure | 0.001<br>(0.007) | 0.002<br>(0.007) |
| N | 11186 | 9327 |

*ρ<.05, **ρ<.01.

[4]Models in table include control variables; work entry unemployment rate, income, age, $age^2$ , female, tenure, and year dummies but model 5 involve occupational and industry dummies in addition with year dummies. Also standard errors areestimated robust in parentheses.

Note: Gender omitted because of collinearity.

Table 4.4: The Results of Fixed Effects Analysis for Overall Job Satisfaction with Work Entry Unemployment Rate Square

| | Overall Job Satisfaction | |
|---|---|---|
| Variable | Model 4 | Model 5 |
| Work entry unemployment rate | -0.331**<br>(0.091) | -0.345**<br>(0.099) |
| Work entry unemployment rate square | 0.017**<br>(0.005) | 0.017**<br>(0.006) |
| Income (ln) | -0.071<br>(0.054) | -0.126*<br>(0.059) |
| Age | 0.0156<br>(0.042) | -0.0008<br>(0.049) |
| $Age^2$ | -0.0006**<br>(0.0002) | -0.0005*<br>(0.0002) |
| Female | (omitted) | |
| Tenure | 0.001<br>(0.007) | 0.001<br>(0.007) |
| N | 11186 | 9327 |

*ρ<.05, **ρ<.01.

[4]Models in table include control variables; work entry unemployment rate, income, age, $age^2$ , female, tenure, and year dummies but model 5 involve occupational and industry dummies in addition with year dummies. Also standard errors areestimated robust in parentheses.

Note: Gender omitted because of collinearity.

## 4.3. The Results of Ordered Probit Overall Job Satisfaction Regressions

In literature, as the dependent variable is seen ordinal (i.e., job satisfaction of 4 is not twice as high as job satisfaction 3), economists most often have predominantly run ordered probit method for these type of estimations (McKelvey and Zavoina, 1975). The results obtained from the analysis are presented in table 4.3. The purpose of analysis is to show that the results of other two methods are cohorent with this method.

Previous methods evaluating the relationship between job satisfaction and work entry conditions presented significant negative results. The coefficients of work entry unemployment rate in model 6 and model 7 is found consistent with previous results. According to results of two analyses, job satisfaction is higher with lower work entry unemployment rate. Another possible outcomes are that effect of being female is significant for both models and this means that female's satisfaction with their work is larger than that of their male counterparts. The effect of tenure is found only significant in model 6.

To sum up results for other variables realted with job satisfaction, previous studies evaluating job satisfaction provided inconsistent results on gender, income, age, age square and tenure. The current study finds that age and age square are insignificant for all models except for the age square in fixed effect analysis that contains only year dummies. A finding to emerge from the analysis is that female are more satisfied with their jobs than male are in all models. Another finding is that tenure has no significant relationship in the majority of the results. Although income has been found significantly positive effect on job satisfaction in pooled ordinary least squares analysis, interestingly, it has insignificant effect in other estimating methods. In contrast to Bianchi (2013), the surprising aspect of the result in the analysis is that work entry unemployment rate associate with job satisfaction statistically significantly nonlinear. This means that job satisfaction decreases with deteriorative economic entry conditions up to a point and then increases.

Table 4.5: Ordered Probit Overall Job Satisfaction Regressions

| | Overall Job Satisfaction | |
|---|---|---|
| Variable | Model 6 | Model 7 |
| Work entry unemployment rate | -0.061** | -0.063** |
| | (0.014) | (0.015) |
| Income (ln) | 0.050 | -0.023 |
| | (0.048) | (0.053) |
| Age | 0.022 | -0.002 |
| | (0.014) | (0.015) |
| $Age^2$ | 0.0003 | 0.00003 |
| | (0.0001) | (0.0002) |
| Female | 0.203** | 0.161** |
| | (0.044) | (0.050) |
| Tenure | 0.009* | 0.009 |
| | (0.005) | (0.008) |
| N | 9327 | 11186 |

*ρ<.05, **ρ<.01.

[5]Models in table include control variables; work entry unemployment rate, income, age, $age^2$ , female, tenure, and year dummies but model 7 involve occupational and industry dummies in addition with year dummies. Also standard errors are estimated robust in parentheses.

# 5. CONCLUSION

Our study sets out with the aim of assessing the effects of work entry economic conditions on individual job satisfaction. Data for this study is collected from British Household Panel Survey which conducted annually from 1991 to 2008.

Much of the research up to now has estimated job satisfaction based on income, hours of work, individual and job characteristics. However, Bianchi (2013) investigate the influence of work entry unemployment rate on job satisfaction and hypothesize that "Individuals who go through preliminary work experience over the course of recession years may feel more pleased with their jobs than those who have first business in recovery times" and "they may less preoccupy on the alternatives of current situation", both leading a positive effect of entering workforce during worse economic conditions on job satisfaction. She shows that as work entry unemployment rate increases, American employees graduated from college during slack economic times are more satisfied with their jobs even when years after these early workforce experience. This paper questions the universality of this finding and investigates this relation for a country with a better functionning welfare system. In a better functioning welfare system, the explicit and implicit cost of unemployment may be less. Thus, it is possible for whom entering workforce in a time with higher unemployment rates not to feel very grateful for their jobs Moreover, those who enter workforce in worse economic conditions do not have opportunity to be selective in their initial jobs. Since initial work positions do affect later careeer prospects, it is possible for whom entering workforce in worse economic conditions to be less satisfied in their later jobs. The findings presented study for British worker support the later hypothesis. The established coefficients in our study reflects statistically significant negative relationship between job satisfaction and work entry economic conditions. This suggests that an increment in work entry unemployment rate causes lower job satisfacton even years after these early workforce experiences. This result is robust across Fixed Effect and Ordered Probit Estimation and continues to hold even after controlling for effects of income, gender, tenure, age, etc.

In conclusion, findings of our study suggest that work entry conditions have a negative effect on later job satisfaction of British college graduates, which contradicts with earlier established results for U.S. college graduates. In order to shed light on these controversial results, we suggest to analyze the relationship between work entry conditions and job satisfaction for other countries as further research.

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# CURRICULUM VITAE

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