THE IMPLICATION OF MINIMUM WAGE REGULATION ON EMPLOYMENT RATE IN SELECTED EUROPEAN COUNTRIES: A PANEL DATA STUDY

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ABSTRAK

Peranan dasar gaji minimum terus dibahaskan dan dipersoalkan sehingga kini dalam konteks kajian ekonomi antarabangsa dan sumber manusia. Penyelidikan ini meliputi kajian empirikal terdahulu dengan menyediakan beberapa bukti daripada ujian panel data dari tempoh 1999-2008 terhadap Populasi Bekerja bagi negara-negara terpilih di Eropah. Dalam kajian ini, pembolehubah bersandar adalah kadar pekerjaan dan diuji dengan pelbagai pembolehubah bebas yang kuat mewakili bekalan buruh dan sisi permintaan, bersama-sama dengan faktor institusi yang meliputi gaji minimum, penyertaan buruh dengan setiap tahap pencapaian pendidikan, produktiviti buruh dan tahap perlindungan pekerjaan. Model ekonometrik telah ditakrifkan dengan menggunakan *Pooled Ordinary Least Square*, *Fixed Effects (FE)* dan *Random Effects (RE).* Seterusnya dilanjutkan dengan ujian tambahan *Hausman Test (HT)* bertujuan menentukan antara kesan rawak dan tetap bagi menguji dan menganalisis kesan gaji minimum pada pekerjaan secara umumnya di Eropah. Kesimpulan utama kajian ini boleh dirumuskan seperti berikut: i) gaji minimum telah memberi kesan positif ke atas pekerjaan di Eropah tahun 1999-2008, ii) kesan buruk bagi populasi perkerjaan biasanya paling terjejas pada buruh yang mana kurangnya pencapaian pendidikan dan iii) terdapat beberapa bukti bahawa keseragaman gaji minimum juga memberi impak buruk kepada pekerjaan disebabkan oleh faktor-faktor lain seperti produktiviti buruh dan program perlindungan pekerjaan. Akhirnya kertas kajian ini menyentuh beberapa dasar alternatif dan memberi tumpuan kepada implikasi dasar polisi penduduk yang bekerja di Eropah demi memastikan kestabilan ekonomi.

ABSTRACT

The role of minimum wage policy continues to be debated and experienced in the literature on international and human resources economies. This paper extends the previous empirical studies on the issues by providing some evidence from panel data studies from period 1999-2008 on working population of selected countries in Europe. In this study, the determine dependent variable is employment rate and to be tested with various of strong independent variables which represent labor supply and demand sides, together with institutional factor that contains minimum wage, labor participation with each level of educational attainment, labor productivity and strictness of employment protection. The econometric model has been defined by using *Pooled Ordinary Least Square, Fixed Effects (FE), Random Effects (RE).* In further extend *Hausman Test (HT)* test is needed to estimates random and fixed effects to check and analyze the impact of minimum wage on employment generally in Europe. The main conclusion of the study may be summarized as follows: i) minimum wage has had a positive impact on employment in Europe of year 1999-2008, ii) the adverse effect on working population are generally goes to labor with very least educational attainment and iii) there is some evidence that a uniform minimum wage may be particularly harmful to employment due other factors such as labor productivity and strictness of employment. Finally this paper draws some alternative policy implications for further studies to focus on the working population in Europe, to ensure the economic stability.

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ABBREAVIATIONS

UK	United Kingdom
EU	European Union
ILO	International Labor Organizational
MW	Minimum Wage
OECD	Organization for Economic Cooperation and Development
GDP	Gross Domestic Product
MRPL	Marginal Revenue Product of Labor
EPL	Employment Protection Legislation
KILM	Key Indicator of the Labor Market
OLS	Ordinary Least Square
RE	Random Effect
FE	Fixed Effect
HT	Hausman Test
CLM	Classical Linear Model
BLUE	Best Linear Unbiased Estimation.

CHAPTER ONE

INTRODUCTION

1.1 Background

A system of minimum wages comes along with other criterions of economic and social policy address to reduce pay differential for a standard decent living in some places. There are varieties of factors influence wages, but basically the more money you gain at jobs, the greater ability to afford living cost and meet the needs. Likewise, there are many other factors need taken into consideration before setting the wage like wage differential, elasticity of demand, political power and other impact as well as incentives to get jobs, wage equality and so on. Many countries in Europe operate statutory or collectively determined minimum wage rate. The rate of minimum wage is regularly adjusted to reflect developments in labor market. The amount is not necessarily to be updated every year, nor does an adjustment always result in wage increase. However, binding minimum wages are in place in several union and occupations. Based on 2013 data that has been updated by *Eurostat*, the highest minimum wage can be found in Luxembourg, starting in year 2012 with 1,290.21 euro monthly. It consistently increases on average 48.67 euro in each year within 12 years policy implementation. Countries like Netherlands, France, Belgium, Ireland and United Kingdom (UK) follow this ranking with wages more than

1,000 euro until can go up reaching to approximately 1,800 euro per month comparing to the other European countries.

Main argument is that a higher wage increment would cost jobs. Other nation like Greece, minimum wage remains in higher level although the unit labor cost has decreased in the country and gradually slowing down the development. However, the cost of living varies extensively between countries. In dispersion of the top five ranking with highest minimum wage in European countries, Luxembourg dominated on the first place and United Kingdom placed in least increment among the countries. According to the United Kingdom's consumer price, it is 14.93 percent lower than Luxembourger's. The reduction reaches until 28.20 percent in local purchasing power. With all over that, purchasing power is important because all else being equal, inflation decreases the amount of goods or services that one person be able to purchase which commonly used in currency when national accounts aggregates are expressed.

Possibly the most important issues in minimum wage selection is choosing the right figure to implement right away suiting with current economic performance. Hence there is no single uniform minimum wage rate across the country. The enactment is actually not a new thing. New Zealand pioneered the national pay floor in 1894 and followed by Australia in 1896. Gradually Massachusetts was first to pass a minimum wage law in year 1912 and leading in United States region. Began in year 1920, Southern Asia has also followed to endorse setting up boards for determining minimum wages for each industry by then The Constitution of India pursue to establish the structure of minimum wage and conclusively interpose the Minimum Wage Act in 1948. Afterwards,

The Wage Board in India was constructed whereby representatives of workers, employers and independent members participate by giving both central and state government province in fixing wage. It remained until 1923, where 15 other states that had minimum wage laws, along with the District of Columbia and Puerto Rico. In addition, we can see the trends across Europe focuses on wage moderation, the minimum wage or decentralization of collective bargaining.

In the majority of countries in the European Union, systems of wage formation are based on collective bargaining. Contradict to autonomous collective bargaining; a proportion of the workforce is not covered by these agreements or the agreed minimum wage that perceived to be adjusted. Within the European Union, France, Luxembourg, the Netherlands, Portugal and Spain have a statutory national minimum wage. While in Belgium and Greece, the national minimum is established by collective agreement but then becomes generally binding. In the country of Europe that pay minima by legally binding agreement at industry level are in Italy, Germany, Denmark, Austria, Finland and Sweden. Slightly in Ireland, 15 sectors with low union density by Joint Labor Councils are also legally binding. Same thing happen in the UK, the Wages Councils used to set minimum wages in 26 low wage sectors, but these were abolished in August 1993. Therefore, the only remaining sector where a minimum wage is set is agriculture.

Generally minimum wage legislation now exists in more than 90 percent of all countries, although the laws vary greatly. As overall in European nation, minimum wages are determined by the provisions of a collective agreement which presenting effect

nationally. Some of nation however, based on a standard number of hours worked per week. The rate of pay for adult workers is determined independently, and it applies to workers aged 23 years and older. It is important phase to document that international differences concerning in the European countries towards wage floor policy. Generally it is a tool to stimulate internal demand, and hence economic growth in the Union towards better and more even social barrier integral, and promotes efficiency for employers to compete more in terms of the quality of their products and services, thus reducing costs and wage competition.

1.2 Problem Statement

Labor force participation is a necessary but not sufficient prerequisite for escaping poverty. Millions of people live in poor families despite extensive labor force activities by family members. A reasonable minimum wage helps to set expectation for reasonable and fair treatment of the employees working in low income jobs. A primary policy objective of minimum wage laws is to reduce poverty and inequality, but there is only little empirical evidence that meet this goal. Like the other countries, minimum wage has been used as an instrument or poverty reduction tools but there are many arguments, especially on distribution issues whereby some person gain and others will lose from a minimum wage hike.

One of the main arguments made to support the use of minimum wage is that it forces business to share some of the wealth they accumulate with the labor force that produces it. Rationally some rarely argue that the minimum wage can help to cure poverty problems with higher income. But how far reinvestment of earning back into

economy keep economy stable and in healthy conditions by using this economic tools. Basically minimum wage may introduce slackness into the labor market and ultimately will change structural by raising unemployment rates. Particularly, when the law mandates employers to increase their hourly wage rates, businesses and firms are forced to manage an increase in the cost of labor, which a key factor of production. As the cost of production increases, the labor tends to get retrenched in order to reduce the cost by especially those who are vulnerable and unskilled workers.

It is less clear, though, that a higher minimum wage would do anything to boost economic activity. It is also to be claimed that derive demand of local product resulting an increase in formal sector employment and a decrease in informal employment. This phenomenon is consistent underlying mechanism of big push. On the firm's side, minimum wage may be a burden because of employers needs to pay their workers according to new adjustment rate of business profit. As a result they put more cost in the hands of customer who spend it and increase the production price. Thus, those workers that did not receive minimum wage benefit are the most affected, especially the poor. The poor often work in uncovered jobs, so an understanding of the coverage minimum wage laws is also important.

In most developing countries, majority of the poorer involves themselves in the informal sector including informal salaried employment, self-employment, unpaid work and commonly involved in agricultural sector. In addition, recent studies suggested that minimum wage may affect informal sector workers due the linkages between the formal

and informal sectors in labor and product market. This is suggests that although only half of the labor force is covered, the whole labor force may affect of minimum wage laws. Hence, some rarely argue that the minimum wage can help to cure poverty problems with the existence an informal economy stimulate economic growth and leads to create formal economy with strengthen the ability of poor to excess the opportunities.

Other factor that considered is level of educational attainment among labor participation. Higher unemployment in general and widening unemployment rate between educational attainments provides individual greater incentives to invest in education in order it help workers to find jobs in difficult economy where jobs are scarce. This is due the fact that those with more education typically held jobs. Besides, persons are out of the labor force for an extended time is often hard for them to re-enter because their skills no longer match labor market demands.

An analysis of the effects of employment protection regulations on employment certainly needs to take into consideration other educational institutions too, as they are often highly correlated and their effects interact. Many have argued that the protection impose costs on society because of its adverse impact on job opportunities on socio demographic, especially women and young workers. Thus, it also imposes costs on firm for adjustment levels of the workforce. This suggest that the effects of employment protection will distort labor market flows on working opportunities thus will disturb wage determination.

Other factor that should be treated with caution is labor productivity. Productivity is defines as the amount of output produced per workers used. Although higher wages lead to greater effort from workers, growing in productivity will probably reduce the amount of labor employed to produce the same amount or more. This is due it definitely can save the production cost a lot better to the firm. So higher growth rate in domestic does not indicate that there will be large creation in jobs out here, in fact the rapid acceleration in productivity can contribute to higher income growth in other way round. Some may argues that higher productivity derive increases in productivity demand and shift to product in a greater scale, thus widening employment sectors at the same time that the productivity was growing.

1.3 Objective of the Study

The general objective is to investigate whether minimum wage policy is the main factor that contributes to the changes of employment rate as already implement widely in European countries.

i. To identify the effect of minimum wage on employment rate.
ii. To examine other variables affecting the influence in changing employment rate which are level of education, labor productivity and strictness of employment protection.

1.4 Significant of the Study

Does a minimum wage policy play a helpful role in the process of economic growth? In various minimum wage research data they commonly correspond in the three ways of

characteristic. First, they are covered in the sample of a lower average age like basically a teenage worker. Second is that, on average there is more female employment and third usually lower levels of educational attainment than workers with higher wages. Moreover the problem has become decisive especially in agriculture economic in recent days until now due the poor are commonly involves in uncovered sectors. This question has become enduring the credibility of policy relevance when trying to decide the relevance wage accession in order to grade up the quality of life among these people.

This study tends to add on existing work by looking beyond contribute to the existing body of economic literature in human resources and development economic in the particular number of ways. First, the relationship between employment rate, educational attainment of labor participation and minimum wage will be evaluated to clear up the discrepancy between major views of the ideas. Second, there are numerous empirical studies find negative effects of minimum wages using different types of economic models. This study want to discuss why most of the academic evidence discovers with negative effects and discusses why some studies may produce seemingly positive results. The institutional factors like strictness of employment protection and labor productivity that can signify labor supply side will be added as a proxy in further extend the econometric modeling. Third, studying of the European Union (EU) member experienced is useful, due the fact that they have already under the implications scheme for a statutory minimum wage over years and until now still practicing it. On top of that, most of under developing countries of non EU members have problems with data limitation, thus regardless only few former research studies available.

1.5 Scope of the Study

This study focuses on the relationship of employment rate on minimum wage regulation, labor productivity and participation rate, strictness of employment protection and also different level of educational attainment in European countries as selected randomly, which covers the time period from year 1999 until 2008. The model specification of this study is based on a panel data approach, using both time-series and cross- section variation in the data to identify minimum wage effects in those states relative to other state in which other variables are holding constant.

1.6 Structure of the Study

This study is organized as follow. The introductory chapter provides an overview on the background and history of the minimum wage in the past decades. In Chapter 2 documents analysis of relevant evidence to support the argument of implementing the laws. Chapter 3 reviews the theoretical framework that relevant to the study. In further extend, Chapter 4 provides previous literature reviews that can relate and help to come out with better conclusions with the study. Then, the econometric models and methodology that to be utilized in this paper are described in Chapter 5. This chapter also provides detailed information estimation techniques and the data collection procedure. Chapter 6 presents the empirical results of the analysis and interpretation of the results. Finally, Chapter 7 provides discussion and conclusion of this study on the direction of further research. Policy implications and recommendations will also conclude in this chapter.

CHAPTER TWO

Minimum Wages and Labor Force Composition in Europe

2.1 Introduction

Minimum wage plays an important role across Europe in forming the wage structure especially the lower paid receiver. However the dimension of effect is basically depends on great deal of unite and fundamental interaction with structures of collective bargaining, also involvement and powerfulness of the parties. First of all the understanding on competing movement of government, union and employers towards minimum wage enactment is crucial for achieving better agreement. For about 90 percent of International Labor Organizational (ILO) member countries have country wide standard for minimum wage excluding Norway, Switzerland, Denmark, Iceland, Sweden, Finland, Austria, Italy, Cyprus, Germany, Montenegro and Macedonia do not standardized their wage floor. Hence, employers and union in each country deviates the prospect towards minimum wages appoint alteration on employed salary prescription which involves various transfer payments and taxes across Europe. Although the magnitude of minimum wage is not tiding every year and always rising, small population of workforce especially in low-skills jobs only requires minimum educational attainment, has direct impact. It represents an important benchmark for earning expectations and employment status. In other words, the minimum wage is one of various economic indicators for showing the prosperity that holds on every state in Europe. Therefore, the

credibility of minimum wage policy is likely continuing in conflict and recurring in debates.

2.2 Europe Minimum Wage Regulation

Constructing the wage composition from the lower end would lead to a more democratic style of distribution in income and stabilize the wage allocation. This can be achieved by a European minimum wage target according to which, in every country, the minimum wage and influenced either by law or by collective agreement approximately at least 60 percent of the national or federal middling wage. Credibly, the most crucial structural cause of the current crisis is the mass increase in income inequality besides financial markets juncture. Although, according to researchers in Brussels, minimum wage policy that is designed by a single national minimum rate are resulting less powerful than others in protecting low paid labors. In any case of complex system in lower end of the wage distribution are tends to grow proportionately high wage floor respectively.

In fact, there are large divergences of numerical quantity of the minimum wage that every labors in Europe receive; a fair or decent wage per hour of work. The existence of low wage is being concerned by The Community Charter of Fundamental Social Right for Workers; since 1989 adopted by EU which holds the prescript that a fair remuneration must be paid to every line of work. It is apprehended by EU Social Charter the concept of fair numeration that substance for an adequate standard of living for labors. Like recently on March 2011, Euro-Plus Pack plan comes into strategies by integrating with 17 member states of EU to monitor wage and measures productivity trends into fostering

competitiveness and fiscal strength of each country. Other goals that includes being concerned are fostering employment, contributing the stability of public finance, reinforcing financial stability and additional fifth issues is tax policy coordination.

2.3 European Nation Minimum Wage Characteristics

On the other hand, to understand more clearly the competing approach of government, union and employers towards minimum wage regulation, it can be divided into three main forms of minimum wage (MW) which are Statutory, Extended and Collectively Agreed (Eldring and Alsos, 2012). In statutory MW it is classify either regulated by legislation or pursuant to legislation. This explains that how wage can be varying from one country to another. Instead, decent living standard can be altered more easily based on each different characteristic of economic geography. Age also can stratify what amount should the labor received. Basically the less seniority will get lesser pay.

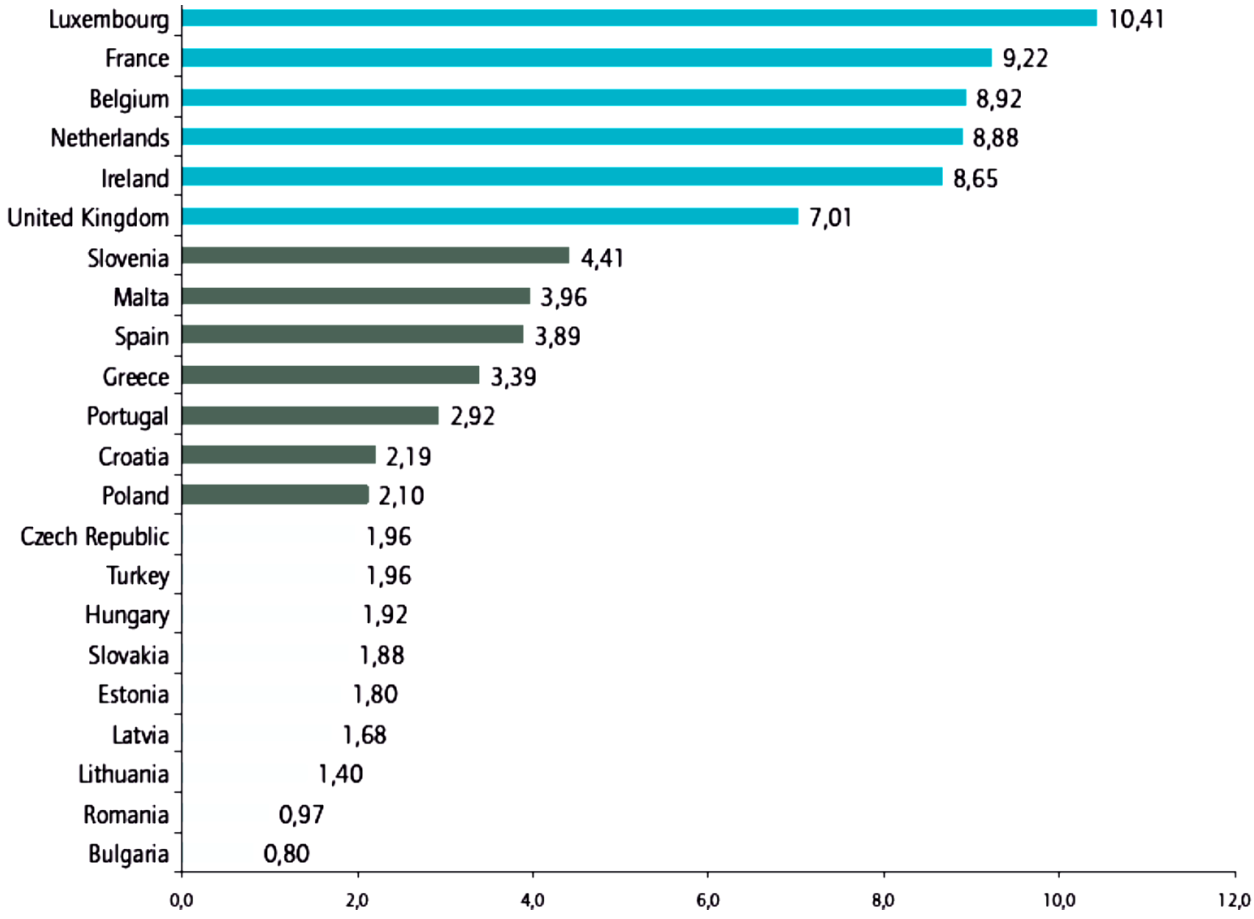
The second type is Extended MW, basically it covers the extension of collectively agreement where the usual procedure is generally binding when applies to minimum wage and other provision. The entire industries and profession that requires following under the agreement are not exceptional as well as major part of parties to the agreement and their members. It same applies with non-unionized enterprise although the bargaining from employees is less powerful, especially in unorganized enterprise rather than organized one. Last but not least, the third types of minimum wage are completely varies due the Collectively Agreed MW must be set in agreement that wage floor requisite should be higher proportion than its statutory counterpart. Nonetheless, the rule is only

obligates to the parties to the collective agreement, and compulsory to its members as referring to current wage information.

Despite the fact that there are many well structured strategies to improve equal right in terms of wage, jobs opportunity and poverty alleviation (social and economic issue) in EU, it is apparently hard to measure because of the existence of unequal economic background and capability of each country. Nevertheless, an increasingly integrated European economy is sending out positive sign. In Figure 2.1 it understandably demonstrate that the minimum wage regulation is still carry on in EU economic policy for year 2012 right until now, although some argues its effectiveness.

The minimum wage rates per hour that is placed for the statutory regulation are settled on a full time working. It is ordinarily consume 36 to 40 hours a week, devolve on which sectors they entered. Wage that the workers eligible also may lower if they are working on a part time basis and inversely if working more hours. Based on Figure 2.1 also, Luxembourg dominates by relatively the highest minimum wage which constitute 10.41 euro per hour which leads the other top five European countries which are France, Belgium, Netherlands, Irelands and United Kingdom. These countries can be concluded as the first group with relatively high minimum wage between 7.01 and 10.41 euro per hour. Giving an example in the country of Netherlands, if the working persons are 65 and below, they are entitled for Dutch minimum wage even though for foreign national, plus holiday allowance. For the record, the employers are illegally to pay them less than tha

Figure 2.1 National Minimum Wage in Europe 2012 (per hour, in Euro)



Sources: WSI Minimum Wage Database (2012).

Moreover, to justify that the workers have been receiving the right amount of minimum wage, their Ministry has set some guidance that will help the working population to compensate. In the contract, it must be stated that the basic wage that both are agreed to be paid and for extra allowances, they may get extra allowances if they have performed particular task, working in shift or extra hours, on call and etc. While any performance-related benefit it must be paid out every time when payment term comes up. In terms of the absolute level of the national minimum wage, it is possible to identify for the second group within EU as well. This second middle group consist Slovenia, Malta,

Spain, Greece, Portugal, Croatia and Poland with minimum wage between 2.10 and 4.41 per hour. Finally, the rest countries in the third group, with relatively low minimum between 0.80 and 1.96 Euros per hour are entirely central and Eastern European countries. Only Slovenia is above the EU average of 40 percent. In Czech Republic and Turkey, these two countries have reached a level comparable to that most central and eastern European countries with 1.96 Euros in each additional hours of work.

Even though only small dimension of labor receive the minimum rates, adjustment to this rate will have an effect on several people out of groups. Basically, the minimum wages have had enlarged the disparities on wage differential between various groups. In evidence of the small country like Lithuania has multiple ranging (scale 1 to 11) of minimum rate which determines their public salaries. So any kind of changes in public salaries will give indirect impact as well to non groups such as price of goods, fiscal policy, job opportunity and many other influence factors.

Minimum wage level relative to median earnings measurement following the Kaitz Index gives better alternatives indicator for cross-national comparison due the index convey the relative value of the statutory wage itself, hence statistically measure up minimum wage as a percentage of the national average or median wage. Furthermore, according to Schulten (2012), by totaling average wages arithmetically and calculating mid-point of the wage distribution to determine the medium wage, it will comes out the result whereby half of the labor earns more and half of them earn less than the previous figure.

Based on 2010 statutory wage of full-time employees; compiled in OECD (Organization for Economic Cooperation and Development) database in percentage of median and average wage, Turkey and France have high level of minimum wage which dominates (66% and 60% of the median roughly); while the other side of median level is in (between 58% and 52%) represent countries like Slovenia, Portugal, Latvia, Belgium and Ireland. The rest of EU states a low level which entitled (49% and below). Although, Czech Republic entitled the worst median earning in that particular year, but the country still achieve more than half percent (35%) than Turkey and France respectively.

Referring to Schulten (2012), behind Turkish high value it is manipulated by rapid changes in income polarization, thus massive workers involving in informal economy which represent their particularly whole standard wage. So further extend in Chapter 3, some relevant literature reviews need to be presented which hold that how far informal economy can be one of influence factors that enhance the capacity of the economy of these average income receivers in order to generate productive employment and also receive greater income through minimum wage application that determines the policy effectiveness.

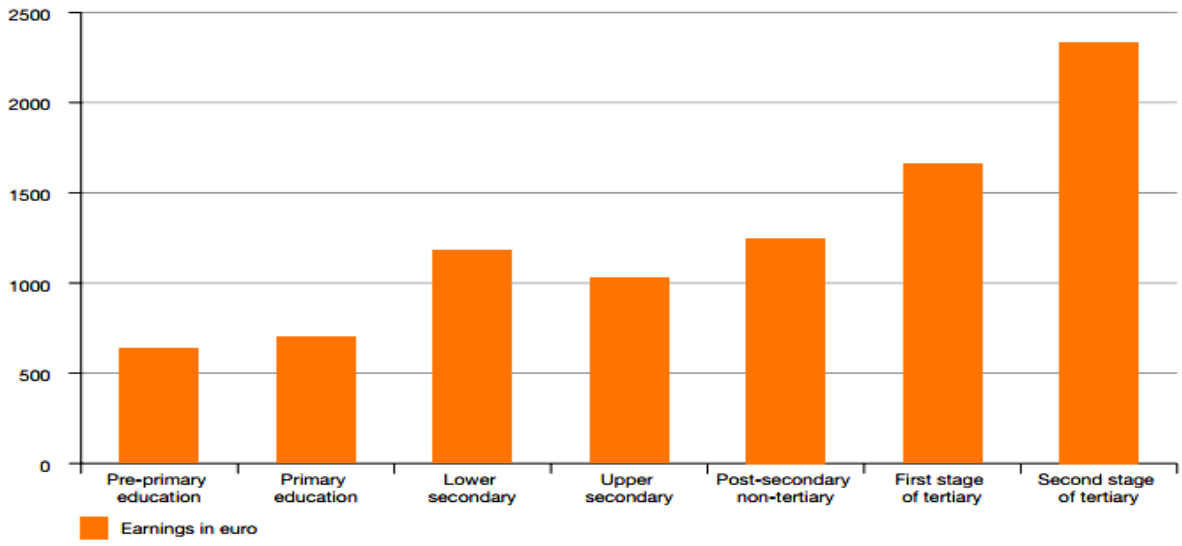
2.4 Education and Human Capital in Europe

Human capital and education institutions in Europe also need to considerate within a common framework and must confront a crucial fact that these factors differ across countries. The information value by a comparison of minimum wages in absolute terms in euro currency is, however, limited. Yet this observation plays an important role in

understanding labor market experience of Europe by minimum wage adoption. Broadly speaking, this economic policy will reflect into the transition of changes in aggregate human capital, whether increases or decreases since there will be spike in the wage distribution at minimum wage due all agents are competing for the eligible required skills. It will determine who candidate is most deserved to be hired. Additionally, constrained individuals who disqualify for minimum wage benefit abandon schooling and left become no jobs.

Educational attainment could be one of the factors that influence the slowdown of earnings. This is because it can provide the basis for individual development, both affective and cognitive. Figure 2.2 illustrate that trends in job quality can increase with the level of education. It is to be expected since education is very important in opening up access to better jobs**.** This linkage will

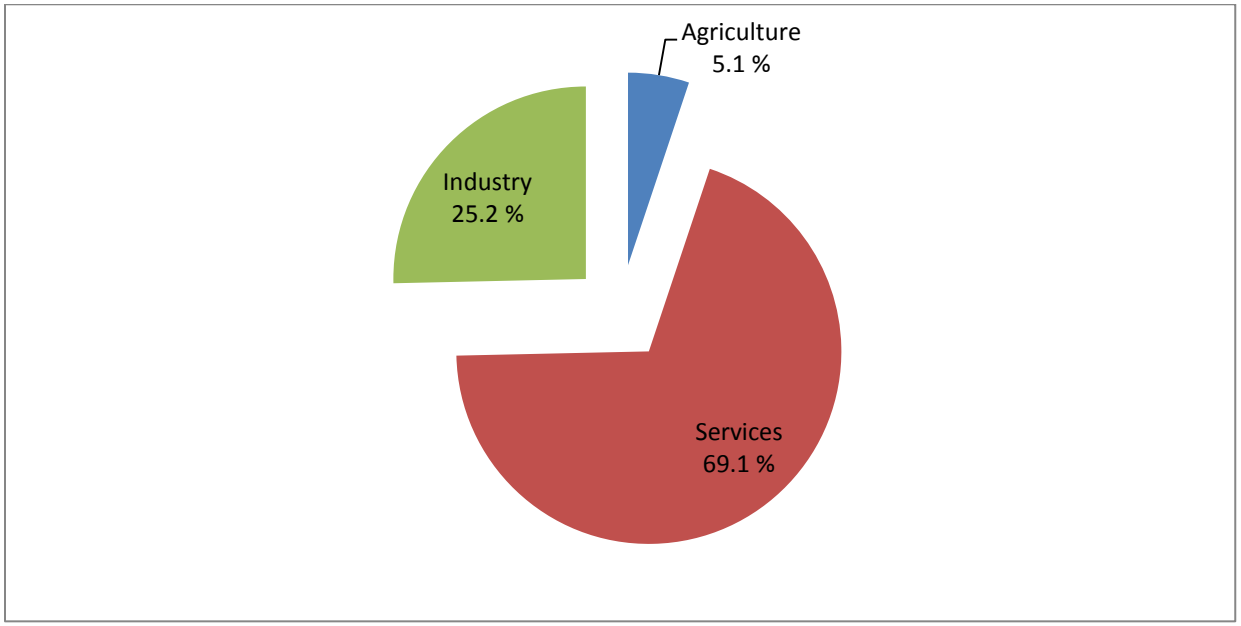
Figure 2.2 Job Earning in Each Level of Education in Europe



Source: Eurofound, Trends in Job Quality in Europe (2012).

appear to be even more relevant since Fields (2003) studies did found out a positive correlation between economic growth and decent work where as expected, professionals and managers have higher earnings and prospect for further promotion than those who are involves in agricultural, craft workers, machine operators and clerks. What sometimes overlooked is that gains from income alone and likely to be limited and other relevant factors need to consider without any skeptical. In different view of aspect, jobs ranking in terms of working time quality represent inversely as analysis did by Eurofound (2012) may also utilized some other workers out here that enter in each different kinds of sector have become more diversified, illustrate by (Figure 2.3).

Figure 2.3 Composition of Employment by Economic Activity

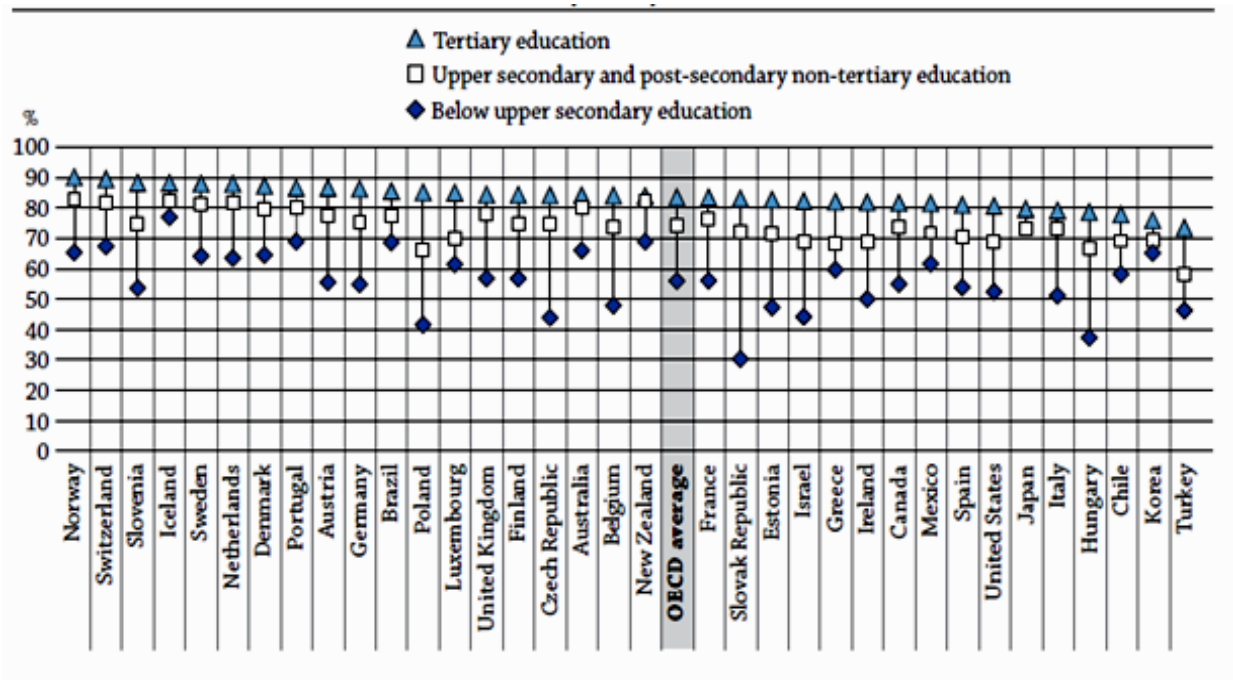


Source: Eurostat (2011)

In OECD countries, it depends on sufficient supply of well-educated workers as it is really happen in most developing countries nowadays. Based on the OECD database in

2009 (Figure 2.4), Turkey have the lowest upper secondary and post secondary non-tertiary education holders as well as tertiary education but have similar ratio to each educational attainment levels. This will give employment advantage especially women with tertiary education, where indicates that at least 40 percent higher than those are not attained upper secondary education. Indeed, unemployment rates for those with tertiary education remain below 10 percent, even so unemployment among upper secondary education holder is going above 10 percent as comparing to OECD average. As a comparison, let say if minimum wage is being applied equally in each country of Turkey and Slovak Republic (which represent largest population of upper below secondary education),

Figure 2.4 Percentage 25-64 Year Olds in Employment by Level of Education (2009)



Source: Education at Glance (2010), OECD iLibrary.

the minimum wage benefit can be distributed massively to Slovak Republic rather than Turkey. In advanced country like Korea and Japan, all level of education balances. Nevertheless, these countries are likely use capital incentives over labor incentives that using high-tech machine operation which requires higher skills demanded after all. Practically, raising level of education will influence fiscal effects.

As educational attainment increases with earnings, individuals with higher level of education typically consume more goods and services, hence tax paid increases as much as their consumption. Summing up, financial returns on investment in education are significantly diverging among countries. In Ireland, Korea, the Slovak Republic and the United States, this level of education generates over USD 150 000; but in Estonia, Finland, Germany, Poland and Turkey, the net benefits are less than USD 40 000 as based on OECD statistic in 2011.

2.5 Related Minimum Wage Issues and Trends in Europe

In order to translate the right to a fair wage into practice, employment issues are most famous fundamental judgments among decision makers and economist. And indeed there are many previous studies associated that national minimum wage systems are coming under pressure. Small and medium firms characterized to employ more low and average wage workers probably having major intense additional cost. Mischievously, the rapid growth of new employers enforced the minimum wage to be standardized properly and turns a bit more challenging for low cost firms to compete on the basis very low wages or following informal payment methods. This is due to prevent labor turnover that may

reduce attractiveness of companies due job security issues. Gradually, it discourages informal business operation and basic legitimate modular in the labor market, altering better formal terms and condition of employment.

In other experience, productivity is relatively giving impact to employment vise versa. Although it is more robust in other contribution factors, but there is significant evolution of labor productivity and employment level separates them as referring to Table 2.1 below.

Table 2.1 Statistic for Country Variation between Labor Productivity and Employment

	Labor productivity	Labor productivity growth from 2004 to 2007	Employment	Growth in employment
GER (base)	1.00	0.05	1.00	1.77
DNK	0.97	0.05	0.08	3.67
ESP	0.93	0.05	0.59	1.82
FIN	1.09	0.09	0.07	2.00
FRA	1.04	0.06	0.70	2.35
ITA	0.95	0.01	0.81	1.35
JPN	0.92	-0.01	2.05	0.97
SWE	1.09	0.17	0.13	3.17
UK	1.00	0.11	0.88	0.65

Source: Kroman, Skaksen and Sorensen (2008)

Alongside potential tension, one of the article published by ILO in 2013 stated about *Global Employment Trends Facts and Figures for Developed Economies and European Union*. By referring the article content, approximately 8.6 percent are left out of labor participation in year 2012 and expected to rise further on this year. However it starts to decline from year 2014 onward. Not only particular difficulties, almost 34 percent of people who are actively seeking jobs are remaining unemployed for 12 months and longer. The crisis is spreading more widely turn firms in the many regions unwilling to hire due unstable economic environment, in evidence making additional of 28.5

percent of jobs seekers than before the crisis. Employers may also worry that it introduces pressures outside their control forcing them to act more strictly in employment protection. Regarding to this issue, vulnerable workers are critical since skills mismatches and affecting labor market especially youth workers. Youth unemployment is reported acute in Europe, covering 50 percent in some countries. Institutional factors other than minimum wage also affect demand for supply of workers. One of these factors is unemployment benefit and particularly in general this incentive created adversely affect motivation to work and increase unemployment rate.

2.6 Conclusion

As briefly explained in this chapter, besides minimum wage regulation, educational attainment, labor productivity and strictness of employment protection also content play important roles that determine employment rate in Europe. Although, it influences the unemployed workers in rural areas are more likely to be affected than their urban counterparts, hence by looking at these factors all together, it is great significant for better understanding cross countries in EU's on process of the policy reform and its effectiveness.

CHAPTER THREE

Theoretical Framework

3.1 Introduction

This section discusses the relevant theoretical framework that can hold or support a theory of a research study. The section introduces and describes the Theory of Efficiency Wage, Shapiro and Stiglitz Model, Implicit-Contract Model, Monopsony Competitive Labor Market Model and The Harris- Todaro Model which explains why the research problem under the study exists.

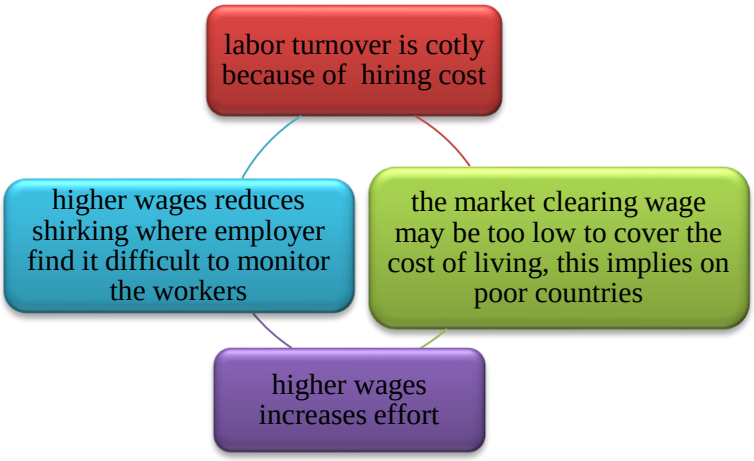
3.2 Theoretical Framework

3.2.1 Efficiency Wage Theory

The invention of the ideology is actually to explain why it may be more advantageous to pay employees above the equilibrium wage so that they tend to operate more skillfulness and firms might find it profitable to behave in this way due several reasons. Higher than market wage paid will encourage higher output and lift motivator of workers, thus some of the employers believe that by paying higher wage will secure the business for the future. Then again, it induces them to stick around with the company and maintaining them to work harder. The theory is therefore primarily concerned with the way efficiency wage is influenced to attract more and hire top talent. Hiring a new employee means more than just a salary, it take a lot of courage to the firm. Therefore, firms need to add

extra more cost on training and recruiting the newbie's. So moving for better alternative, the employers prefer to invest to keep their loyal and hard working workers with some incentives and benefits. This implies the fact that it has managed to avoid disruptive strike action by employees to stop or curtail work.

Figure 3.1 Relationship between Wages and Efficiency



Source: Majchrowsk and Zolkiewski (2012)

In further extension, this theory serves to rationalize why certain business choose to pay workers more than they need to fill positions. An important implication of this can be seen in the illustration above. The dimension of efficiency wage model is a actually benefit as well as cost to offering higher wages. There are several reasons why efficiency may increase with wage might hold (Figure 3.1). Hence, firms take this relationship into account when choosing profit maximizing values and minimizing the cost per unit effort. The firms will maximize the profit function at:

$$\pi = Y - wL = F\,[e\,(w)\,L] - Wl \qquad (3.1)$$

where Y= F (eL), F'(.)> 0, F'' (.) < 0 and e denote worker's effort, thus effort entirely depends on the wage e= e (w) > 0. In more general Efficiency Wage Model, workers productivity might be endogenously determined by such factors as their degree of effort or the rate of workers turnover and each worker supplies one unit of labor inelastically. This implies:

$$\frac{e_w w}{e} = 1 \text{ (Solow Condition)} \qquad (3.2)$$

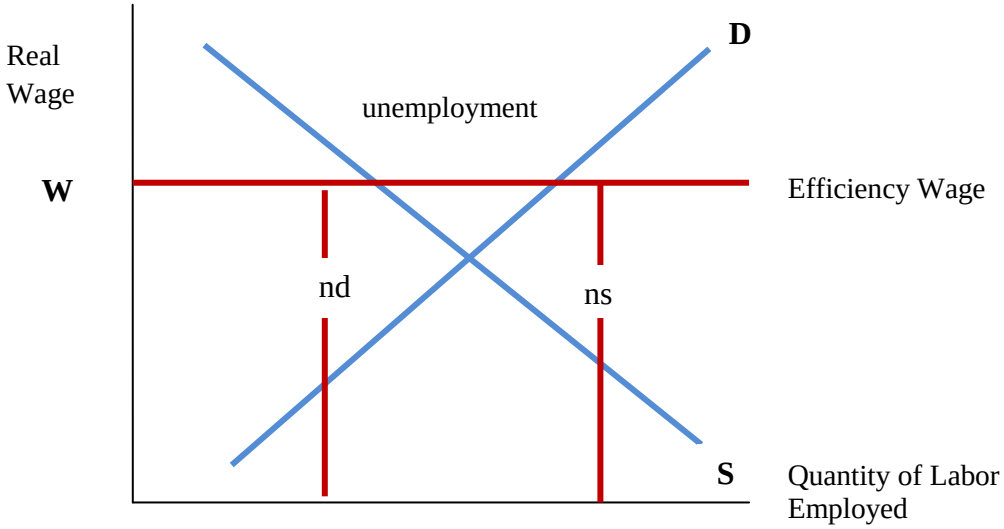
$$F' (e (w) L) e (w) = w \text{ (MPL =MC)} \qquad (3.3)$$

According to The Solow condition mention that the elasticity of effort with respect to wages is one. Firms hire workers until the point where marginal cost is equal to marginal product of labor. Then, we can generate equilibrium unemployment and to maximize profit in the unemployment case, the firm chooses the value of L and w that maximize the profit expression, in the equation 3.1 respectively. Unemployment can result in this case since the wage that satisfies the Solow Condition may not result in firms hiring all workers. In Figure 3.2 equilibrium unemployment is generated using efficiency wages model.

Implication of this simple model can potentially generate unemployment and sticky wages. If the demand of labor shift due to economic growth changes over time, holding real wage is constant, unemployment will increases over time until firms are constraint by the number of workers they can hire. Wages are converging up to the point where supply and demand is equals if only firms are constraint by the number of workers

they can hire. Under such conditions, the firm faces a trade-off between hiring efficient workers at a high wage, or less efficient workers at lower wage.

Figure 3.2 Efficiency Wages



Basically both minimum wage and employment are expressed in relative terms, for instance employment-population ratio and minimum-to-average wage ratio, respectively. To take into account demand factors behind employment fluctuations, a measure of business cycle position like GDP (Gross Domestic Product), unemployment rate, output gap is used as for control variables. While supply factors like demographic or structural variables which usually working age population, school enrolment also taken into consideration, thus institutional variables are working as explanatory variables in this study. As general specification of model often used in the literature is formulated as follows in (Brown, Curtis & Kohen, 1982, Neumark & Wascher, 1999, Neumark & Wascher, 2007):

$$ER = f(wmin, X) + e \qquad (3.4)$$

where:

ER employment variable

wmin minimum wage variable

X vector of control variable

e unobserved error term

3.2.2 Shapiro and Stiglitz Model

The Shapiro and Stiglitz Model (1984) is a specific application of efficiency wage in which workers have an incentive to shirk or not to work hard. In this model a worker's effort is imperfectly observed by firms. However, Profit Maximizing Firms choose to offer workers a contract with an effort level and wages that make them to simply insist on its desired level of effort as a condition of employment and fire workers who shirk. Since all firms offer the same wage in equilibrium, the limit of bonding between agents and the wage that will be set jointly to motivate the workers. On the other hand, the relationship between effort and wages can be determined by the individual's Indifferent Curve constraint.

The key different between this two model and the simpler efficiency-wage models is that the e (w, $w_{a,}u$) function is endogenously determined, whether choose to work hard or shirk as a function on their wage and unemployment rate. The link can be affected by wealth, the punishment associated with shirking and the nature risk sharing among agents. Equilibrium unemployment entitled as worker discipline devices. Firms

can maximized their expected discounted profits on taken accounts by worker's discounted utility to the max. The lifetime utility of workers can be written as:

$$U = \int_{t=0}^{\infty} e^{-pt}\, u(t), dt, \rho > 0 \qquad (3.5)$$

$$u(t) \begin{cases} w(t) - e(t) & if\ employed \\ 0 & if\ unemployed \end{cases}$$

where *w* is the wage and *e* is the workers effort and effort is equals to 0 or $\bar{e}$. Workers in the model are in one of three states. They may be employed and working hard (denoted E). If they (denoted S), probably working and shirking, they are not exerting in effort. While unemployed, workers get utility of zero (denoted U).

So there are exogenous rates at which jobs end, and shirkers are detected and the rate at which jobs are hired is determined endogenously. Workers can remain in the highest utility comes from being employed and shirking but only until their shirking behavior is discovered, at which point they are fired and become unemployed. The concept of hazard rates in Shapiro-Stiglitz Model also involves the analysis of economic situations in which agents must predict in the particular event will occur and must always be expressed per unit of time.

If workers begins working in a job at time t_0 with the workers providing their effort, the probability that worker is still employed at time *t* is:

$$P(t) = e^{-b(t-t0)}, b > 0 \qquad (3.6)$$

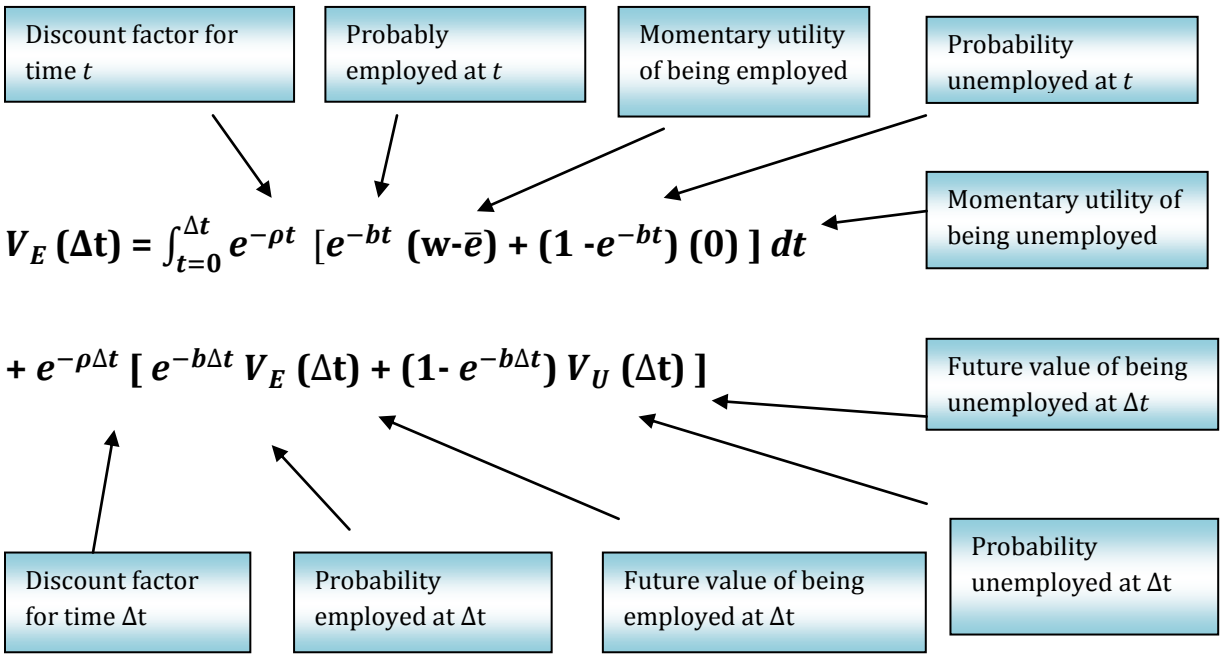
$$\frac{P(t+\tau)}{P(t)} = e^{-b\tau} \text{ and is independent of } t \qquad (3.7)$$

Here unemployment occurs with probability *b*, and the hazard for losing a job is *b.* The unemployment activity is called Poisson Process. Workers remain in job breakup with probability of $e^{-a\tau}$, shirkers do not get detected and fired is $e^{-q\tau}$. By looking at how these individuals decision interact in the labor market, to solve the model, the firms maximize profit at:

$$\pi(t) = F\big(\bar{e}\ L(t)\big) - w(t)[L(t) + S(t)] \qquad (3.8)$$

where L(t) and S(t) are the number of non-shirking workers and shirking workers employed by the firms respectively. Furthermore, according to Jeffrey (2010), the first basic assumption rule is that workers will rationally choose the state that gives them higher lifetime expected utility. In order to determine the worker's choices, V_E the value or expected utility is interpreted. This dynamic programming consist analysis behavior an individual over a short interval of time Δt by allows the length of the interval go to zero to get continuous-time behavior. This diagram of equation below show how each term in this expression can be determines.

Figure 3.3 Expression of Value Expected Equation



Source: J.Parker (2010), Economics 314.

3.2.3 Implicit-Contract Model

Implicit-Contract Model is a part of group's model and commonly associated with Keynesian view of unemployment and business cycle. The key of the model is that workers are risk adverse while the firm is assumed to be risk natural. Implicit contract theory is much more complex compares to the previous models with respect to crucial assumptions, thus characterizes the price and quantity created by actions of the parties. It can affect worker's mobility as sequel due scarce access to capital, so that workers will seek firms that offer contracts guaranteeing them more stable income. If the worker's condition is mobile, this will force employers to update contract periodically to attract more workers by better offers compares to the other competition firms out there. While in

contrast, if the worker's mobility is limited, business conditions can permanently affected at the time of contracts are agreed by wages itself.

As according to Beaudry and Dinardo (1991), they proposed simple contract model that demonstrate how actual wage movements can be effected by business condition and also taken into account of another possibility, the fact that worker's mobility is costless and not limited. The wage function that needs to be estimated is:

$$\ln W_{i,t+j} = X_{i,t+j}\Omega_1 + \Omega_2 \mathrm{C}\,(t, j) + \epsilon_{i,t+j} \qquad (3.9)$$

where $\ln W_{i,t+j}$ is the logarithm of hourly wage rate in the period $t+j$ for an individual i who started the current job period t and $C_{t,j}$ can be explained by whether Ω_2 is significantly positive or not. The current unemployment rate U_{t+j} should significantly affect the current wage and the spot market characterizes real movement of the wages. The unemployment rate at the time of a worker's hiring should significantly affect the current wage, only if actual movement of the wages can be describable with costly mobility in the implicit contract model. While the minimum unemployment rate between hiring and the present in implicit contract model with costless mobility that describes movement of the wages must significantly affect the current wage.

3.2.4 Monopsony Competitive Labor Market Model

In a simple monopsony competitive labor market provides a framework for investigating about the effect of minimum wages. It is contributes in two path of study elements. First, it discovers the elasticity of labor supply to the market as whole and determines the

monopsony power in the elasticity of labor supply to an individual firm. Second, different firms in the same market can be determined as well that tends to produce different effect of minimum wage severally (Dickens, Machins and Manning, 1999).

Let say firm *i* in the market has a marginal revenue product of labor curve given by:

$$\mathrm{MRPL}_i = \mathrm{M}\,(\mathrm{L}_{i,}\, A_i) \qquad (3.10)$$

which gives L is employment and A is a shock to the Marginal Revenue Product of Labor (MRPL) reflecting demand or productivity shocks. Presume that function A increase and function L is decrease, denoted by M. On behalf supply side, take granted that labor supply curve facing firm *i* where:

$$L_i = f\,(B_i, W_i/\,\mathrm{W}).\ \mathrm{L}\,(\mathrm{W}), \qquad (3.11)$$

$$\mathrm{W}_i = \mathrm{W}^S\ (\mathrm{W}, \mathrm{B}_{i\,,}\mathrm{L}_i) \qquad (3.12)$$

assume that aggregate labor supply in the market, denoted L is anticipated to be positively related to the average wage in the industry due worker's requirement to be in industry training before they ready to enter the jobs in industry.

Based on the previous study by Dixit and Stiglitz (1977), equation (3.11) is a demand curve in monopolistic competition that represent individual firm. *i* is the share of total labor supply in labor market and influence by the relative wage and a firm-specific labor supply shock. While B_i, have a tendency to correspond with the shock to MRPL curve. Hence, equation (3.12) comes out the wage explanation gathering with the

information of aggregate wage, the wage that firm *i* need to pay for their workers and specific shock which is denoted by B_i.

It is crucial to study the effect of average wage on the aggregate labor supply as similar to minimum wage effect onto employment rate respectively. Higher average wage will lead to gain number of labor forces to enter the market, thus it is possible for the firm to offer the pay. In contrast, if aggregate labor supply is inelastic, each monopolistic firm's take action by forcing not to raise the minimum wage by paying workers below their marginal product.

3.2.5 The Harris-Todaro Model

Harris and Todaro (1970) have introduced a model with two sectors, manufacturing (urban) and agricultural (rural), minimum wage and consequent unemployment in the theory. The simple assumption surrounding labor in previous model only can revise the correlation between wage equilibrium and unemployment rate generally. By incorporate labor migration decision on expected incomes between rural and urban into the model, may get:

Among the N workers, N^C and N^R live respectively in cities and rural areas,

$$\text{i.e. N} = N^C + N^R, \text{ and}$$

$$= L^C + U^C$$

$$N^R = L^R$$

Noted that there is no unemployment in rural areas and by combining these two equations above, new formula is generated:

$$U^C = \mathrm{N} - L^C - L^R \tag{3.13}$$

The urban unemployment rate is then given by:

$$\mathrm{u}^c = \frac{U^C}{U^C + L^C} = \frac{N - L^C - L^R}{N - L^R} \tag{3.14}$$

From the equation, it can show that the probability to find an urban job is:

$$a^C = \frac{L^C}{L^C + U^C} = \frac{L^C}{N - L^R} \tag{3.15}$$

The essential part is that the chances of labor to get hired by a position in the cities is rely on the number of accessible jobs out there in the cities, L^C together with the number of employed workers in rural areas, L^R. Number of jobs in urban area, denoted by L^C is noticeable fixed exogenously. In other words, the decision for rural workers to migrate if only if:

$$w_L^C \frac{L^C}{N - L^R} > w_L^R \tag{3.16}$$

The main argument in Harris-Todaro model is that the expected wage in urban areas. It reflects the decision of these labors in any probability of linkages and also depends on what types of jobs they desired to enter. Therefore, if the expected urban wage is equal rural income, there is no incentive to migrate. However, if expected urban wage is greater than rural income, then there is great incentive to move from country to

city. In oppositeness of wage is less than rural income, incentives to move in other direction is take in action. Gradually the fundamental of the model is reached when equation (3.16) is equalized in both directions which equivalent to:

$$L^R = N - \frac{W_L^C}{W_L^R} L^C$$

3.3 Conclusion

The theoretical framework strengthens the study of minimum wage in Europe in the following ways: Efficiency Wage Theory concerned with the wage is influenced to attract more labor with offering higher wage that same implies in minimum wage regulation. Shapiro and Stiglitz Model is one of the most familiar models of employment that can potentially clarify some vital features of workers effort that imperfectly observed by the firms. Implicit Contract Model is part of group model with Keynesian view of unemployment and business cycle. Monopsony Competitive Labor Market Model can be used to determine the effect of average wage on aggregate labor supply. In addition, The Harris-Todaro Model go into deeper on labor migration that holds the decision where to work between rural and urban based on expected income in evidence the effects of setting and changing the minimum wage policy. Having these theories helps to discover which key variables influence observable fact of interest and to examine how those key variables might vary on under what conditions. It will be discussed as details in the next chapter.

CHAPTER FOUR

Literature Review

4.1 Introduction

This section discusses the relevant literature across different countries regarding controversial issues on minimum wage laws adjustment, thus disparity concern that has been raise back then until now among almost low wage earners and further with employment rate and protection, labor participation with different level of educational attainment, labor productivity and poverty affairs.

4.2 Empirical Evidence

4.2.1 Lower Poverty, Increase Unemployment Rate

Lustig and Mc. Leod (1997), argue that a higher minimum wage is associated with lower down poverty even though the higher minimum wage reduces employment. The preceding discussion in this paper shows that higher wages can reduce poverty on if it fulfill with these three conditions. First, higher minimum wage must result in uncovered sectors. Second, the rise in uncovered sector wage is large enough to push some of the population out of poverty and third, the number of beneficiaries (who no longer poor) must exceed the number who do not get benefit from minimum wage which involves uncovered sectors. Proven with cross studies of minimum wage in Asia, Africa and Latin America estimates that an increase in the minimum wage of 1 percent leads to decrease in the poverty rate in developing countries of 0.6 to 1 percent. So there have pros and cons with the policy device.

Lustig and Mc Leod also find that an increase of the minimum wage leads to fall in poverty among formal sector workers by 2.5 percent but decrease 2.9 percent among workers in self employment and informal wage sectors. As the matter of fact minimum wage actually affects all way round, whether the wage of those above and even below the wage floor in the informal sectors, where the poorest workers are there. The policy issues that remain stands until today argue that due to higher wage helps accelerate number of labor out of participation rate is not the good to hear.

4.2.2 Higher Unemployment Rate, Increase Poverty

When it comes to relate poverty and unemployment, Fields and Kanbur (2005), discover that minimum wage augmentation increased poverty because it promotes unemployment if only if it has income sharing then it will be better off employed and possible to scale down the poverty. However, this will not happen if only there is small advancement amount around market-clearing wage while elasticity of labor demand is huge enough. Small increment does really help to achieve minimum wage optimum value. Instead, low paid and unskilled workers may be at high risk if there is low elasticity of labor force demand.

Rutkowski (2003) also talks about the elasticity of the demand for low-skilled workers in his paper. He concentrated more about welfare effects. If demand is relatively elastic to the wage changes, then the net impact of higher minimum may be negative because of the rise in unemployment rate. Meanwhile, Fields and Kanbur analyzes the effects of minimum wage poverty rather than unemployment also add up others parameters which determine the poverty implication which are how high minimum wage

is relative to the poverty line, income sharing and the sensitivity of the depth poverty measurement.

In term of effectiveness of minimum wage policy for the poor, following Vedder and Gallaway (2001) towards the research of minimum wage implication towards poverty, test using eight regression run for each subgroup all included real minimum wage and unemployment as independent variables and looked at real level of GDP per capita as separate independent variable, arguing that poverty should be effected by the rise in real total output per person over time. Altogether, they run 14 regressions. In 127 regressions or 88 percent they find out that there is no statistically significant relationship between minimum wage and poverty level at 5 percent. In final, they reject the position of those that hold minimum wage is an effective poverty device because of there are just convey the majority improving their economic conditions, nevertheless helpless in considering priority who need the most.

4.2.3 Educational Attainment of Labor Participation

Higher level of educational typically leads to greater labor participation and higher employment rates. The substantial of schooling and educational attainment of labor force is being recognized as a factor which enhances labor market flexibility. As according to study that did by Tansel (2004), Turkey records the highest male unemployment rate among the OECD countries, after the 2001 crisis. While the massive female unemployment rates was Spain in period 1998-2002. The result mainly due most of them are involves in agricultural work especially those urban workers. He analyzes unemployment rates on different level of educational attainment candidates and observes

that the highest unemployment rates are graduates of general and vocational schools. Inversely from the result gain by university graduates for both female and male in urban areas.

The correlation between low education and low unemployment also explain that another finding that lack of basic skills to fill the demand of market economy. We also can say that the skills which are available do not match with the required skills. Furthermore, the factors that have been investigating in the low wage earner by middle educational holders often associated with labor market regulation and unappealing incentives in formal sector that turn into less attractive supply of workers especially skilled labor.

Nowadays, higher education also becoming vulnerable and grab less opportunity to participate in labor market but it still remains on very few amounts. As noted by Riddel and Song (2011), education significantly increases re-employment success for unemployment workers. Comparing to those who are graduating from high school, college education has large impacts on individual's ability to absorb back the employment shock over 40 percentage point.

4.2.4 Implication towards Covered and Uncovered Sectors

Poor workers have lack of assesses to higher education because of their money does not support them to do that although nowadays there are many incentives whether from government, private or any NGO's scholarship and loan can be applied. Because of poverty, they prefer to choose to work because of to fulfill the basic needs and to support

their family as well. But entering labor market force seems does not help this people. As the level of minimum wage is increased, firm will reduce the employment of unskilled workers because they just give less benefit and even create more burdens to the company to pay them in higher wage and the firms may change their production incentives from labor to capital incentives if it will save more on their production cost. As the consequence, poor and vulnerable workers commonly involved themselves in informal sector for example work into agricultural sectors or other informal productive activities.

Average incomes are lower in informal economy than in formal economy. In order to reduce poverty, it is essential to enhance the capacity of the economy of these poor people and help them generate productive employment and also receive greater income. The problematic issues that need to handle is the implementation will create larger gaps towards those poor workers especially who involved in uncovered sectors which does not apply the laws. Meanwhile, we can see industries reaction after following the wage adjustment. Is that only skilled workers will retain on formal sectors while the others have two choices whether involves in informal sector or to be unemployed for waiting to hire in formal sector that only receive minimum wage benefits and will this create new figures in unemployment rate later on.

Whether a minimum wage can have any impact in the informal of informal sectors is broadly relevant for understanding more about process of labor market in developing towards poverty reduction. However in the informal sectors, they are usually being supplied mainly by family members. Consequently, wages do not directly affect production decisions. They may however influence the decision to supply labor to the

formal sector. As economic develop, labor relationship shift from rural to urban areas and take place in larger and competitive firms in formal sector, and will only reduce poverty among higher and middle education levels and of course skilled workers. This is because of the substitution effect of the minimum wage is vary with each types of workers.

The minimum wage impact would result in an increase in formal wages and decrease in informal wages. But terms of employment effects are the opposite: a decrease in employment in the formal sector and increase in the informal sector (Harrison and Learner, 1997). In terms of employment rate between sectors also need to look out because of from that we can estimate the percentage of workers who really benefits from the implementation.

In contrast, Lemons (2004) reports the formal and informal sectors employment were both found to be negative but more robust in the formal sector in the short and long run by using data monthly Brazilian Household Survey from 1982 to 2000 at individual and regional levels. Lemons also estimates that a 10% increase in the nominal minimum wage is associated with an increase in total employment of 0.06% in the formal sector but only 0.04% increase in informal sector. This suggest a downward sloping labor demand curve in both sectors by using Two Sectors Model to explain the effect of minimum wage on the formal and informal sectors in Brazil and Latin America more generally.

While study by Jones (1997), shows that Ghana's minimum wage policies during the 1970s and 1980s led to a reduction of labor force participation in formal sector while an increase numbers in informal sector. The study also provides some evidence that a

large proportion of the displaced workers from the formal sectors ended up working in the informal sector, and that there was a corresponding reduction in the wages on those in the informal sector. However evidences from Latin America base on Maloney (2003) and Cunningham et all. (2004) suggests that the minimum wage is often as binding in the informal as in the informal sector.

Comola and Mello Luiz (2010) test of the minimum wage implement using the Kaitz Index, have negatively signed and statistically significant in the formality and unemployment equation, and positively signed and statistically significant in the informality equation. These findings are in line with the theoretical prediction of mobility workers to informal sectors because of minimum wage shift workers out of labor participation and force them to involve in informal sectors. As supply of the workers in the informal sector increases, the equilibrium informal sector market wage would fall for all workers. If the market wage in informal sector is below their reservation wage, they will leave the labor force.

4.2.5 Reservation Wages

Whatever any extend of degree that against to minimum wages, but there are some middle income countries in Latin America such as Argentina, Brazil, Mexico and Uruguay that where minimum wages has indirect effect on poverty. Informal workers in these countries are still gets as much as formal workers in covered sectors and create a market clearing wage for the communities and inequality in income distribution especially in informal sectors economy (Saget, 2001). To influence minimum wage

government can set reservation wage where guarantee wage for public work which set the minimum for market wage.

Misleads from previous years, Saget also providing statistic data in year 2009 reported by Central Bank of Venezuela, find that there is the declining in poverty rate in Venezuela between years 1999-2008 by 58.6%. The extreme poverty saw declining in 2006 to 12.5% after they implement the higher wage rate in Venezuela including the food voucher compared to other region in Latin America. Even without counting food voucher, it is still the highest in South America.

4.2.6 Labor Market Institution and Productivity

Each different country in Europe establishes different stipulation for labor with varies of skills and labor characteristics covering women, unskilled workers, youth workers and etc. Employment Protection Legislation (EPL) is consists of provision for labor in order to improve the labor market institution governing the dismissals and recruitments of employees. EPL also differs among population groups and in fact varies across European countries and also depending on firm and labor dimension such as education attainment, collective agreement, firm's size and so forth.

Although, in other empirical studies like Ocher and Rohwer (2009), find out that the strictness of employment protection will diminishes labor turnover and in other way round. The study finds out many European countries in middle 1980s have reduced their strictness of employment as to offer more temporary jobs. The evidence suggest that there are also negative correlations between EPL and labor turnover in cross-country

empirical evidence and by then EPL will cut down the probability of hiring and jobs separation.

In Austria, Belgium, Denmark, Greece and Italy, blue collar workers are less strict, that holds notice period less lengthen than white collar workers. There is wide consensus on the idea of EPL that may have little or no on changing in employment rate, but generally it does disturbing the jobs practice and formation and also in terms of increases firing cost for small firms relatively to large firms where there are less incentives to hire, unemployment population in terms of duration and age composition thus labor proficient reallocation that have ability to maximize their profit in each period in across firms and industries to achieve optimal level.

According to Tang (2012), if there is an increase in labor market protection, this suggest that it will increase worker's effort to acquire firm-specific skills relative to general skill which turn into larger benefits rather than turning labor policy into a source of comparative advantage. When the regulation is more shielding, labor will expect more from their employers, thus these workers have more effort to acquire jobs investment incentives. Bargaining power determines degree of labor protection in a country and it captures the degree of extension agreement, closed-shop arrangement or rule on the right to strike. Basically higher level of bargaining power contributes to higher labor protection. Although, there is a gap in the research regarding studies that only little work has been done to examine how labor market regulation are linked with labor investment decision. Moreover there even less to examine over effect that can determine a country's comparative advantage.

Based on Kromann, Skaksen and Sorensen (2008) study of automation sector with a cross country comparison, at the end of estimation there has a significant impact on labor productivity either both in the short and in the long run. With respect to employment, they determine that automation tends to lower employment in the short run, whereas it tends to raise employment in the long run. Summing up, it statistically significant and will come out in a greater positive effects with change over time in order to translate the increase in employment levels into greater levels of production. As expected, the result somewhat match with OECD data analysis where as for Euro area, labor productivity in industry is observed to have increased more rapidly than labor productivity in other sectors especially during period 1995 to 2006. They also add that it is because of relative productivity is observed to rise faster than relative prices during the same period.

4.3 Conclusion

Finding from previous studies showing that employment has its own relationship and link in helping the nation growth through wage regulation. Also after reviewing brief literatures on minimum wage and labor market composition, it is interesting to know that how wage policy contributes to European economy. By adding three potential independent variables other than minimum wage rate as proxies, (labor participation with different level of educational attainment, labor productivity and strictness of employment protection) these factors are generally most fitting in our econometric analysis. The next chapter will bring us to data and methodology that has been chosen.

CHAPTER FIVE

Data and Methodology

5.1 Introduction

This chapter focuses on presentation of econometric models based on the theoretical arguments in the literature. Based on Riveros and Parades (1998), there are two easily methodologies have been used in analyzing the impact of minimum wage (MW) in the economy. First is cross sectional studies different MW levels prevailing across region that is correlated with other observed market outcomes, on the other hand includes some policy implication on the specific labor force groups being affected as control subject to determine. The more precise estimates can be obtained from the larger sample size, the lower standard errors can be produced. Second types of the methodology following Riveros and Parades is based upon time series data analysis which would come out with more robust results and with more direct observation on relied market outcome. However, panel data analysis consist characteristic of both time series and cross sectional analysis by expanding the analysis, although there would not be enough data to estimate. Thus it enables to solve omitted variables problem and address endogeneity problem in a cross section data set. This section describes and evaluates the verifying data sources mentioned above regarding minimum wage study which enables to determine the effects and trends from the legislation that can be better measured if we determine the wage increment effectiveness in each regional in Europe which cannot be observed in pure time series and cross section data analysis.

5.2 Sources of Data

This study uses data variety of sources. The data are basically obtained from the secondary sources and are taken from *Eurostat*, *WorldData Bank* and KILM (Key Indicators of the Labor Market) 7th Edition, within time interval from year 1999 until 2008, which holds 10 years surveillance. This panel data analysis randomly choosing over 10 countries; recognizing by each codes which are Belgium (1230), France (1231), Greece (1232), Netherlands (1233), Poland (1234), Portugal (1235), Spain (1236), Turkey (1237), United States (1238) and United Kingdom (1239). Hence, there are the 10 cross sectional units and 10 times periods all together. In all, therefore this study has 100 observations.

5.3 Model Specification and Techniques of Data Analysis

It is proved that panel data analysis can be primary useful in the analysis impact of minimum wage regulation across states and regions, particularly for short time database. With panel data we can control for factors that are unobserved or measured that therefore cannot be included in the analysis, thus omitted variables bias in case if they are omitted. The model includes individual effects, α_i , that is constant over time, and also provides marginal effect, $\beta\, x_{it}$ (denoted by each states in Europe, *i* and *t*, time in this observation). Noted that this type of model have some slackness due any possibilities of the panel data models are robust and we would expect there to be correlation between the error term. Fundamentally it is underlying of the stability of the statistical regression both over time and across countries in Europe.

In the attempt to determine the relationships, this general model is specified as:

er_{it}= β0 + β1 (mw_{it}) + β2 (lp_{it}) + β3 (ls_{it}) + β4 (lt_{it}), + β5 ($lpro_{it}$) + β6 (sep_{it}) + γ99 d99 + γ00 d00 + γ01 d01 + γ02 d02 + γ03 d03 + γ04 d04 + γ05 d05 + γ06 d06 + γ07 d07 + γ08 d08 *

Where:

er_{it}= employment rate on regional labor market *i* (i =1, 2,…, 10) in Europe at time *t* (t = 1999, …, 2008),

mw_{it} = minimum wage on regional market *i* (Euro/year) in Europe at time *t,*

lp_{it}= labor with primary educational attainment in each regional labor market in Europe at time *t,*

ls_{it}= labor with secondary educational attainment in each regional labor market in Europe at time *t,*

lt_{it} = labor with tertiary educational attainment in each regional labor market in Europe at time *t,*

$lpro$ = labor productivity in each regional labor market in Europe at time *t,*

sep_{it} = strictness of employment protection in each regional labor market in Europe at time *t,*

*γ99 d99 - γ08 d08 = dummy year of each observation

To reform the econometric models in this study, employment rate is chosen as dependent variable in across different countries. To determine the independent variables, minimum wage in each country in Europe are selected as well as other variables that are hold together, such as educational attainment in each level is attached whereas primary, secondary and tertiary as to measure different levels of educational attainment and also labor productivity and strictness of employment protection variables to test correlation with employment rate respectively. First level of educational attainment according to KILM data are those labor who are holding primary education or first stage of basic education. Second level of education usually restricted to labor that completed the 8-9 years of basic education and vocational experience. While third level are devoted to labor that has advanced study and original research programs.

Using STATA 11, the data is run by following Pooled Regression, Random Effects (RE), Fixed Effects (FE) and Hausman Test (HT) regression to determine the best choice of policy. Five base types of panel data regression is needed to run as to determine the best choice whether minimum wage can give direct or indirect impact to the Employment Rate across different countries as the representative of correlation in this study. Then, in the next section, it is aim to explain the relevant econometrics procedures in testing panel data analysis. It is well-know that panel data consist of cross-section of individual-specification for which there are repeated observations over time. The key advantage of panel data is that such data offers to study more into complicated behavioral models that are inherently longitudinal such as unstable employment, poverty persistence and so on. Moreover panel data methods are suitable to further study dynamic of change due aggregation model really helps in terms of reducing bias in the estimation result.

Finally, appropriate estimation techniques will be discussed under various conditions to achieve the objective of this study.

5.3.1 Pooled OLS Estimation

In further extend, pooling the observations in OLS in order to increase the sample size, thereby obtaining more defined estimates and greater control of test statistics. Pooling is only practical by the way if the relationship between dependent variable and at least some of the independent variables are remaining constant. To reproduce the actuality that the population may have dissimilar distributions in different time periods, the intercept is usually allowed differing across time periods and it can be accomplish by including year dummies. A pooled OLS estimator is based on the time-demeaned variables is called fixed effects estimator or the within estimator. The main contribution is that the regression should satisfy exogeneity at the same time relate with explanatory variables in order to determine the policy analysis.

In general of pooled regression, the system of OLS estimator is a method for estimating the unidentified parameters in the linear regression model. Indeed, if unobserved variables for one region have a propensity to construct its error term positive in one period, they will tend to create its error term positive in other periods as well. For instance, if a county has a predominantly high rate of joblessness in one year, it is likely to have a high rate then next year, too. Under Classical Linear Model (CLM) assumptions, OLS estimator can produce unbiased and consistent results and it is asymptotically normal. The OLS estimators $\beta_0^{\wedge}$, $\beta_1^{\wedge}$,….., $\beta_k^{\wedge}$ have stronger efficiency property under Gauss-Markov assumptions. If there is one of the assumptions of OLS is

not fulfill this violation means that OLS is not the best estimator. Up to this point, it is no longer the Best Linear Unbiased Estimator (BLUE).

5.3.2 Fixed and Random Effects

In panel data models, there are three ways to eliminate unobserved heterogeneity, first difference method, fixed effects model and random effects model. Due fixed effects is more efficient than first differencing when the εit are probably serially uncorrelated, although in many applications, the unobserved factors that change over time to be serially correlated. Two methods that are focusing in these analysis regressions that are at least as common as first differencing. $Yit = \alpha i + \beta Xit + \varepsilon it$ is the point how to eliminate the unobserved heterogeneity.

In FE Model,

$$Yit = \alpha i + \beta Xit + \varepsilon it \qquad i=1,2,....n \quad t=1,2,....T \qquad (5.1)$$

Where:

Xit = observable variables that changes across i only, across t only or across i and t.

αi = the unknown intercept (the individual effect) for each entity (so there are n entity-specific intercepts).

εit = the idiosyncratic errors and change both across entity (i) and time (t).

It uses only variation over time within an individual, however discards all variation between individuals. Because of that, fixed effect every so often called “within” estimator. Hence, fixed effect potential specification errors can be reduced if not include time invariant variable, from skipping important variable (Doanh, & Heo. 2009).

FE is consistent in any case of whether it is related or not with x_{it} (time varying covariates). It allows arbitrary correlation between a_i variables, so that we have more realistic assumption. Although we cannot control to estimate the impact of β *Xit* (time invariant observed variables and their coefficient) such as race, gender, etc., but still the effects can be controlled by including εit. In economic analysis, time invariant variables is permitted to correlate with the time varying variables such as unemployment, labor productivity per capita, and so on. Differently, RE does not, so that FE is widely known to be more convincing tool in econometric analysis for estimating ceteris paribus effects.

In RE Model,

$$Yit = \beta\, Xit + uit, \qquad \text{where } uit = \alpha\mathbf{i} + \varepsilon it \qquad (5.2)$$

Where:

αi = assumed to be uncorrelated with Xit , the between-entities component of the error term

εit = the within-entity component of errors

Also by applying random effects the differences can be put together between cross- sectional entities by allowing the intercept to change, as in fixed effects model, it explores differences in error variances. Inversely, the random effects model assumes that the effects of *Xit* and *uit* on *Yit* do not change over time. *uit* = α**i** + ε*it*, so that implies equal assumption of the model of the error variance ε*it* .

5.3.3 Hausman Test

Hausman Test (1978), was formed to fix on which effect is good and consistent on estimation of the model. It is essential to choose between both effects to see whether α_i is

associated with x_{it}. Generally, Hausman Test (HT) involves by determine which one of estimator is most consistent in spite of either null hypothesis may be factual or not, to another estimator that merely stable under the null hypothesis. Let $\hat{\delta}_{RE}$ represent the vector of RE estimates without the coefficient on time constant variables or aggregate time variables and let $\hat{\delta}_{FE}$ denote the vector of FE estimates.

In HT regressors,

$$H = (\hat{\delta}_{RE} - \hat{\delta}_{FE}) [\widehat{Avar} (\hat{\delta}_{FE}) - \widehat{Avar} (\hat{\delta}_{RE})]^{-1} (\hat{\delta}_{RE} - \hat{\delta}_{FE}) \quad (5.6)$$

It has chi-squared with M degrees of freedom asymptotic distribution where M is the number of coefficients and generates statistical substantiation in that failing to reject the exogeneity of unobserved individual effect in RE model. On the other hand, FE model reject the exogeneity assumption.

5.4 Conclusion

This chapter explained the panel data analysis that requires technique step by step starting with Pooled OLS regression, Fixed Effects, Random Effects and Hausman Test in order to get the result and investigate the model relationship. While in next chapter, it will discuss the result and analysis as details to test the objective of this study.

CHAPTER SIX

Result and Analysis

6.1 Introduction

This chapter discusses the results and findings which determine by the econometric techniques that presented in Chapter 5. Firstly, descriptive analysis of dependent and independent variables are presented. Second, the results and findings are divided into five sections: Panel Data setting, results of Pooled Regression, Random Effects, Fixed Effects and Hausman Test.

6.2 Descriptive Analysis of Dependent and Independent Variables

Table 6.1 Descriptive Analysis of Dependent and Independent Variables

Dependent Variables	**Definition**	**OBS**	**MEAN**	**STD. DEV**	**MIN**	**MAX**
employ	Employment rate on regional labor market *i* (*i* = 1,2,.., 10) in Europe at time *t* (1999,…2008)	100	52.73	6.69	165.7	1335

Independent Variables	**Definition**	**OBS**	**MEAN**	**STD. DEV**	**MIN**	**MAX**
minwage	Minimum wage on regional market *i* (Euro/Year) in Europe at time *t*	100	759.83	398.00	165.7	1335
first_edu	Labor with primary educational attainment in each regional labor market in Europe at time *t*	100	36.07	20.05	9.2	78.6
second_edu	Labor with secondary educational attainment in each regional labor market in Europe at time *t*	100	36.96	15.6	11.9	72.1

Independent Variables	Definition	OBS	MEAN	STD. DEV	MIN	MAX
third_edu	Labor with tertiary educational attainment in each regional labor market in Europe at time *t*	100	26.07	12.30	8.8	61.9
l_product	Labor productivity in each regional labor market in Europe at time *t*	100	31.48	12.06	11.2	50.5
e_protect	Strictness of employment protection in each regional labor market in Europe	100	2.31	1.13	0.21	3.72

6.3 Panel Data setting

panel variable: country (strongly balanced)

time variable : year, 1999 to 2008

delta : 1 unit

In this panel data observation, there have sorted by date variable (year) within variables that identifies (country) the panel. The STATA command to run fixed and effects is *xtreg*. So first of all set *tsset* (refer to Appendix 2.1) before using *xtreg* to handle panel data in this study. In this case "country" represents the entities or panels (i) and "year" represents the time variable (t). The note "(strongly balanced)" refers to the fact that all countries have data for all years. If for instance, one country does not have data for one year then the data is unbalanced. Summing up, the data is all balanced.

6.4 Results of Pooled OLS Regression

Table 6.2 Results of Pooled OLS Regression

N=100

employ	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
minwage	0.006	0.001	4.28	0	0.003	0.009
first_edu	0.659	0.207	3.17	0.002	0.246	1.072
second_edu	0.290	0.202	1.44	0.155	-0.111	0.693
third_edu	0.187	0.204	0.91	0.364	-0.220	0.594
l_product	0.199	0.080	2.48	0.015	0.039	0.359
e_protect	-7.301	0.808	-9.03	0	-8.908	-5.694
d99	-3.015	1.990	-1.51	0.134	-6.974	0.944
d00	-2.804	1.976	-1.42	0.16	-6.735	1.126
d01	-2.603	1.962	-1.33	0.188	-6.506	1.299
d02	-2.212	1.935	-1.14	0.256	-6.061	1.636
d03	-2.166	1.946	-1.11	0.269	-6.038	1.704
d04	-1.746	1.925	-0.91	0.367	-5.574	2.081
d05	-0.899	1.918	-0.47	0.64	-4.715	2.916
d06	-0.951	1.909	-0.5	0.62	-4.748	2.845
d07	-0.584	1.907	-0.31	0.76	-4.377	3.209
d08	(omitted)					
_cons	20.782	19.312	1.08	0.285	-17.623	59.188

Due to OLS observation is biased and inconsistent; pooling the data is necessary which do not make any distinction between cross section and time series through pooled OLS estimation. A pooled regression model, assumes a constant intercept and slope regardless of employ variable. To proceed the process, ten dummy variables are included which are d99 until d08. After examine the pooled regression, all regression are highly significant except second_edu, third_edu, and dummy variables. This indicates that both independent variables second and third level of education is not very suitable measurement in this model to employment effects. However, we still can measure education factor that derive from labor with first level of education to be compared with.

Dummy variables is not significant due to Pooled Regression Coefficients do not measures demand effect separately for each individuality, but yield an overall measure of demand.

From the results also show that the coefficient of minwage is positive which indicate that rising minimum wage can help to boost employment rate. First_edu, second_edu and third_edu are all have positive relationship with employment, predict that according to the most highest coefficient, the lowest educational attainment at least, it will get higher chances for them to place in a job out here compared to those who are received secondary and tertiary education holders apparently. Increase in labor productivity also will increase in employment rate respectively. On the contrary, strictness of employment protection give negative correlation indicates that the higher degree of employment protection will expect to rise further in demand of workers. See (Appedix 2.2), Prob. F= 0.000 shows significant where at least one of the variables will explain the independent variables. R^2 = 65.59% of the variation in employment is explain by all independent variables in this study. Practically, in many situations, especially in panel data, the R-squared is quite low, thus the pooled regression result is biased because of after pooling the data, some of the unobserved individuality effect is not examine. To eliminate the heterogeneity effect, proceed with fixed effect.

6.5 Results of Fixed Effect

Table 6.3 Results of Fixed Effects

N=100

employ	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]	
minwage	0.004	0.002	1.99	0.049	.00001	.0087
first_edu	0.038	0.100	0.38	0.704	-.1608	.2373
second_edu	0.152	0.092	1.65	0.102	-.0310	.3360
third_edu	0.169	0.105	1.60	0.113	-.0410	.3797
l_product	-0.205	0.157	-1.31	0.194	-.5179	.1069
e_protect	0.290	1.088	0.27	0.790	-1.874	2.456
_cons	43.753	9.331	4.69	0.000	25.196	62.309
sigma_u	6.667					
sigma_e	1.607					
rho	0.945	(fraction	of variance due	to	u_i)	
F test that all	u_i=0:	F(9, 84) =	59.78		Prob > F = 0.0000	

Another advantage of the fixed effects model is that, since the estimation procedure is pooled ordinary least squares with a bunch of dummy variables, problems auto correlation is eliminated. Minwage is statistically significant, unlike the rest of other independent variables. Prob. F= 0.0609>0.05 (refer to Appendix 2.3) shows that the model where at least one of the variables will explain the independent variables. R^2 = 13.08% of the variation in employment is explain by all significant variables. The rest of 86.92% can be explained by other variables (first edu, second edu, third edu, labor productivity and strictness of employment protection). F test that all u_i = 0.

6.6 Results of Random Effect

Table 6.4 Results of Random Effect

N=100

employ	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
minwage	0.004	0.002	2.40	0.016	0.0008	0.008
first_edu	0.073	0.098	0.74	0.458	-0.120	0.267
second_edu	0.129	0.091	1.41	0.159	-0.050	0.308
third_edu	0.143	0.103	1.39	0.165	-0.059	0.346
l_product	-0.110	0.135	-0.82	0.414	-0.375	0.154
e_protect	-0.650	0.948	-0.69	0.493	-2.510	1.208
_cons	42.835	9.329	4.59	0.000	24.550	61.120
sigma_u	5.501					
sigma_e	1.607					
rho	0.9213	(fraction	of variance due	to	u_i)	

Two tails p-value test the hypothesis that each coefficient must different from 0. To reject this, the p-value has to be lower than 0.05 (95% we could also choose α =0.10). We can say only variables minwage has a significant influence on dependent variables (employ). Corr (u_i,x)=0 (refer to Appendix 2.4) assumed differences across units in random effect models are uncorrelated with the regressions. Interpretation of the coefficient is tricky since they include both within entity and between entity effects. In case of this data represent the average effect of employ over minwage_PPS, first_edu, second_edu, third_edu, labor productivity and strictness of employment protection when employ changes across time (year) and between countries by 1 unit. Rho is known as the interclass correlation, 0.9213 = 92.13% of the variance is due to differences across panel.

6.7 Results of Hausman Test

$$\text{chi2}(4) = (b-B)'[(V\_b-V\_B)^{(-1)}](b-B)$$

$$= 6.07$$

$$\text{Prob>chi2} = 0.4159$$

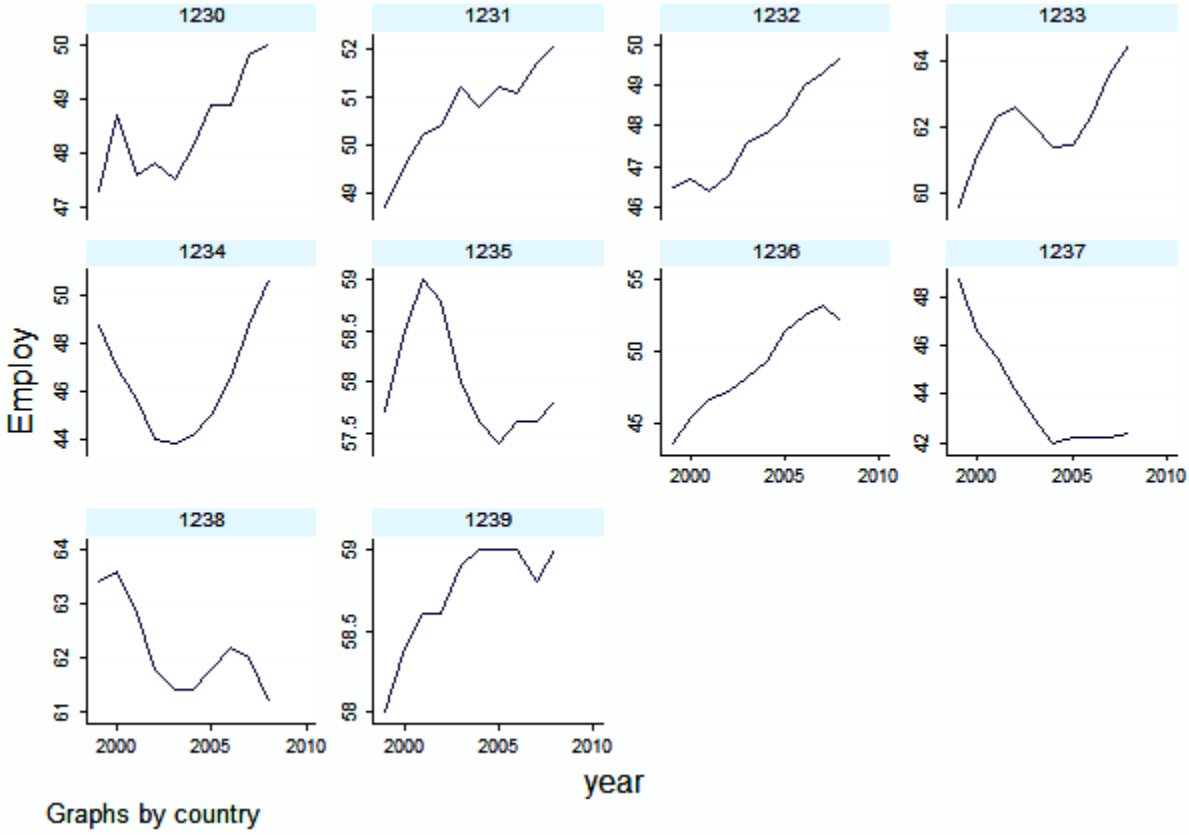
Conclusion: Reject H null. From Hausman Test result (refer to Appendix 2.5) we select to use fixed effect over random effect due the prob >chi2 in this case is greater than 0.05 respectively. In order that, Prob > chi2= 0.4159 is insignificant. Random effects rejected (inconsistent) in favor of fixed effects (consistent but not efficient). From previous econometric analysis we can conclude with three different estimator of employment rate equation in Table 6.5 down below.

Table 6.5 Three Different Estimator of Employment Rate Equation.

Independent Variables	Pooled OLS	Fixed Effects	Random Effects
Minwage	0.006	0.004	0.004
	(0.000)	(0.049)	(0.016)
First_edu	0.659	0.038	0.073
	(0.002)	(0.704)	(0.458)
Second_edu	0.290	0.152	0.129
	(0.155)	(0.102)	(0.159)
Third_edu	0.187	0.169	0.143
	(0.364)	(0.113)	(0.165)
L.productivity	0.199	-0.205	-0.110
	(0.015)	(0.194)	(0.414)
Employ.protection	-7.301	0.290	-0.650
	(0.000)	(0.790)	(0.493)

*Dependent Variable: Employment Rate * (P-Value)

Figure 6.1 Employment wage Trends on selected countries in Europe from year 1999-2008 (after minimum wage implementation)



*Noted that each code represent on each country. (1230- Belgium, 1231-France, 1232-Greece, 1233-Netherlands, 1234-Poland, 1235-Portugal, 1236-Spain, 1237-Turkey, 1238-United States, 1239-United Kingdom)

From the two-way graph line (Figure 6.1) of employment rate within year 1999 until 2008 on ten selected countries in Europe, we can conclude that after implementing minimum wage policy all most all countries indicates that there have positive trends in employment rate, where there is roughly hike rate from year to year that implies in Belgium, France, Greece, Netherlands, Poland, Spain and United Kingdom. Apart of that, only 30% of our selected countries have inverse effects of employment rate to their country. Summing up, we can conclude that our econometric analysis proved that

minimum wage policy give positive impact to employment rate in most selected countries in Europe.

6.12 Conclusion

This paper investigates the impact of minimum wage on employment and wages offered by selected countries in Europe from 1999 to 2008. It shows that the estimated effects of minimum wage, all level of education and strictness of employment protection on employment are positive within a province (i.e., with province fixed effects), but negative in labor productivity (i.e., with fixed effects), indicating the importance of using proxy independent variables of panel data to reduce the endogeneity bias in estimates. It finds significant heterogeneous effects of minimum-wage changes on employment. The negative employment impact is more severe if labor productivity accelerates. The analysis also shows that the higher degree of employment protection affects labor to enter the market. Lastly, this paper finds that the minimum wage is more correlated with employment, suggesting that minimum wages policy is a good enactment in Europe.

CHAPTER SEVEN

Conclusion and Policy Implication

7.1 Conclusion

Labor is a complex market and does not neatly behave according to the supply and demand models. Most employers have significant market power for the goods or services they produce, and so that they mostly pass on the increased labor costs in the prices of their products instead of cutting production and jobs. For the first objective, based on the regression results show that minimum wage has significantly affected to employment in positive relationship. When there is a hike in employee's income, employment rate will increase in the same direction, at the same time follow the Keynesian arguments, which support that higher wage rate will increase the disposable incomes of lower paid workers that have a propensity to consume more thus will increase their flow of income and spending.

Briefly to answer the second objective, Europe experience minimum wage that potentially affect demand for workers, especially refers to our observation of labor with different level of education. From the result, the lowest educational attainment at least, will give positive impact to employment rate in the Europe. In addition, this panel data models also find positive correlation between employment rate and employment protection**.** Job protection usually refers to the rules governing hiring and firing employees. The high degree of job protection also seems to strengthen the bargaining

position of labor insiders and bring about relatively high wages. These high labor expenditures are a likely to put in to limited job formation in existing firms, but also are expected to discourage the new entry and thus job creation in new firms. Surprisingly, the analysis of data presented in this study proposes different experience of labor regulation. If employment protection is chosen optimally, it does not shrink job creation compared to equilibrium without it. With the intention of study purposes, our entire research objectives are fulfilled.

7.2 Policy Implications

Efficiency wage arguments believe that by raising pay level for low paid employees may have positive effect on their productivity as to motivate themselves to moving forward. However, we should consider the other alternatives to the minimum wage, such as basic income and refundable tax credits. Collective bargaining also can be an alternative that maintains an individual freedom to choose, and avoids the use of force by the government. In my perspective, European countries have been investing more on human capital already. The effort must be praised but maybe there are somewhere wrong and we have to fix it. Providing more jobs in market can be the most important instrumental because of large market can benefit in many ways.

Government also can help those labors especially in uncovered sector (that mostly doing by labor with first level of education), by giving incentives or provide any welfare programs like giving voucher, discount card for household items and also services like health care, public transportation etc, providing easy loan for those who does not have salary slips but constant income statement, for instance car loan, house loan that may

improve the economic gaps between both sectors. Also we can do tax credit, unlike the welfare system, a person is required to work in order to receive the credits on their tax return. This will results in lower taxes paid on every paycheck, resulting equal by overall increase in a worker's net income also promotes labor force participation. Reservation wage is also an alternative for becoming employed because nobody will work for a below the reservation wage if they have choice. Following Herr and Kazandriska (2011), this will create market clearing wage in order to reduce unemployment in rural region and to reduce informal employment.

In a nutshell, proper programs and social security benefit would have better choice for promoting economic efficiency and will benefit all types of labor there. The most crucial matters is before implement the policy we need to consider various factors such as the general level of wage in the country to prevent larger income gaps between social groups, and also cost of living, so that any increasing in minimum wage is reasonable and also economic factors such as requirement of economic development, level of productivity and also level of employment in the country. To bear in mind, cost to cover unemployment problem probably more burdens if the target is fail, and for the sake of preventing waste in human capital investment in the future. However, there is no need to implement it drastically as we have to suit with current economic performance, enforcing it can be do batch by batch as a control group. Policy makers and governments need to consider all of these factors before rising up minimum wage to flourish their economy and social welfare.

7.3 Limitation of Study

Although this study has reaches its aim, there are some avoidable limitations. Firstly the most noticeable difficulty is that data limitation. Although European has experience in minimum wage regulation long years back, but there are some countries in EU does not have complete data resources. So to the extent of regression analysis, the study comes out within different countries that each of them has different capabilities by assuming that other factors are constant. Second, the population of the experimental is quite small, only 100 observations and maybe not represent the majority of working population in Europe respectively.

7.4 Suggestion

Even though economic research on minimum wages focuses widely on employment effect, some attention has been suggested such as to focus more on one certain country so that we can go into deeper analysis without being interrupted by other unobservable factors in other countries that possibly affecting employment rate due the minimum wage enactment. Lastly, with the intention of estimate substitution parameter, it is compulsory to observe considerable variation between workers, workplaces, industries, etc., with respect to those on minimum wages and those on market-based wages in future research.

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