

# Avrupa Borç Krizi Çerçevesinde Cesareti Kırılmış İşçi Etkisi ve İlave-İşçi Etkisi<sup>1</sup>

## The Discouraged Workers Effect and The Added Workers Effect in European Debt Crisis

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### Öz

Avrupa’da yaşanan borç krizinin ülke ekonomileri üzerinde birçok olumsuz etkisi olmuştur. Bu olumsuz etkilerden biride istihdam üzerinedir. Literatürde işgücüne katılma oranı ile işsizlik arasındaki ilişki temelde iki hipotez çerçevesinde incelenmiştir. Bu hipotezler “Cesareti Kırılmış İşçi Etkisi” ve “İlave –İşçi Etkisi”dir. Cesareti kırılmış işçi etkisine göre ekonomik durgunluğun olduğu dönemlerde uzun süredir iş arayan bireylerin iş bulma ümidini yitirmeleri sonucunda emek piyasalarından ayrılacağını öngörmektedir. Bu öngöründe işsizlik oranı azaldığında işgücüne katılma oranının artacağı ya da tersi durumun oluşması beklenmektedir. İlave-işçi etkisi ise yine ekonomik durgunluğun olduğu dönemlerde ailenin geçimini sağlayan kişinin işsiz kalması sonucu diğer aile bireylerinin emek piyasasına katılacağını öngörmektedir. Bu öngöründe işsizlik oranı azaldığında işgücüne katılma oranının da azalacağı ya da tersi durumun oluşması beklenmektedir. Çalışmamızda bu iki etkinin Avrupa borç krizinde seçilmiş Euro bölgesi ülkelerinde (PIIGGS-Portekiz, İrlanda, İtalya, Yunanistan, Birleşik Krallık, İspanya) geçerli olup olmadığı test edilecektir. Çalışmada Break Point Unit Root testi kullanılarak seçilmiş ülkelerde işsizlik oranı ve işgücüne katılma oranlarındaki kırılmalar tespit edilmiştir. Kukla değişkenli modeller yardımıyla yapılan hesaplamalarda, cesaret kırılmış işçi etkisi İrlanda, İngiltere ve Portekiz’de gözlemlenmiştir. İlave işçi etkisi Yunanistan’da açıkça görülmüştür. İtalya ve İspanya’da ilave işçi etkisi, cesaret kırılmış işçi etkisinden daha baskındır. İlave işçi etkisi, yarı zamanlı kadın çalışanlar için hesaplandığında Portekiz, İrlanda, Yunanistan ve Büyük Britanya’da istatistiksel olarak anlamlı hesaplanmıştır. İtalya’da, yarı zamanlı çalışan kadınlarla uzun vadeli işsizlik arasında istatistiksel olarak anlamlı bir ilişki yoktur. İspanya’da ilave işçi etkisinin zıt ve istatistiksel olarak anlamlı olduğu hesaplanmıştır. Başka bir deyişle, İspanya’da yarı zamanlı çalışan kadınlar ve uzun vadeli işsizlik verilerine göre ilave işçi etkisi yoktur.

**Anahtar Kelimeler:** Cesareti kırılmış işçi etkisi, İlave-işçi etkisi, Avrupa borç krizi.

### Abstract

The debt crisis experienced in Europe has had several adverse effects on economies of countries. Employment is one of the adversely affected areas. The relationship between the labor force participation rate and unemployment is essentially examined within the framework of two hypotheses. These hypotheses are “The Discouraged Worker Effect” and “The Added Worker Effect”. The discouraged worker effect anticipates that workers looking for employment for extended periods of time will withdraw from the labor market due to losing hope in periods of economic recession. According to this hypothesis, it is expected that the labor force participation rate will increase once the unemployment rate decreases and vice versa. The added worker effect anticipates that if the worker who provides the livelihood of the family becomes unemployed, other members of the family will participate in the labor market. According to this hypothesis, it is expected that the labor force participation rate will decrease once the unemployment rate decreases and vice versa. This study aims to test whether these two effects apply to selected Euro zone countries (PIIGGS-Portugal, Ireland, Italy, Greece, Great Britain, Spain) during the European Debt Crisis. In the study, the unemployment rate and labor force participation rates of the selected countries were determined by using the Break Point Unit Root test. In the calculations made with the help of dummy variable models, the effect of discouraged worker was observed in Ireland, Great Britain and Portugal. The added worker effect is clearly seen in Greece. In Italy and Spain, added worker effect is more dominant than discouraged worker effect. The added worker effect is statistically significant in Portugal, Ireland, Greece and the Great Britain when it is calculated for part-time female employees. In Italy, there is no statistically significant relationship between part-time female workers and long-term unemployment. In Spain, added worker effect was found to be opposite

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and statistically significant. In other words, there is no added worker effect on part-time female workers and long-term unemployment data in Spain.

**Keywords:** Discouraged Worker Effect, Added Worker Effect, European Debt Crisis

## Introduction

Hypotheses of “The Discouraged Worker Effect” and “The Added Worker Effect” are used to explain the relationship between the labor force participation rate and unemployment. The discouraged worker effect is defined as withdrawal of unemployed individuals from the labor market as a result of losing their hope to find employment due to increased unemployment rate and even worse conditions during periods of economic recession (Yamak and Yamak, 1999:17). Another definition is the active population during periods of economic shrinkage who do not look for employment using any channel in spite of being ready to work in case of finding employment due to losing hope and therefore are not included in the definition of the labor force (Turkish Language Association, 2016). The added worker hypothesis is defined as participation of other family members in the labor market during periods of economic recession in order to compensate for the lost income due to unemployment of the primary responsible or the income provider of the family. In this way, an attempt is made to diminish the difference between income and consumption (Gong, 2010, p. 2). Another definition is the temporarily increased labor supply from women with unemployed partners (Lundberg, 1985, p. 11).

If the discouraged worker hypothesis is valid in an economy, a negative relationship is expected between the unemployment rate and the labor force participation rate. In other words, the labor force participation rate will decrease in case of increased unemployment and vice versa. If the added worker hypothesis is valid in an economy, a positive relationship is expected between the unemployment rate and the labor force participation rate. In other words, the labor force participation rate will increase with increased unemployment rate and vice versa. It is noted in the literature that although women and the youth participate in the labor force when the unemployment rate increases, the discouraged worker hypothesis is more dominant (Lundberg, 1985, p. 12).

The discouraged worker hypothesis suggests that the calculated unemployment rate is lower than the actual unemployment during periods of economic recession. This is because those who used to be in the labor market will withdraw from the market with economic recession believing that they have no more chance to find employment. The added worker hypothesis, on the other hand, suggests that the calculated unemployment rate is always higher than the actual unemployment during periods of economic recession. This is because other members of the family enter into labor market due to unemployment of primary income provider. In other words, these individuals would not participate in the labor market if the primary income provider was not unemployed. In short, more than one individual will leave the labor market when a new employment opportunity is created for a single person (Yamak and Yamak, 1999, p. 17).

These two hypotheses may be observed in the same economy at the same time. They may be observed in the same household at the same time as well. When the primary income provider in a household becomes unemployed, individuals may participate in the labor market or stop searching for a job due to economic recession. Similarly, discouraged employment may be observed within a family, whilst added worker effect is observed within another.

## The Literature of the Discouraged Worker Effect and the Added Worker Effect

Although theoretical studies on discouraged worker effect and added worker effect are as old as those on unemployment rate and labor force participation rate, empirical studies are relatively new. Examples related to the subject from countries are not sufficient and the number of empirical studies in terms of economic recession is negligible. The relationship between the

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increase in labor supply of married women and unemployment of their husbands goes back to the study conducted by Woytinsky in 1942 (Stephens, 2000, p. 1).

Studies on discouraged worker effect focus on elimination of disadvantages caused by this effect. It is emphasized that to determine policies to reduce the number of discouraged workers is important. Such policies will influence behaviors of market participants. The number of jobseekers will increase, the minimum wage (reservation fee) acceptable by workers will increase and the expected labor supply and the expected profits of employers will increase as well. If the density of efficiency is an increasing function, a drop in the welfare payment will reduce the number of discouraged workers and the number of employers participating in the market will increase (MacMinn, 1980, pp. 83-84).

In a study conducted for Canada between 1953-1974, both discouraged worker effect and added worker effect were found to be insignificant for males between 25-44. In addition, a clear yet small discouraged worker effect was found for most gender and age groups (Kuch and Sharir, 1978, pp. 113-115).

Cave (1983) used the properties of rational and hedonic models to develop a structural model for categorical labor force behavior to help explain discouraged worker effect. Accordingly, contradictory pricing strategies such as the minimum wage tend to eliminate supply surplus. This prevents those who have a low probability to find employment from participating in the labor market. With the substitution effect of the wage increase, those who exceed the income effect desire to work more hours, whereas they desire to work less hours in the opposite case. Minimum wage adjustments made after labor markets reach a balance reduces the labor demand. All those who are affected by this reduction in demand are discouraged workers. The author concludes that the number of discouraged workers depends on the efficiency of labor and the substitution flexibility of physical capital (Cave, 1983, pp. 286-299).

Discouraged worker effect was investigated for England in a study covering 1978-1992. It was noted in this study that the satisfaction level of the woman whose husband is employed and the satisfaction level of the woman whose husband is unemployed may be different. Discouraged worker effect and whether there is a descriptive relationship between free times of spouses were tested within this framework. An attempt was made to reflect employment opportunities encountered by all members of the family using local labor markets. It was suggested that spouses have a lower probability of looking for employment in periods of economic crisis and a discouraged worker effect is observed in general. The discouraged worker effect was calculated using the monthly regional unemployment rates in the study. Accordingly, a 1% increase in unemployment reduces the employment of the spouse by 0.8%. One-fourth of this decrease arises from discouragement. This effect was calculated to be stronger for women with unemployed husbands (Bingley and Walker, 2001, pp. 158-171).

Added worker effect and discouraged worker effect were investigated for urban Turkish families between 1988-1994. The effect of the crisis of 1994 on employment choices of spouses was found to be statistically significant. Also, it was concluded that added worker effect was more dominant compared to discouraged worker effect in the period investigated (Başlevent and Onaran, pp. 2003:440).

In a study conducted for Turkey, it was anticipated that macro-shocks seen in periods of adversity such as crisis periods would decrease employment opportunities, disturb working conditions and weaken added worker effect at micro level. It was noted that discouraged worker effect would be triggered as a result (Değirmenci and İlkaracan, pp. 2013:28).

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Most of the empirical literature on added worker effect focuses labor supply of women who are not participants of the market in the United States. For this reason, added worker effect was calculated to be small or none in initial studies (Bredtmann, 2014:6). In an initial study conducted on the subject in the United States, it was concluded that labor supply of married women depends on two reasons. The first is the long-term income expectation of spouses and the second is the deviation of current income from its normal level. In this context, a significant relationship was found between the decrease in working hours of the male spouse, thus the income, and the participation of the married woman in labor market. The deviation of the current income from its normal level was found to increase labor supply of married women as well (Mincer, 1962, pp. 72-73).

In another regional study for the United States, a significant relationship was found between the increase in unemployment rate of male spouses who provide the household income and the employment of female spouses. The crosstab analysis showed that the probability of married women's participation in labor force is the highest when their spouses are unemployed. Besides, it was found that this phenomenon is more dominant in black and Hispanic families in comparison to white families (Lundberg, 1985, pp. 22-25).

Another study related to added worker effect focuses on the effect of current employment status of the spouse on the woman's participation in labor market, rather than the participation status of women with unemployed spouses. Labor market participation responses of women to the dismissal of the spouse in short and long term were investigated. The relationship between the amount of income loss in case of the spouse's job loss and entry of women into the labor market was examined. It was found in the study that an income loss of 25% and above increases women's entry into the labor market in long term (Stephens, 2000, p. 1).

In a study conducted for a different region of the United States, a strong relationship between the working time of the male spouse and the participation of the female spouse in the labor market could not be found (Heckman, Macurdy, 1980:67). In a study performed for the period between 1980-2000, the probability of added worker effect was found to increase from 4.68% to 8.3% (Mankart, Oikonomou, 2016, p. 48).

Studies related to discouraged worker effect and added worker effect examine the effects of crises and similar cases on labor markets within the framework of these hypotheses. Studies on discouraged worker effect investigate economic reasons behind individuals' losing hope in job search. Such studies focus on reasons behind alienation or complete withdrawal of individuals from labor markets and resulting impacts. Studies on added worker effect mostly focus on the extent to which the female spouse participates in the labor market in case of unemployment of the male spouse. Other than the female spouse, there are studies on the participation of other family members in the labor market as well.

The crisis of 2007 affected many countries in Europe. Economic crisis leads to contraction of the market. As a result of contracted market, the demand in the labor market decreases. Unemployment, which is perceived as a problem by countries, becomes an even more important matter in periods of crisis. The problem of unemployment, the fight against unemployment and similar problems in the labor force market have frequently appeared on the agenda during the crisis experienced in Europe. The present study examines Portugal, Ireland, Italy, Greece, Great Britain and Spain, referred to as PIIGGS countries, which were the most affected countries from the crisis of 2007.

### **European Debt Crisis and PIIGGS Countries**

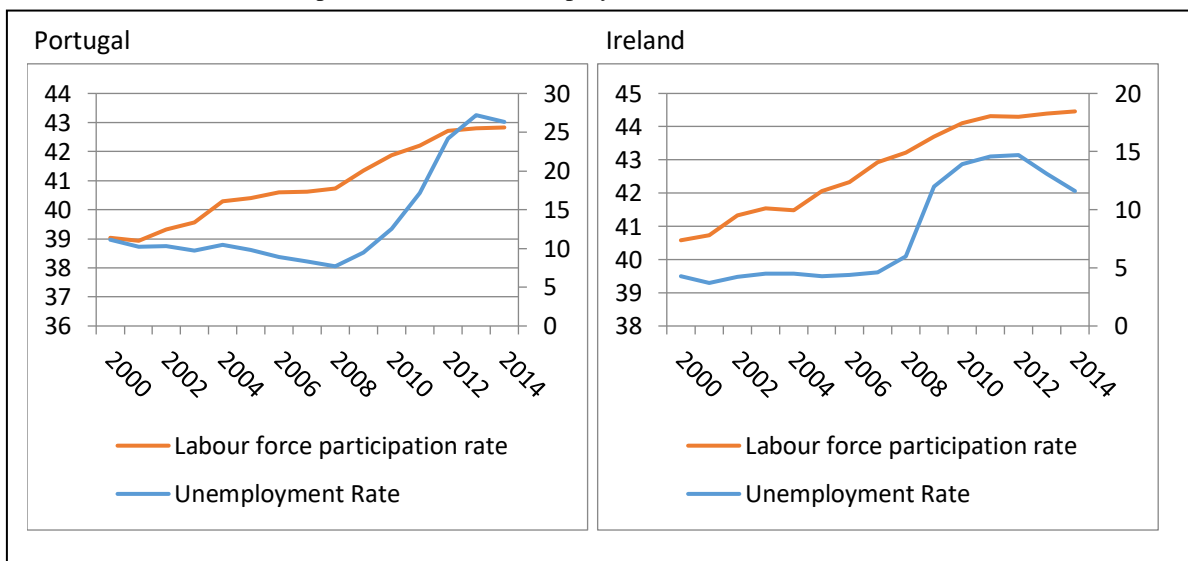
To review basic characteristics of labor markets in PIIGS countries, which are suggested to be the worst affected countries from the European debt crisis, will be very useful to understand discouraged worker effect and added worker effect in these countries. In this context, the most recent developments related to labor market in Portugal, followed by Ireland, Italy, Greece, United Kingdom and Spain can be summarized as follows.

Unemployment in the period after 2000 was deemed reasonable in Portugal, which led to lack of policies produced in relation to this matter. The unemployment statistics which were re-adjusted in 2014 showed that the unemployment rate was higher than thought. The latest statistics published (2016) showed the presence of discouraged unemployment in the country. The worsened perception related to the unemployment rate influenced expectations and increased unemployment and the number of discouraged workers (IMF, 2014, p. 82).

In years after the crisis, the problem of long term unemployment was given great importance in Ireland. Especially construction and manufacturing industries were addressed, which saw a decrease of approximately 50% in employment during the crisis. Another remarkable situation in the country is the increase in employment in health and education industries during the crisis period. Very strict conditions for unemployment benefit in the country are a factor which improves the willingness to job search. The point of giving up on job search (being discouraged) is higher compared to other countries (O,Hogan, 2016).

To solve the problem of unemployment, Ireland placed the technology to the center of the growth process (Solow Growth Model). Efforts were made to improve job creation in older companies and professions. Similarly, Efforts were made to create jobs in newer companies and professions.

**Chart 1:** Labor Force Participation Rates and Unemployment Rates 2000-2014 (1)

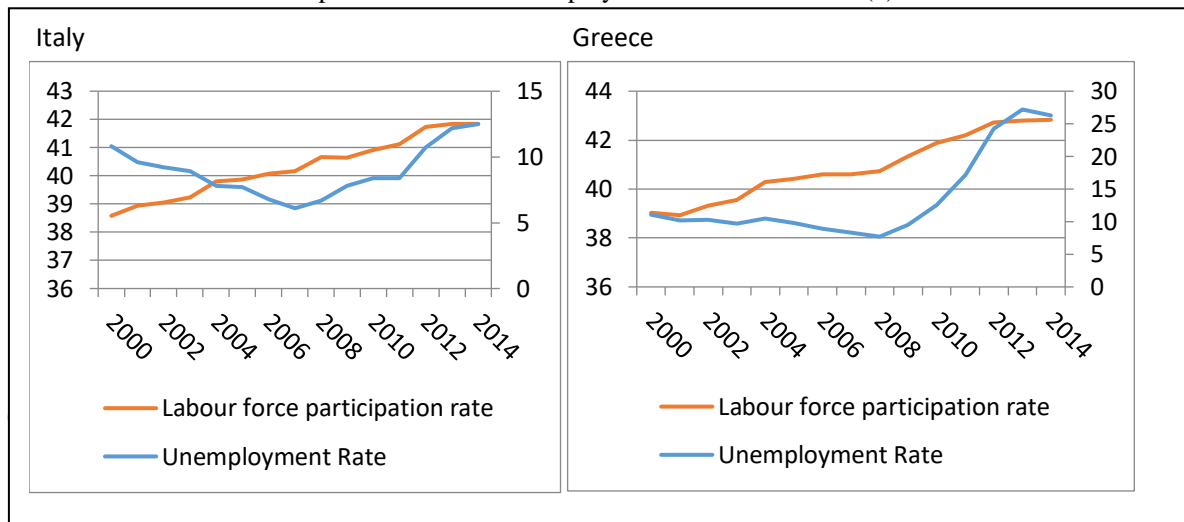


The labor market reform implemented in Italy in 2012 to fight against unemployment involved the protection of workers via permanent contracts. No finding was obtained showing that this implementation reduced unemployment in Italy. Policy makers believe that the permanent protection of workers by the law increases unemployment. The unemployment rate in the country usually follows the EU average. However, there is a considerable difference between the North and the South of the country. The unemployment rate is higher in the North compared to the South by approximately 20% (Piazza and Myant, 2015, p. 15).

Greece was affected more badly from the crisis compared to other countries. The unemployment rate of the country reached record levels. The rate increased even further with the youth unemployment rate. Theoretically, in case of high unemployment, the exchange rate must be adjusted (devaluation) with expanding fiscal and monetary policies which will increase the total demand in the economy. However, implementation of such policies in Greece is prevented due to its membership in the EU (Pettinger, 2014).

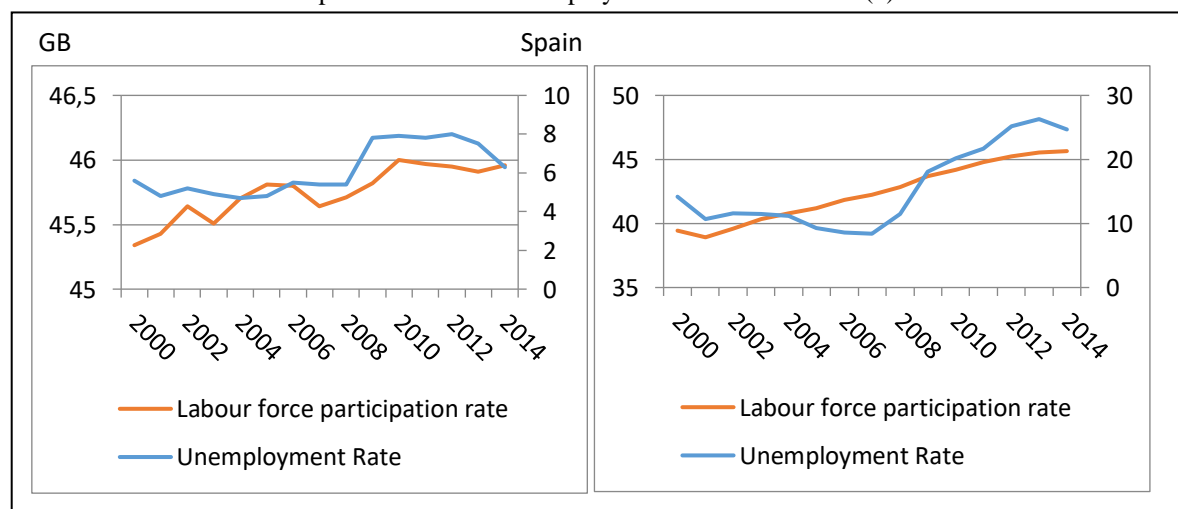
Greek labor markets seems to have a low labor force participation rate for women, a high self-employment rate, a large agricultural sector, albeit shrinking, and a rapidly expanding service industry. Governments mostly preferred to use social funds to eliminate problems in this structure (Papadopoulos, 2016, p. 1).

**Chart 2:** Labor Force Participation Rates and Unemployment Rates 2000-2014 (2)



High employment rates (12%) experienced in the Great Britain in early 1980s dropped to around 5% as a result of the expansion in late 1990s and early 2000s. This meant almost complete employment. In 2008, individuals dismissed due to a deep recession increased the unemployed rate sharply. However, although the recession continued in the period after 2008, the unemployment rate decreased unexpectedly. This was associated with high flexibility of the labor market and encouragement of individuals for job search due to changes in earnings. In this case, one would expect a low discouraged worker effect.

**Chart 3:** Labor Force Participation Rates and Unemployment Rates 2000-2014 (3)



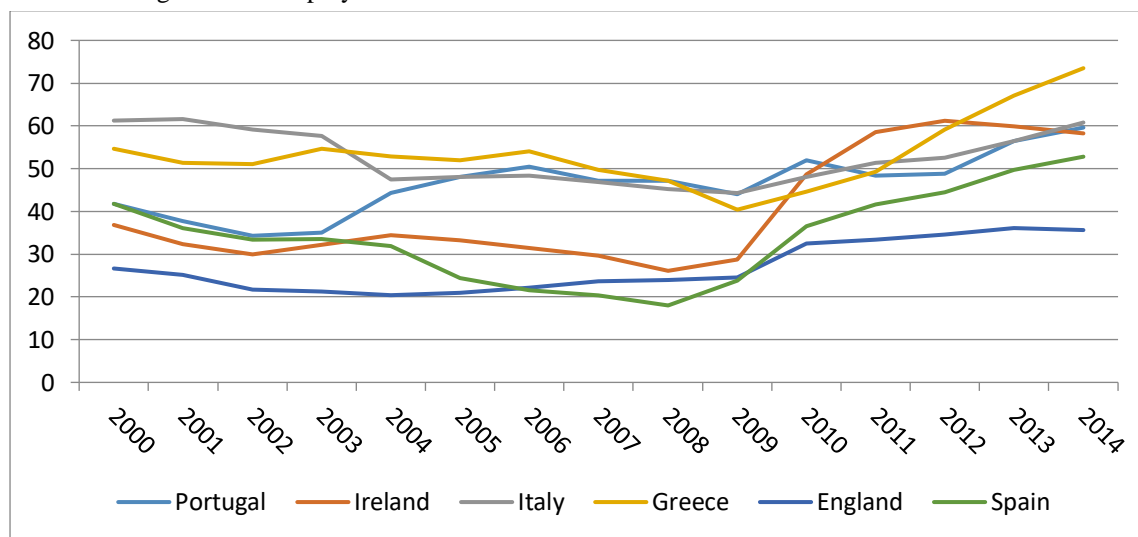
After the crisis of 2007, the recession experienced in the EU affected many countries. Although developments in important economies of the region after the crisis helped reduce unemployment rates, the unemployment rate of 20% in Spain is well above other countries experiencing economic difficulties such as Italy (11%) and Portugal (12%). In addition to the high unemployment rate, another result is the pessimism related to youth unemployment figures (Evias, 2016).

The main reason behind this situation in Spain is very high unemployment benefits, which could not be lowered despite of reforms. High unemployment benefits reduce job search tendencies and cause individuals to shift to discouraged worker statistics. The dual structure in labor markets does not encourage individuals to become continuous workers. 92% of approximately 16 million employment contracts executed in 2015 were temporary employment contracts. One out of every four contracts had a duration of less than seven days (Mount, 2015).

### Discouraged Worker Effect and Added Worker Effect

Discouraged worker effect is usually defined in the literature as elimination of unemployed individuals' desire to participate in labor markets and giving up on job search due to adversities in the economy. Long-term unemployment rates showing individuals looking for employment for over a year in the countries addressed are used for this purpose. Long-term unemployment trends in the selected countries between 2000-2014 can be seen in the chart below.

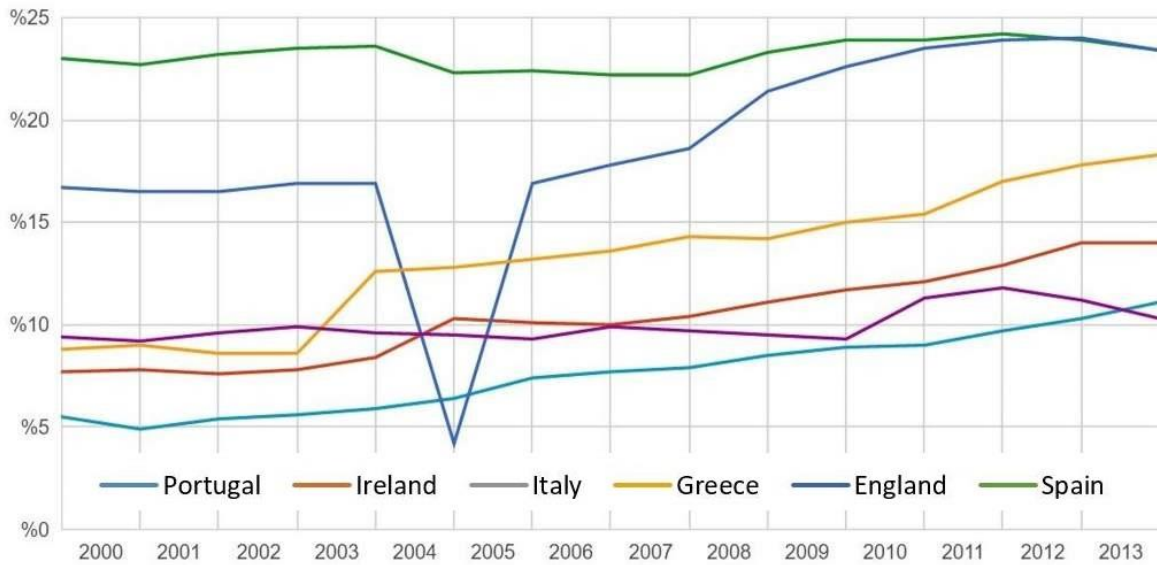
**Chart 4:** Long Term Unemployment Rates of PIIGGS Countries 2000-2014



Although an improvement is observed in Ireland and Great Britain in terms of the long term unemployment rate, the rate continues to increase in Greece, Italy, Portugal and Spain.

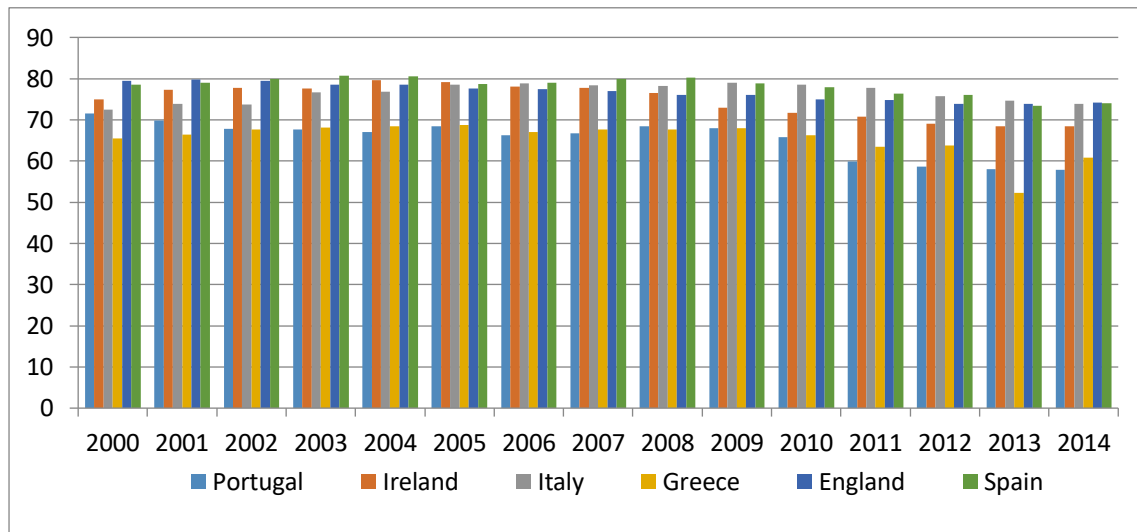
Added worker effect is defined as the participation of the female spouse or other family members in the labor market due to a shrinkage in the economy or decreased income expectation. The labor force participation rate of women and children is used to measure this effect in the literature. Another indicator is the increase in the demand for part-time jobs.

**Chart 5:** Part-time Employment in PIIGGS Countries 2000-2014



The part-time employment, which shows a horizontal progress until 2007, seems to have shown an increasing trend after 2007. A decrease is observed to have started in Portugal, Great Britain and Ireland in terms of part-time employment after 2011. However, this decrease does not seem to take part-time employment to the level before the crisis in these countries. The chart below shows part-time employment for women in the selected countries.

**Chart 6:** Part-time Employment for Women in PIIGGS Countries 2000-2014



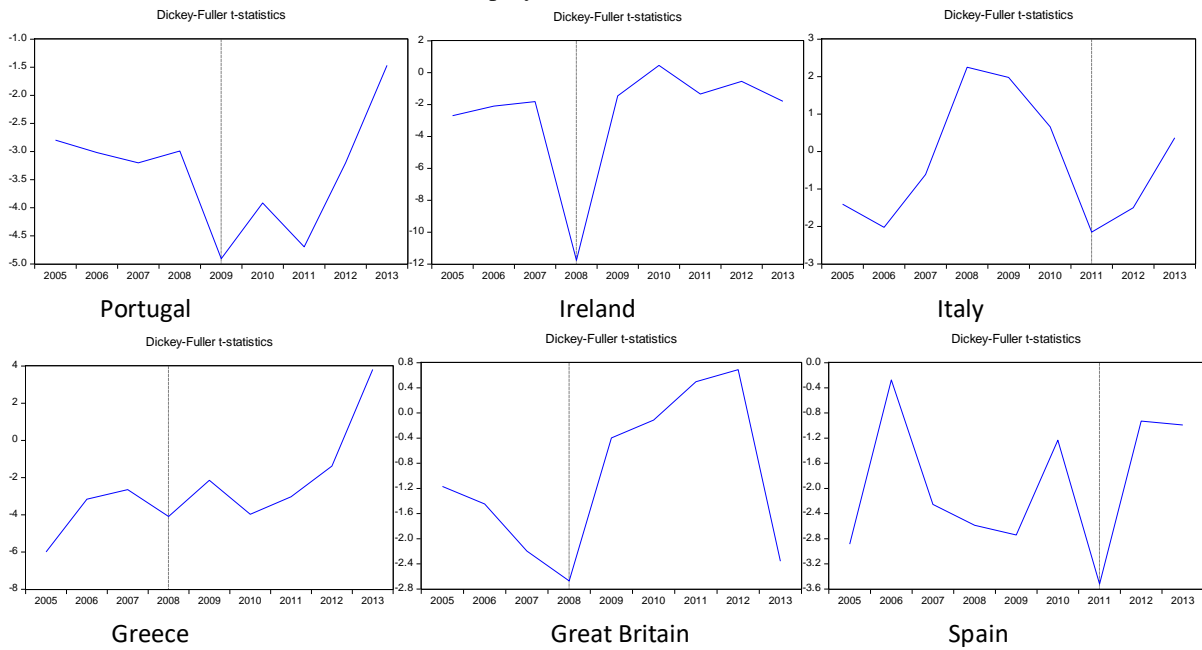
Part-time employment for women did not show a considerable change in Great Britain. This is because of the high overall labor force participation in the country. The largest change in part-time employment for women is observed in Greece. The main reason behind this increase is the severity of crisis in Greece and the traditionally low labor force participation rate of women. The low labor force participation rate of women might have led women to enter into labor markets to maintain expected income during the period of crisis.

### Data and Initial Analysis

Whether the year 2007 constituted a break point in terms of unemployment rates and labor force participation rates was investigated by Break Point Unit Root test in the analysis performed for the selected countries using the data between 2000-2014.

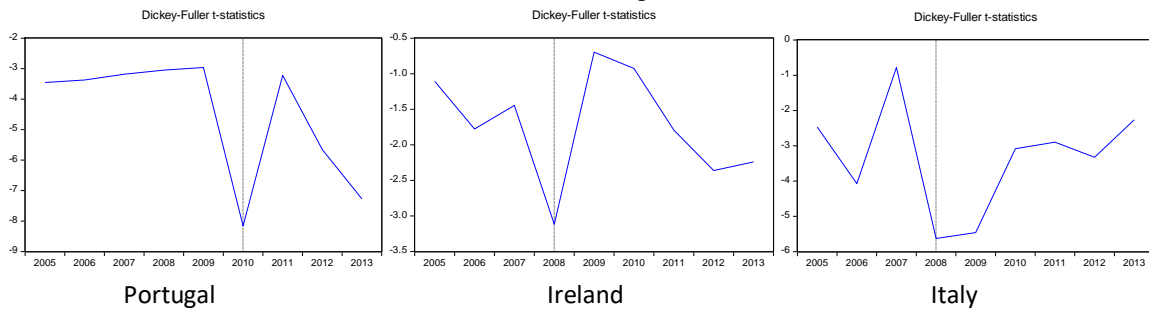


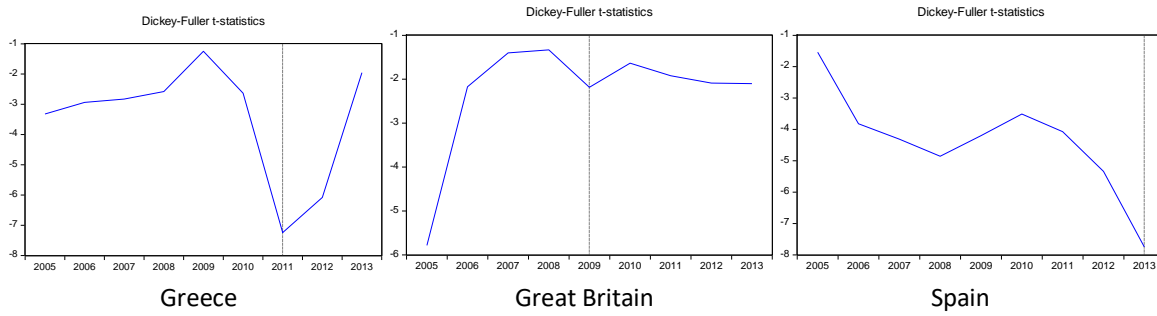
**Chart 7: Break Point Unit Root Tests-Unemployment Rates**



The break point in terms of unemployment rates was found to be 2009 for Portugal, 2008 for Ireland, 2011 for Italy, 2008 for Greece, 2008 for Great Britain and 2008 for Spain.

**Chart 8: Break Point Unit Root Tests- Labor Force Participation Rates**





The results in terms of labor force participation rates were 2010, 2008, 2008, 2011, 2009 and 2013 respectively in the same order.

The expected relationship between the unemployment rate and the labor force participation rate under discouraged worker effect and added worker effect is as follows in the literature.

-Discouraged Worker Effect: Unemployment Rate  $\uparrow$  Labor Force Participation Rate  $\downarrow$ , if the unemployment rate increases, the labor force participation rate is expected to decrease. Or vice versa.

-Added Worker Effect: Unemployment Rate  $\uparrow$  Labor Force Participation Rate  $\uparrow$ , if the unemployment rate increases, the labor force participation rate is expected to increase. Or vice versa.

In the calculations made with the help of dummy variable models, the following results have been reached for the selected countries among the long-term unemployment rates and labor force participation rates. Ireland is calculated as the most corrupt country. Great Britain, Portugal, Italy, Spain and Greece followed Ireland. According to the results, the discouraged worker effect is observed in Ireland, Great Britain and Portugal. The added worker effect is clearly seen in Greece. In Italy and Spain, added worker effect is more dominant than discouraged worker effect. The added worker effect is statistically significant in Portugal, Ireland, Greece and the Great Britain when it is calculated for part-time female employees. In Italy, there is no statistically significant relationship between part-time female workers and long-term unemployment. In Spain, added worker effect was found to be opposite and statistically significant. In other words, there is no added worker effect on part-time female workers and long-term unemployment data in Spain.

The analysis performed for the selected countries yielded the following results.

	Unemployment Rate-Labour force participation rate	Part-time female workers-long-term unemployment
<b>Portugal</b>	Discouraged worker effect	Added worker effect +
<b>Ireland</b>	Discouraged worker effect	Added worker effect +
<b>Italy</b>	Added worker effect > Discouraged worker effect	statistically insignificant
<b>Greece</b>	Added worker effect	Added worker effect +
<b>G.Britain</b>	Discouraged worker effect	Added worker effect +
<b>Spain</b>	Added worker effect > Discouraged worker effect	Added worker effect -

The analysis performed for the selected countries showed that discouraged worker effect was more dominant than added worker effect in Portugal, Ireland and Great Britain in the period after the crisis of 2007. It was concluded that added worker effect was more dominant compared to discouraged worker effect in Italy, Greece and Spain.

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## Conclusion

There are many adversities in the economy which policy makers try to eliminate. In addition to adversities in the economy, policy makers and citizens want to improve the current status as well. Economic growth, increased employment-decreased unemployment, increased foreign trade volume-decreased external deficit and equal income distribution may be listed as main goals for an economy. Among above mentioned goals, increased employment and decreased unemployment constitute the basis of our study. Unemployment is one of the most basic indicators showing the status of an economy. Today, every country gives great importance to unemployment and employment, regardless of development level. Although tools and methods may differ between countries, the main goal is to eliminate unemployment and create employment. Changing production methods associated with developing technology around the world limit the participation of individuals in labor markets. Moreover, the increase in population of a country has a significant effect as well. Higher population growth rates of underdeveloped and developing countries reduce employment opportunities and create unemployment problems in these countries. Although causes of unemployment may differ, its impact on countries is similar. In this study, unemployment and labor force participation rates in PIIGGS countries were examined within the framework of discouraged worker effect and added worker effect, which is not very common in the literature.

In this context, an attempt was made to investigate effects of the crisis of 2007, which started in the United States and spread to Europe, worst affected countries. The relationship between unemployment rates and labor force participation rates in these countries was observed for the crisis and post-crisis periods. It is assumed that the increase in the unemployment rate leads to a decrease in the labor force participation rate under discouraged worker effect in periods of economic recession. On the other hand, the increase in the unemployment rate is assumed to lead to an increase in the labor force participation rate under added worker effect. In our study, it was concluded that added worker effect was more dominant compared to discouraged worker effect in Italy, Greece and Spain, whereas discouraged worker effect was more dominant compared to added worker effect in Portugal, Ireland and Great Britain.

The main purpose of examining these effects and these countries is to investigate fitness levels of unemployment and employment policies implemented by countries in periods of economic recession, as well as to observe these two effects. For example, the fact that the unemployment rate was deemed reasonable and production of appropriate policies was neglected in Portugal might have deepened the problem. To take unemployment figures into account only is not sufficient for countries when making policies related to unemployment and employment. The increase in the number of discouraged workers will decrease the participation in labor markets and also cause a burden on the economy due to unemployment benefits. According to discouraged worker effect hypothesis, the calculated unemployment rate will be lower than the actual unemployment rate. Because economic recession cause individuals in job search to lose their hope and withdraw from labor markets. According to added worker effect hypothesis, on the other hand, the calculated unemployment rate will be higher than the actual unemployment rate. This is because family members with an unemployed main income provider enter into labor markets.

From this perspective, traditional approaches will not allow for successful policies related to unemployment and employment in Portugal and Ireland. It is necessary to develop policies aimed at including discouraged workers in labor markets in these countries. In other countries, it will be more useful to make policies aimed at ensuring continuity of workers in labor markets.

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