

Youth Unemployment

The cases of Denmark and Italy

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Number of Pages: 77

Number of UBS: 180 279

ABSTRACT

Over the past two decades, government and international organizations have had major concerns towards problems related to youth unemployment. Young people out of work are among those mostly affected by economic and financial dynamics, like what we observed in the recent financial crisis of 2008/2010.

The purpose of this dissertation is to investigate whether economics and financial factors influence the development of youth unemployment. The main focus was directed towards Denmark and Italy. The choice of analyzing these two specific countries derives from the interest in the two labor markets, which present unique and almost opposite features. The econometric analysis will investigate whether growth in real GDP, inflation and short term interest rates are significant to changes in the youth indicator. Moreover, these results will be compared across the two countries

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ABBREVIATIONS

ALMP: Active Labor Market Policy

ATR: Adult Training and Retraining Program - Denmark

CBA: Collective Bargaining Agreements

DA: Danish Employers' Confederation

DKK: Danish Crowners

EU: European Union

EPL: Employment Protection Legislation

GDP: Gross Domestic Product

ILO: International Labour Organization

INPS: Istituto Nazionale Previdenza Sociale (National Institute for Social Welfare – Italy)

ISTAT: National Institute for Statistics - Italy

LMP: Labor Market Policy

LO: Confederation of Trade Unions in Denmark

OECD: Organisation for Economic Co-operation and Development

OLS: Ordinary Least Square

YUP: Youth Unemployment Program

1 INTRODUCTION

Over the past two decades, governments and international organizations have had growing concerns towards problems related to youth unemployment. Young people out of work are among those mostly affected by economic and financial dynamics. During the last financial crisis, the European average revealed a youth unemployment rate of approximately 15 %, which was 5 percentage points higher compared to the average total unemployment rate in the same area. The forecast for the coming months suggested that a new recession will impact heavily on this segment of the population (Economist, 2011).

In order to investigate the development of youth unemployment I decided to focus attention on the cases of Denmark and Italy. The choice of analyzing these two specific countries derives from the interest in the two labor markets, which present unique and almost opposite features. Facts and data provide evidence of two diverse systems of overcoming youth unemployment. On one hand, the Danish government has been working on measures that focus on training/educational programs directed at the young unemployed. On the other hand, Italy has been focusing on ways to increase the flexibility within the labor market, in order to offer greater job opportunities to young people out of work.

Due to the strong differences between the Danish and Italian labor markets in terms of policies, structure and size of the market, working culture, welfare system, etc, one of the objectives of this dissertation is to compare the two countries analyzing them under different perspectives. The second intention of this thesis is to identify some of the economic and financial factors that influence the development of unemployment among youngsters. For this purpose, the econometric analysis will investigate whether growth in real GDP, inflation and short term interest rates are significant to changes in the youth indicator in the two countries. Through the regression models it will be possible to see if the two indicators present similar features under a macroeconomic dimension.

Problem Statement

The purpose of this dissertation is to analyze the characteristics of the Danish and Italian labor markets, as well as identify the main differences and investigate on factors that affect youth unemployment in the two countries.

For these reasons, the focus will be on the following research questions:

P1. What are the main characteristics of the Danish and Italian labor markets today?

P2. Focusing on youth unemployment: what are the key differences between the two countries?

P3. Which factors determine changes in the youth unemployment rate in Italy and Denmark?

1.1 Scope

The preliminary intention of this thesis was to analyze the effects of the recent financial crisis on the overall labor markets. However, due to the extensive increase in the youth unemployment during the last three years the focus was narrowed down towards this specific segment of the population.

The Danish and Italian labor markets were chosen as the two main countries because they embrace very different characteristics in terms of labor market policy, working culture and structure of the labor system.

The timeframe of this dissertation is from 1990 to 2010. The connection between the two countries and this specific time period is related to several events that have influenced the youngsters' role within the labor market. On one side, as mentioned early, the financial crisis between 2008 and 2009, and on the other, the development of the labor market policies, which significantly affected the young workers.

1.3 Methodology

In order to answer the three research questions stated above, it is necessary to establish two distinct methods, which divide the dissertation in two main sections.

Part 1 provides a description of the two labor markets, in terms of main characteristics, labor market policies, costs of the labor system and development of the unemployment rate, focusing on the youth

indicator. Therefore, the process involves mainly data collection, gathering of historical information relevant to the topic and description/explanation of the figures.

Part 2, instead, presents an econometric analysis of youth unemployment in the two countries. The aim of this section is to find whether growth in real GDP, inflation and short-term interest rate influence youth unemployment and if the relationship between the three variables and the indicator changes with the recent financial crisis.

The first step of the econometric analysis is to test the stationarity of four time series, relatively to Denmark and Italy, on the basis of the Dickey-Fuller test and Augmented Dickey-Fuller test. In the few cases of non-stationarity, the Engle-Granger test will be performed to assess whether there is co-integration between the variables and the youth indicator.

In a second moment, these relationships are modeled through an ordinary least square (OLS) regression, where Model 1 presents growth in real GDP, inflation and short-term interest rate as independent variables, while Model 2 includes also a dummy variable representing the crisis. The OLS regression are then supported by the following tests: normality of the error terms carried out by the Jarque-Bera test; test for heteroscedasticity, performed by White's test, and for autocorrelation with the Breusch-Godfrey's test or LM test. At last the Newey-West test is applied to the four models in order to correct the error terms from any autocorrelation and heteroscedasticity.

1.4 Data Collection

As mentioned earlier, the analysis in this dissertation covers the period from 1990 to 2010. The data underlying this dissertation were extracted mainly from two databases which are compiled by Statistics Office of the European Communities (EUROSTAT) and the Organization for Economic Cooperation and Development (OECD). Additional information regarding the Danish economy and labor market were derived from Statbank Denmark, while Italy's specifics were mostly gathered from the National Institute for Statistics (ISTAT).

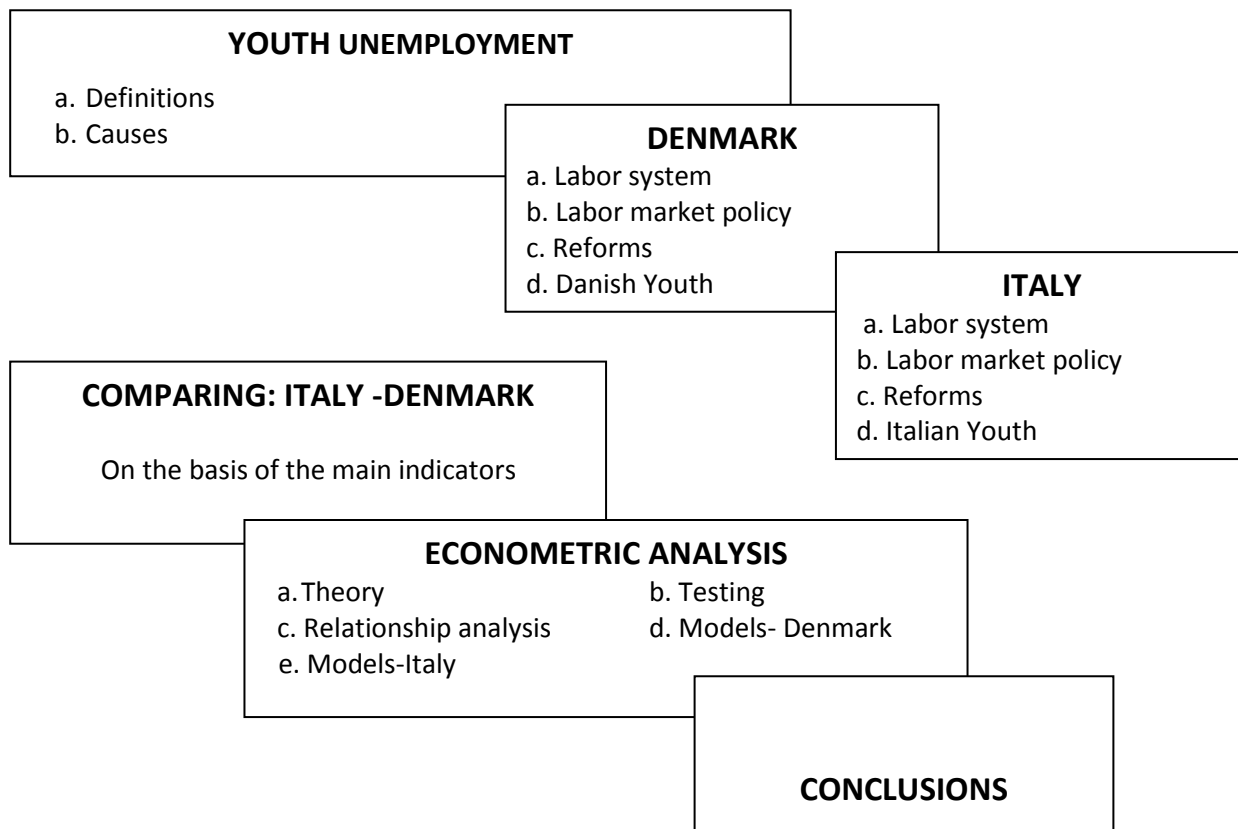
The availability of the data and the objective of investigating on large samples were crucial for the foundation of this thesis, especially for the econometric analysis in Part 2. The time series for Denmark range between 2nd quarter 1991 to 4th quarter 2010, while for Italy they are between 2nd quarter 1990 and 4th quarter 2010.

1.5 Delimitations

Given that the labor market is highly affected by the stability of the economy, and there is a wide range of external factors influencing a country's financial system. For instance, global and local politics, international agreements, access to resources, etc. Moreover, taking in to account that these external forces constantly affect a country's economy and the consequences can stretch over time because of this it is difficult to isolating the individual effects. Therefore it was essential to narrow down the factors that could represent the economy's stability and health. The focus has been to analyze economic indicators spotlighting the countries' labor market policy, in this respect growth in real GDP, inflation and short-term interest were considered suitable factors.

This dissertation does not have one specific section presenting only the literature review, however, papers and reports are discussed while describing the two labor markets, and in the theoretical section that supports the econometric analysis. Given the wide problem statement, this solution provided a clear structure to the thesis.

1.6 Outline



2 YOUTH UNEMPLOYMENT

2.1 Definitions

Youth unemployment refers to young people that are out of work. Given that one of the goals of this dissertation is to analyze this segment of the population, it is worth spending time defining the two terms separately. The first step will be to explain the concept of youth, followed by the definition of unemployment.

2.1.1 Youth

Due to several factors, such as society, institution, culture and regulations, the definition of youth can change significantly between and within countries. The age-group associated to young people is linked to the role they have in the society, based on legal, cultural and political aspects. For example, the definition of youth varies within Italy, in the North it's considered between 14 and 29, in the South from 14 to 32 (O'Higgins, 1997).

In general, the various definitions do not agree on the lower or upper bound of the age-group. However, in economic terms the lower limit is set at the period of age when mandatory schooling ends, 15 years old.

This dissertation will use the notation provided by the UN, according to which: '*Youth comprises the age-group between fifteen and twenty-four inclusive*' (O'Higgins, 1997, p. 6). Even though this age range embraces teenagers and young adults, this distinction will not be considered relevant for the purpose of this thesis.

2.1.1 Unemployment

The International Labour Organization (ILO) defines the '*unemployed as those people who have not worked more than one hour during the short reference period but who are available for and actively seeking work*' (O'Higgins, 1997). This definition excludes: students, retired and discouraged workers. On the other side, *employment* is defined as individuals in paid work, and includes persons: at work performing some occupation for wage or salary, or is currently with a job but temporarily not at work. In other words, it includes short-term employees, apprentices, laid-off persons, workers on leave (Kruppe, Müller, & Wichert, 2007).

Going back to the purpose of this section, it is worth mentioning about the different forms of unemployment. The first distinction is between voluntary and involuntary unemployment, where the former one refers to a state of willingness of the individual to be out of work; while the latter, describes a situation in which a person does not have a job but it is not his or her choice to be unemployed. Within involuntary unemployment there are three additional categories, known as:

- Frictional unemployment
- Structural unemployment
- Cyclical unemployment

Frictional unemployment is described as short-period unemployment generally while workers are changing jobs or seeking for their first occupation. In this case, unemployment is not associated to slumps of the economy or market failures; indeed, it benefits the single individual, as well as, the whole labor system by improving the job-matching process. On one hand, it encourages workers to search for jobs that suit them best, and on the other, firms find motivated employees that are the right fit for the vacant positions. However, active labor market policies can reduce this type of unemployment by improving the availability of job information and subsidizing the searching costs.

Structural unemployment is caused by the mismatch between employment vacancies and workers' skills, which usually results from technological changes. Under this type of unemployment, the individuals have to retrain and acquire new competences in order to upgrade their knowledge and obtain another job.

Cyclical unemployment is a recurrent spell of unemployment arising at specific stages of the business cycle, which is characterized by periods of growth followed by downturns. In this case, unemployment results from a deficiency of the aggregate demand, and the decline in job vacancies, within a certain region or industry that lasts for a limited period of time (ILO, Tackling Youth Employment Challenges, 2011).

The next sections present the main causes behind youth unemployment and the reason why the youth indicator is typically higher than the adult rate.

2.2 Reasons for jobless youngsters

Under economic perspective, youth unemployment is caused by an imbalance between supply and demand. In most circumstances the demand for young workers is lower than its supply. A potential justification is the mismatch between the youths' education and the skills required to obtain a certain occupation. Employers cannot find the right competences and working experience within the youth labor force (ILO, Tackling Youth Employment Challenges, 2011).

Low education and experience are with no doubt significant aspects of youth unemployment; however these are not the only ones. Several studies tried to explain the factors that cause this social condition among youngsters. Their common denominator suggests that the main reasons are related to the country's characteristics, such as economic conditions, labor market and policies (Contini, 2010) and their families' background (Pozzoli, 2009). Even though, in general youth unemployment is mainly related to:

- Labor market regulations
- Performance of economy
- Demographic issues

Well designed labor market regulations are important to build an efficient and non-discriminatory labor system but at the same time they can also produce a few drawbacks in the labor market. As a matter of fact, employment protection legislation (EPL) and other interventions, such as the introduction of minimum wages, have been recurrently criticized to affect youth unemployment. Several studies argued that countries with strict EPL usually present also high youth unemployment, however there is no clear indication of this correlation (ILO, 2006).

The strength of the economy is another significant determinant of youth unemployment. At an aggregate level when the economic activity is low and the level of adult unemployment is high, youth unemployment is also high. This indicator appears to be very vulnerable to changes within the labor market. It increases when there is a fall, and declines during a boom.

From a demographic point of view, the proportion of young people in the population was often referred to as an indirect determinant of youth unemployment. According to Freeman's analysis an

increase in the relative number of youngsters has a positive impact on the youth unemployment rate (Freeman & Wise, 1982).

2.3 Why is youth unemployment typically higher than adult unemployment?

A higher youth unemployment rate compared to the adult indicator is very common within many countries. Extensive research on this issue indicated several reasons, among these the most typical are the following:

First of all, given that young people have less experience in finding a job compared to older workers, the lack of expertise within job hunting is crucial to obtain a secure and safe working position, and the way to get out from this condition is by accepting jobs that offer temporary contracts.

Secondly, as it was mentioned earlier this segment of the population is very sensitive to economic downturns; given that, firms usually respond to recessions with recruitment freeze and downsize of their personnel, youngsters are negatively affected in both cases. On one side, they represent part of the job seekers which are solidly touched by reductions of the hiring. On the other, it is less costly to dismiss the young people than older workers, which have developed their knowledge and experience within the business. Moreover, employment regulations commonly associate the length of service/ seniority with a financial compensation in the case of dismissal. The longer one is in the company, the higher is the cost for the employers. Due to this, firms face lower costs by firing the newly hired.

The third aspect is related to youngsters' financial independence which in most countries is not visible until they are in their mid twenties or once they have their first job. Given that, youngsters do not have a financial autonomy to sustain themselves they are usually tied to their families, which reduces the incentive to move where there are higher job opportunities.

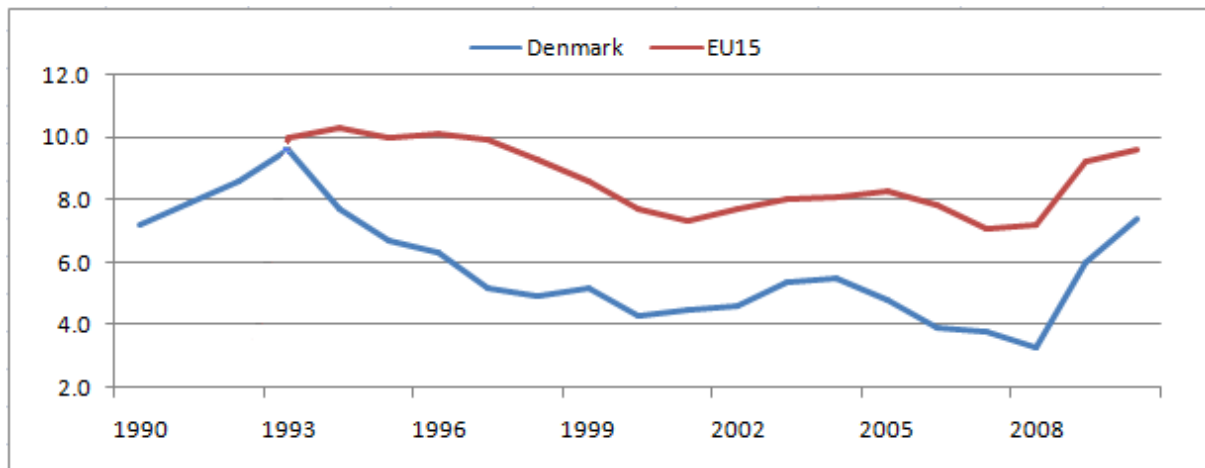
The combination of these aspects positions young workers among the most vulnerable and weak segment of the society, especially during economic crises.

3 DENMARK and FLEXICURITY

Over the past twenty years, Denmark has experienced a significant decline in the overall unemployment rate. As it can be seen from Figure 1, the total unemployment rate dropped from approximately 11 % at the beginning of the 90s down to 3.4 %, at the end of 2008. The recent financial recession had strong effects on the unemployment indicator; in fact the rate increased from 3.4 % to 6.1 % in only one year. Despite the last three years during which the rate has been increasing constantly, Denmark shaped a system that significantly reduced unemployment.

Figure 1 compares Denmark with the EU-15 countries. As it can be seen, the two time series follow the same pattern; however there is a systematic difference between the Danish rate and the European average. Over the whole period, Denmark's unemployment rate is positioned between 2.2 and 4.7 percentage points under to the EU-15.

Figure 1: Total unemployment rate in Denmark and EU-15, from 1990-2010



Data Source: Unemployment rate tables of the Employment and Unemployment Database, Eurostat, April 2011.

The combination of an efficient welfare system, the increasing attention towards citizens' protection and the implementation of policies to overcome and adapt to changes at an international level, has been the answer behind the reduction in the Danish unemployment. In one word: Flexicurity.

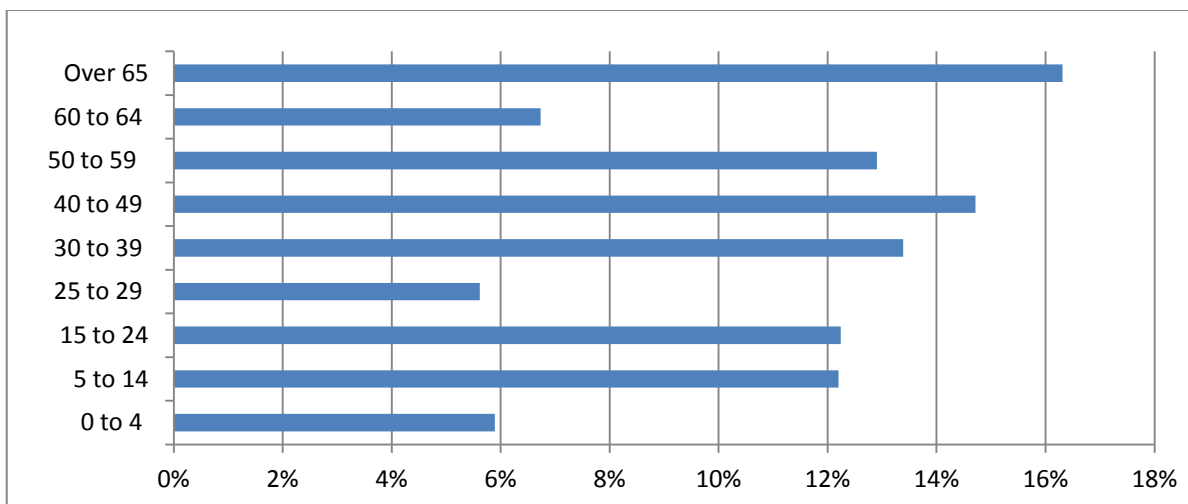
The main objective of this chapter is to analyze the Denmark's labor market as well as ALMP. First of all, section 3.1 presents a brief analysis of the country under a demographic perspective, followed by a description of the labor market. Section 3.3 attempts to highlight the overall results and the history

of the Flexicurity system, as well as the core costs. Section 3.4 outlines the limitations of the program and finally, section 3.5 illustrates in detail the specific case of the Danish youth.

3.1 Population Structure

Throughout the last two decades the Danish society has been slowly increasing at an average growth rate of 0.38% annually. From a total estimated population of 5.1 million in 1990, it currently counts 5.5 million inhabitants.

Figure 2: Structure of the population in Denmark at 1st January 2010



Data Source: Demography – National data tables of the Population Database, Eurostat, April 2011.

Figure 2 provides a simple representation of Denmark's demographic structure categorized by age groups. As it can be seen, the Nordic country has a relatively old population, 50.67 % of Danes are over 40 years of age and less than 18 % are not yet teenagers. Going back to the age range of concern to this paper, it is possible to see that only 12.24 % of population is between 15 and 24 years old, equal to 677,463 youngsters in 2010.

3.2 Description of the Danish Labor Market

The Danish labor market is, with no doubt, known for its flexible labor regulation and lenient employment protection, which facilitates the recruitment and dismissal process. In other words, it seems easier for workers to obtain a job but, at the same time, it is easier for the employers to cut

down their personnel. This intrinsic risk faced by the employees, finds compensation through the generous welfare system that plays a central role when unemployed.

The main features that characterize the Danish labor market include:

1. Active labor market policy.
2. High level of job mobility.
3. Competitive labor costs and remuneration.
4. Collective agreements.
5. Unemployment benefits system

These characteristics are analyzed individually in the following five sections.

3.2.1 Active labor market policy

Active labor market policies have the objective of reducing, if not eliminating, any kind of market failure by assuring a constant and well functioning labor market. According to the OECD definition active labor market policies (ALMPs) assist unemployed people to secure, once again, their working life by providing *'[...] job placement services, benefit administration, and labour market programmes such as training and job creation '* (OECD, 1994).

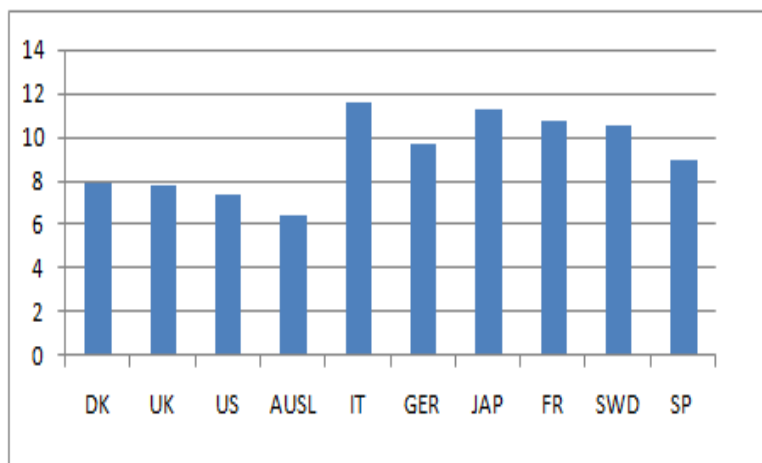
As a matter of fact, ALMPs played an important role in the reduction of Denmark's unemployment. Ever since the labor market reform was implemented in 1994, the Danish employment system turned its focus on job training. The introduction of programs with the aim of improving and/or upgrading the skills of the unemployed has been a well thought practice to increase their employment chances. From another point of view, ALMPs can also be seen as a tool for the employers seeking for additional working force or that have the objective of retraining and maintaining the cooperation with their current workers.

Among these programs, it is worth mentioning the Youth Unemployment Program (YUP) introduced in 1996 which targeted unemployed low-educated youngsters (Jensen, Rosholm, & Svarer, 2003). This reform was designed, on one hand, to provide better employment opportunities to the unemployed youth, and on the other, as an inducement to continue their education.

3.2.2 Job mobility and workers' security

Several studies confirmed that Denmark has very high job turnover rates (creation/destruction), as well as, high employee turnover rates compared to any other European country (Madsen P. K., 2002) & (Bingley & Westergaard-Nielsen, 2004). The Danish job turnover does not have a pattern at an industry level; however, it is possible to see a trend considering factors such as size and lifetime of the firm. For example, it is easier for small, newly-established corporations to experience high job turnover. (Ibsen & Westergaard-Nielsen, 2011). On the other side of the coin, an empirical study on employee turnover showed that the probability of changing job is around 35%, for males, and 30%, for females, at the beginning of their career and drops down to 5% before retirement (Bingley & Westergaard-Nielsen, 2004).

Figure 3: Average Tenure Cross Countries



Data Source: OECD Employment outlook 1999, table 5.5

Another indicator that walks hand in hand with the high job mobility is the relatively low length of service in Denmark compared to other European countries. According to a research carried out by the OECD in 1997, the average years of tenure in Denmark equaled 7.9, against the European average of 10.3 (Bingley & Westergaard-Nielsen, 2001). Figure 3 places Denmark among those countries that have an average tenure lower than 10 years, such as: Australia, the UK and the USA.

One explanation to this peculiar outcome could be associated to the positive correlation between liberal market regulations and mobility, which makes it easier for the employers to dismiss their workers. However, taking into account the employees' perspective, it would give a different interpretation to the results. Indeed, this tendency of switching between jobs could be related to the expectation of a higher future salary and better paid job (Bingley & Westergaard-Nielsen, 2001).

As it was mentioned earlier, the employment legislation is not very strict about workers' protection from lay off. Given this, the most expected conclusion would suggest that the Danish labor force has a very low sense of job security. Instead paradoxically more than 55% of Danish workers strongly agree with the statement 'my job is secure', in 1996, which was higher than in any other country analyzed in that sample (Kongshøj Madsen, 1999). Two potential reasons can clarify this fact, first of all, the presence of generous unemployment benefits schemes, which will be analyzed in detail in the next sections. Secondly, low entry barriers at the enterprises level as a result of the large number of small and medium enterprises, which makes it easier to switch between jobs.

3.2.3 The role of collective agreements

The September Agreement, in 1899, was the first step towards Denmark's current labor market and its industrial relations system. Thanks to this treaty Denmark became the first European country to recognize the trade unions as an institutional identity (KTO, 2008). After several years of conflict, workers and employers formally established their cooperation based on mutual recognition, dialogue, and shared objectives to benefit both parties.

Nowadays, the September agreement has the same importance in the labor market as when it was first introduced. As a matter of fact, most employment terms and working conditions are settled by agreements between the labor market parties, and have similar juridical power of statutory regulations. The end result shows that Denmark has relatively few employment rules, and the majority of the existing ones often derive from the EU legislation.

At the beginning of 2009, approximately 72 % of the total Danish labor force, which equals to 2 million workers, was part of the trade union. This indicates the high level of unionization in the country (PWC, 2010).

According to the Danish law, the collective bargaining agreements (CBA) have no legal definition; however, in 2000 the European Commission defined it as follows: *'An agreement reached through collective bargaining between an employer and one or more trade unions, or between employers' associations and trade union confederations. This agreement regulates the relationships between the parties and the treatment of individual workers, and covers the wages and conditions of the workers affected'* (Nielsen, 2005, p. 11).

There are two main reasons why the CBAs acquired a central role in the Danish labor system. On one hand, it publicly gives voice to the dynamics and the interests of the parties represented in the labor market. On the other, the negotiation process has been constantly extended to a growing number of topics and issues. For this reason, the Danish concept of CBA is broader compared to the definition presented above. Indeed, it touches upon various employment terms such as pension schemes, wage, overtime pay, salary, maternity and paternity leave, holiday, working time etc.

The two main actors are the Confederation of Trade Unions (LO) and the Danish Employers' Confederation (DA). These two institutions use the CBAs as tools to outline the employment conditions. However, as national entities they have been decentralizing their presence on multiple levels, in order to cover a general perspective, as well as more definite point of view. Indeed, they impact the workers and the employers' working life at four different levels:

1. Basic- agreements cover wide-ranging aspects of the individual contract between employee and employer. These agreements are valid to all members of the DA and LO, and provide a permanent and stable understanding between the groups of interest.
2. Cooperation agreements are commonly designed simultaneously to the basic-agreements, and involve arrangements on cooperation within a distinct workplace.
3. Industry agreements concern a specific industry, sector or activity. This type of treaty establish general terms and rules directed to that economic segment, and is generally signed between the employers' association for that industry and the corresponding occupational union.
4. Local agreement, also called company agreements, usually refer to tailor made solutions within a firm.

Many scholars claim that the Danish success stems from the combination between the CBAs and its decentralization. This uncommon structure provides a higher degree of flexibility within regulations, and at the same time, strengthens the employment security (Kaj Andersen & Mailand, 2005).

3.2.4 Labor costs and remuneration

One of the main topics of conflict between workers and employers concerns remuneration. In order to secure and stabilize the working environment, this sensitive issue has been placed under CBAs between LO and DA.

Over more than a century, the Danish labor market established four payment schemes: standard pay, minimum-wage, minimum-pay and no-fixed pay rate. The first remuneration plan sets wages by central bargaining and does not authorize local negotiations, which may lead to adjustments of pay. Due to this rigidity it has been gradually replaced by other systems such as minimum-pay and minimum-wage. Indeed, these two schemes overcome this characteristic by permitting wage-negotiations on a local level. The only difference between the two is that the rate of the minimum-pay system is agreed by central bargaining. Finally, the no-fixed pay rate system has experienced a rapid development in the market; 22% of the employees were covered by this system in 2004 starting from only a 4% in 1991 (Kaj Andersen & Mailand, 2005). In this last case, similar to the previous schemes, the focus is towards local level negotiations, disregarding the effectiveness of centralized bargaining.

3.2.5 Unemployment benefits system

One of the main concerns of the Danish ALMP is the option of offering a constant income security to all employees. In other words, the assurance of sustaining the same life standard through social welfare also when one is unemployed.

The unemployment benefit system is provided and organized by unemployment insurance funds. There are approximately 35 unemployment funds recognized by the Danish state, which are closely associated to the trade unions. However, being a member in one of these institutions does not necessarily imply a membership in the other.

In order to secure their living wage against unemployment spells or potential long periods of inactivity in the job market, the majority of Danish workers are voluntary members of an unemployment

insurance fund. In 2009, almost 90 % of the total labor force, which accounted approximately 2.9 million people, was covered (OECD, 2009).

A member of the fund, in the status of unemployed, would receive a social benefit, which is calculated on the basis of the worker's prior salary. Indeed, the compensation can reach a maximum value equal to 90 % this amount. In 2008, the overall unemployment benefit had an upper limit equal to DKK 3.515, which is approximately 470 Euro, per week (Norstrand, 2010).

As it was mentioned above, the income of the single employee is directly proportional to the social compensation. The result of this proportion is given by the net income replacement rate, which is the ratio between the individual's average unemployment benefit and average income in a specific period. Due to this characteristic the unemployment benefit decreases when the income level rises. Taking a look at the disparity between income groups it is possible to see that the average annual net replacement rate varies between 37 % for the high-income group, up to 80 % for the low-income group (Kaj Andersen & Mailand, 2005).

Analyzing the data, it is interesting to see that around 44 % to 60 % of the publicly registered unemployed receive benefits or assistance, considering one to 17 months as the length of their idleness (EUROSTAT, 2011).

A few conditions must be fulfilled in order to be eligible for the unemployment benefits. The individuals must be Danish citizens residing in Denmark, and must be between the age of 18 and 64. They have to be members of a state-recognized unemployment insurance fund for at least one year, and at the same time, must have worked fulltime for at least 52 weeks in the past three years. Furthermore, the individual is only eligible to collect this compensation for maximum 4 years.

3.3 Flexicurity

The Danish labor model, commonly called the golden triangle of Flexicurity, is based on the interconnection of three important elements: flexible labor market, ALMP and generous welfare system. It is worth taking a look at the evolution of the ALMP, especially over the last two decades, as well as, the positive results and state's financial contributions related to it.

3.3.1 The Danish ALMP in time

Since 1979 until 1993, the labor market policy (LMP) was mainly concerned with long-term unemployment. The program's objective was to help the unemployed to start up in self-employment through training and jobs offers (Larsen, 2005). Given the poor success of this plan, at the beginning of the 90s, the political and public attention grew towards ways to reduce long term unemployment. As a result in 1994, the Danish labor market went through an important reform unique in its features, characterized by:

1. The introduction of a two period benefit system of seven years divided in: the passive period, the first four years, and the activation period, the last three years. During the first four years the unemployed would receive the benefits and at the same time be eligible for 12 months of activation.
2. The launch of an individual action plan that would focus on the needs and specifics of the single individual against the prior system, which was rule-based and standardized for every person.
3. In order to meet local preferences the policy implementation was decentralized and entrusted to regional tri-partite labor market councils, which were authorized to adjust the program making it suitable for the local taste.
4. The introduction of three paid leave arrangements: maternal and/or paternal, sabbatical and educational leave. The aim was to encourage labor rotation, and job creation. Indeed, the state would pay the benefit to the worker taking leave, which was calculated as a fraction of the unemployment benefit (Kaj Andersen & Mailand, 2005).

In 1996, the initial reform saw the first changes: the length of the unemployment compensation system was modified, reducing the passive period from four to two years.

As it was mentioned in section 3.2.1, during the same year, the focus turned towards another segment of the Danish society. A more radical program was designed called YUP, which supported low-skilled youngsters without a job. The purpose of the reform was to enhance the employment chances and provide motivation to young people under 25, with no education beyond high school, which were jobless for six months during the last nine months. The state offered them the opportunity to follow a vocational education for 18 months (Jensen, Rosholm, & Svarer, 2003).

The special youth program produced two direct effects on its targets. On one side, it created an incentive to find a job on their own initiative or undertake ordinary education on public grants due to the cut of the unemployment benefits by 50 % once participating to the program. On other the side, it penalized the youngsters that refused to be part of the special educational program or ordinary education system. As a result, they would lose their unemployment benefit. The YUP is seen as three tools in one: an incentive, a sanction and an open source for education. The key results of the youth program show that the transition rate from unemployment to school has been rising significantly over the years, mainly due to the direct sanction effect. The program effectively shifts people from an idle condition to a student status (Jensen, Rosholm, & Svarer, 2003).

Going back to the LMP time line, additional changes were implemented a few years, downsizing the passive period to one year. Moreover, the common attention drifted towards another matter: the retirement system and the possibility of a future financial constrain deriving from an ageing population. In 1999, the government introduced the National Action Plan for Employment. This plan had the objective of enhancing employment in the labor market by discouraging early retirement (EIU, 2001). In order to fulfill the purpose, the new regulation presented a few modifications in the anticipatory pension scheme, taking it from 100 % to 91 % of the maximum rate of the unemployment benefit. These rules also introduced a special fee of around 300 DKK a month in addition to the ordinary contribution to the unemployment insurance fund. Furthermore, in order to obtain the right of early retirement contributions must be paid for 25 years instead of the previous 20 years. As a trade off, the pensionable age recognized by the state was reduced from 67 to 65 years old. The changes were implemented gradually and completed in 2004 (Madsen J. , 1998).

In 2000, Denmark implemented the EU's employment guideline which required an early activation for both youngsters and adults out of work. The active period was still three years; however now, the unemployed can lose the benefit if they do not find an occupation within the fixed period.

Further changes were carried out in 2001, such as additional measures to support the unemployed in their job-hunt process. One of the outcomes was the Adult Training and Retraining (ATR) program that was addressed to weaker segments of the population. Two years later, the government introduced other rules to clarify and strengthen the criteria for early retirement. The goal behind

these adjustments was mainly to increase the labor supply preparing a positive response to the demographic changes in the next 10 - 15 years (EIU, 2001).

The first proposal concerning income tax reduction was announced in 2003. The Ministry of Finance and the Ministry of Taxation agreed on decreasing the taxation on work income, leaving out capital gains and dividends, by 10.6 billion DKK between 2004 and 2007. The main purpose of this tax plan was to encourage workers to take lower paid jobs and to increase labor force. The tax package and its' impact on the labor market did not receive credibility and was strongly criticized. In reaction, the government forecasted the direct effects of the tax reduction on the labor force, and presented an increase of approximately 10 000 to 13 000 workers (EIU, 2003).

In 2006, the government secured the "welfare agreement", which consists of three main actions: support job-seeking activities among unemployed, encourage older people to delay their retirement and improve the level of expertise within the workforce. The objective of the first two was to support the Danish employers that were experiencing a severe labor shortage (EIU, 2007). Furthermore, to overcome the scarcity in workforce the government tried, on one hand, to attract foreigners introducing a system, which allowed highly qualified immigrants to seek for jobs and extended their work permit within Denmark. On the other, migrant workers were, for the first time, explicitly included, in the CBA with the intent to improve their integration in the Danish labor force (Birkbak & Jørgensen, 2007).

At the end of 2007, the Danish government established the labor market commission. The main duty of this institution is to propose initiatives that enable the government to meet the budget targets stated in the 2015-strategy. This plan is a medium-term fiscal framework that aims to solve long-term fiscal sustainability challenges within the labor market. The 2015-strategy requires, on one side, structural reforms that result in a stable and unsubsidized increase in the employment, by 2015, of approximately 20 thousand workers. On the other, measures to secure average working hours taking into account the negative effects due to the demographic changes. In addition to this, the entity has the following responsibilities: improvement of the overall market structure to set up a better job match; creation of incentives in order to shift part-time workers to a full-time occupation; development of a system that secures a better immigration; design strategies that can neutralize the negative demographic on working hours and guarantee a higher retirement age (MF, 2009).

Between 2007 and 2009, the government's main concern was to seek for means that supported the increase of the workforce. The first outcome resulted in a reduction of the tax income rates, by 2008-2009. This was followed, one year later, by a job plan, which was designed to improve the labor supply in the short run, as well as, in the long run. The comprehensive tax reform, settled in spring 2009, decreased the marginal tax rates (ME, 2009). At the beginning of 2010 the government took action by reducing personal income taxes and agreed with the parliament on further adjustments in 2011. The tax reform has a long-term objective to raise work incentives. As a matter of fact, the tax plan should improve the labor supply and ensure medium-term sustainability of public finances offsetting the expected decline in the future labor force. Furthermore, the government decided to raise the attention on actions to fight youth unemployment: subsidizing job and internship (EUI, 2010).

3.3.2 The main results of ALMP

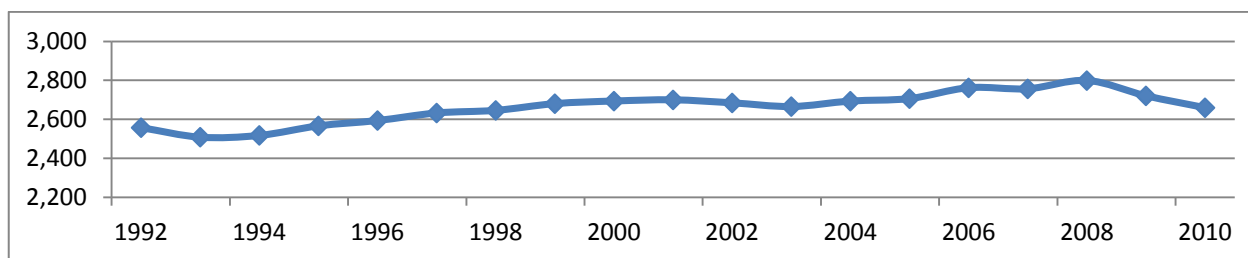
As it was mentioned above, the country revealed very low levels of unemployment all through the 90s until the recent financial crisis. This was due to a solid GDP, active public interventions encouraging job creation and various reforms that led to the Flexicurity concept. The main results will be assessed under four different perspectives:

- Total employment
- Early retirement
- Training
- Youth unemployment

The first three perspectives will be presented in this section, while the results concerning youth unemployment will be analyzed separately in section 3.5.

Looking at the ALMP effects on total employment it is interesting to evaluate the market's response to the various reforms. Figure 4 illustrates the annual movements of the average total employment in Denmark over the last two decades.

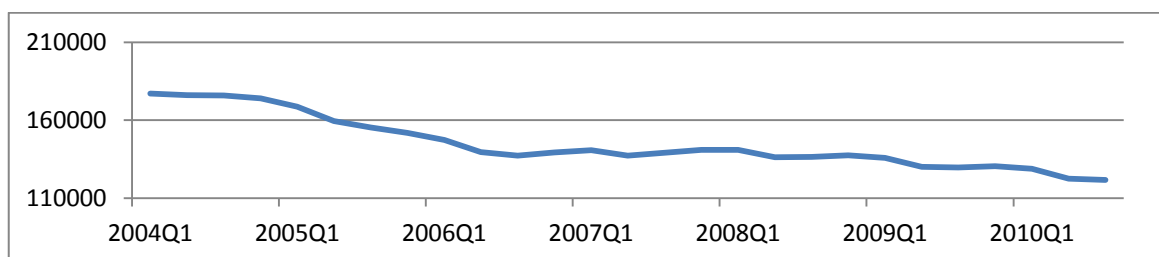
Figure 4: Average Annual Employment in Denmark between 1992 and 2010



Data Source: Employment tables of the Employment and Unemployment Database, Eurostat, June 2011.

As it can be seen, total employment had a steady increase over the whole period. Furthermore, the main reforms overlap with positive changes in the labor market. Between 1994 and 1995, after the first labor market reform, employment came across an annual increase of approximately 2 %. After the introduction of YUP and ATR in 1996, the average change reached a peak of 1.50 % in 1997 and 1.34 % in 1999. The income tax plan in force since 2004 partially contributed to a raise of the total employment by 2.05 % in 2006. Moreover, the estimated impact on the workforce deriving from the tax agreement, in 2007, was around 7-8.000 full-time employees; which suggests, in the years to come, similar consequences generated by the recent income taxation reform (ME, 2009).

Figure 5: Full-time participants in early retirement scheme between 2004-2010



Data Source: Early retirement pay tables. Dataset: full-time participants in retirement by unemployment insurance fund, retirement, age and sex 2004-2010, Danmarks Statistiksbank, June 2011.

In regards to the second perspective, the first reforms were introduced at the beginning of the new millennium, and the implementation of all the changes was finalized by 2004. Hence, Figure 5, covers the period 2004-2010, and illustrates the total number of workers taking early retirement during this six years interval. The graph below shows a stable decline in the number of full-time participants in early retirement. The government's initiatives in this area have been relatively successful, indeed,

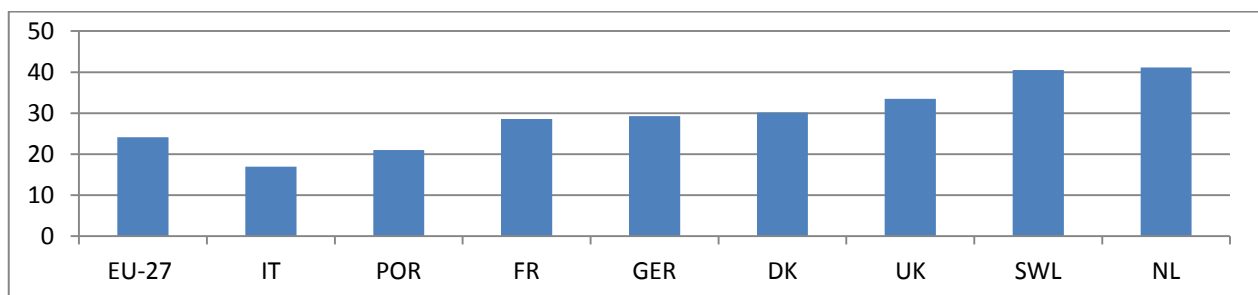
after only one year the number of full-time participants decreased from approximately 174.000 to 152.000, dropping by around 13 %.

Due to several factors it is difficult to isolate the direct effects of training on the workforce. However, it is certain that educational programs upgrade the qualifications within the labor market and, offer additional information to categorize the unemployed during the recruitment process. The final outcome should generate an overall decrease in structural unemployment.

Empirical studies proved that job training produces positive effects on the transition from unemployment to work. Furthermore, private job training generates greater results in regards to finding a job compared the same process at a public level. A possible explanation is that private job training creates a better connection between the employers and the group of potential candidates. In contrast, state agencies that coordinated public job training represent a third party in the system (Blache, 2008).

In 2007, the Danish participation rate in both formal and informal training programs among unemployed was around 30 %, which was higher than the average of the 27 EU countries, equal to 24 %. Figure 6 provides a simple snapshot of this aspect comparing a few European countries. With no doubt job training contributed to the constant reduction of the Danish unemployment rate over the last two decades.

Figure 6: Participation rate in training and education under unemployment in 2007



Data Source: Training data set from Eurostat database, June 2011.

3.3.3 The cost of Flexicurity

As it was mentioned earlier in this dissertation, LMP measures refer to interventions within the labor market that temporarily support the weak segments such as unemployed, inactive persons and

employed at risk. LMP measures are classified in different categories which include: training, job rotation and job sharing, employment incentives, supported employment and rehabilitation, direct job creation and start-up incentives. Evaluating the costs of the Danish LMP measures it is clear that the main categories are training, employment incentives, and supported employment and rehabilitation.

Figure 7 shows the development of the cost of Denmark's LMP measures between 1998 and 2009. The total expenditure has been increasing from 1998 until 2002 reaching a maximum of almost 24 million DKK. After this period, the public outflow experienced a few drastic reductions. The first negative change, equal to -12%, occurred in 2005 followed by another significant decrease of -13 % in 2007.

Figure 7: Cost of Denmark's ALMP – Mill. DKK



Data Source: LMP– National data table, LMP Database, Eurostat, May 2011.

Analyzing the costs under a more detailed perspective and focusing on the components mentioned above, the first three measures: training, employment incentives, and support employment and rehabilitation are addressed to the unemployed and other disadvantaged groups, and promote their integration in the labor market. The latter one, labor market services include publicly funded service for jobseekers as well as additional expenditures for public employment services.

Supported employment and rehabilitation refers to two main items flex-jobs and rehabilitation, which constitute respectively 75 % and 20 % of the total component, in 2009. The first one involves a special offer to people that have lost their ability to work. This sub-cost was the most volatile compared to the others, and has been increasing very much over the entire period. In 2009, it amounted to 58 % of the total cost, starting from 16 % ten years earlier.

Even though training constitutes another important public expense, in this case it is possible to see a reverse situation. This sub-cost has been decreasing over time. The largest variations took place from 2006 until 2008, ranging between -10 % to -30 %. A possible explanation to these drastic changes could be due to the recent financial crisis that pushed most governments to cut public expenditures. Overall training as decrease significantly; at the beginning of the period it counted around 45 % of the total cost, ending with a value of only 25 %.

At the end of the decade under analysis, the employment incentives consisted of wage subsidiaries, by 50 %, and practical training within firms by 32 %. As it is illustrated in Figure 7 the employment incentives reached a peak in 2004. However, after that it started a severe decline, which continued until 2008. Furthermore, similar to the training costs there has been a slight increase after 2009, although, they constituted only 16 % of the total LMP cost in that year.

Last but not least, Figure 7 shows very strong similarity between the labor market service expenses and the supported employment cost. As a matter of fact, this component has been increasing over time. In 2000 it represented only 6 % of the total LMP cost, reaching almost 26 % in 2009.

3.4 Limitations of Flexicurity

Despite the positive results, the Flexicurity program presets several downsides that have generated obstacles to its effectiveness. First of all, the incentive to train and educate employees is one of the reasons why there is such a high employee turnover within the country. The high flexibility increases the risk of losing internal know-how, as a result, talented employees, might leave the firm for better paid jobs. The ultimate effect of this process pictures companies reducing their investments in training and education. Secondly, decentralization of the regulation offers better solutions for local matters; however, it can also present some drawbacks. Even though this multi level process has a central coordination, there is still the chance of creating local bargaining levels that are independent

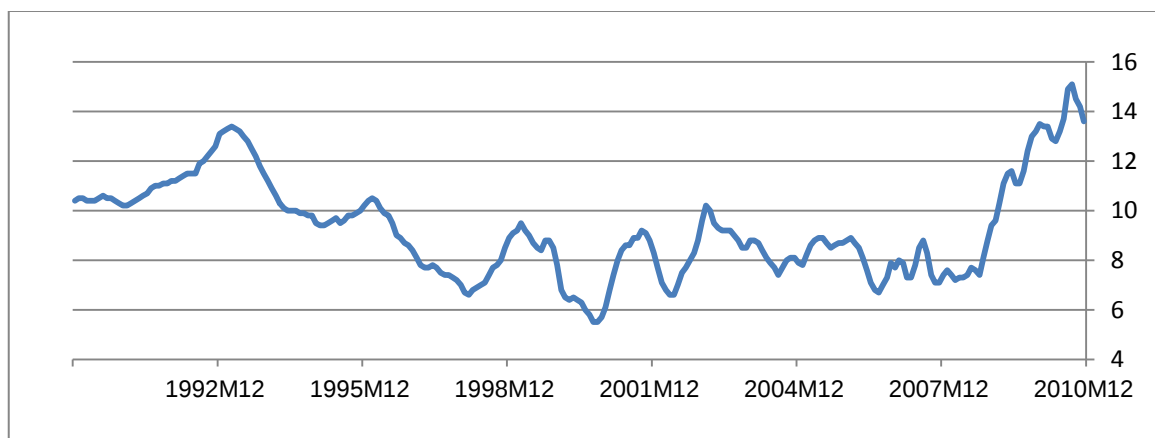
from the center and weaken the overall coordination. The third negative aspect concerns the structure of the unemployment benefit system. High income replacement rates together with the passive period may not be the appropriate incentives to stimulate activation, especially for the low-income group (Madsen P. K., 2002). This potential drawback is cut down by requiring an active job research to the unemployed and by offering them mandatory activation period after one year for the adults and six months for young unemployed under 25. Last but not least, the CBAs have been the key element to the Flexicurity program especially because there has been a greater space for negotiations. The downside of the CBA is associated to the length of the negotiation process, which might unnecessarily enlarge the time-span of the decision making.

3.5 Danish Youth

3.5.1 Macroeconomic analysis

As mentioned in section 3.1, the Danish youth constitutes approximately 12.24 % of the total population, equal to 677.463 individuals. Among these approximately 67 % are part of Denmark's labor force and 58 % of them are employed. Furthermore, almost half the young employees are service, shop or market sales workers, and approximately a quarter have an elementary occupation. Out of the remaining ones not included in the labor force approximately 87 % declared that the main reason for not working or seeking for a job is to continue their education or undertake a special training (EUROSTAT, 2011).

Figure 8: Youth Unemployment Rate Denmark



Data Source: Unemployment rate tables of the Employment and Unemployment Database, Eurostat, April 2011.

Figure 8 shows the changes in the Danish youth unemployment rate over the last two decades. At the beginning of the 90s, Denmark was experiencing an economic recession, which, as expected, affected the labor market. The graph above illustrates a value equal to 10.4 % at the beginning of the period, followed by a peak of 13.2 % at the end of 1992. This negative change was mainly caused by the drop in employment within the private sector, and in particular among low-skilled youngsters. Due to the economic recovery in 1994 the overall unemployment rate has been decreasing, as well as the youth unemployment rate. However, growing concerns around this issue pushed the Danish Government to design a special package to overcome the high youth unemployment, which came into effect in 1996. The YUP, has been adjusted several times since its introduction, even though it proved immediately positive results contributing to the fall of the rate from 10.1 in 1996 until 6.6 in 1998. Between 1998 and 1999 the rate increased until 9.5 % followed by a steep decrease at end of 2000. Indeed, Denmark experienced the lowest level of youth unemployment over the whole period, which reflected in a rate equal to 5.5 %. This result was also one of the best in Europe (Hammer, 2003).

The youth employment experienced a slight slowdown in 2001 consequently to the positive outcome a few months back, but it turned up again in 2002. After that from mid 2003 until the end of 2008 the youth unemployment rate had a rather stable progress between 7 and 9 %.

Additional rules were introduced in 2009, focusing on measures to prevent youth unemployment through education and training. For example: under standard conditions unemployed, low-educated youngsters under 25 under are obliged to undertake an education and are offered guidance, as well as, mentor schemes by job centers. Although the increasing efforts it was not enough to make a difference, indeed, due to the financial crisis the youth unemployment rate reached the highest level over the entire period of 15 %.

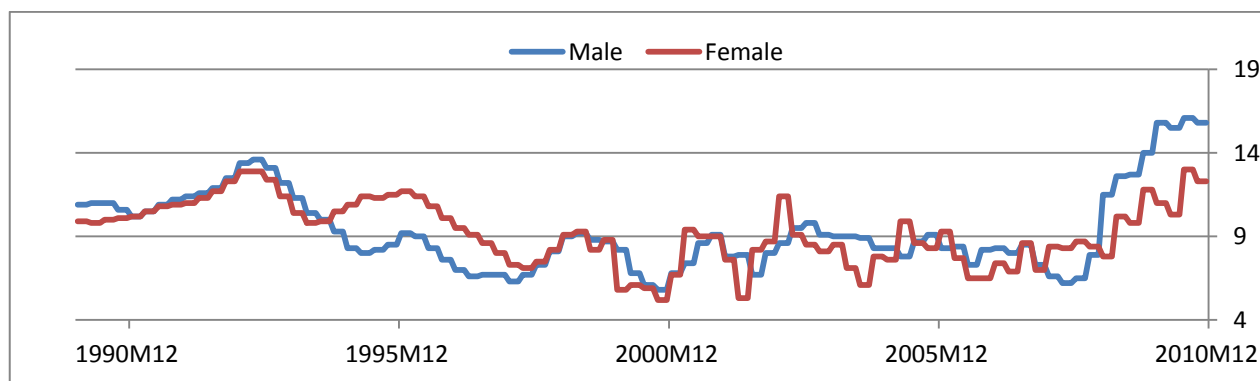
Summing up, also in this case, the major reductions in the youth unemployment match with the Danish labor market reforms, which reflect into the movement of the rate.

3.5.2 A few comparisons

Looking at the Danish youth unemployment under a gender perspective provides a better analysis of this market segment. Figure 9 gives a graphic representation of the gap between male and female youth unemployment rate, indeed, it is possible to notice that there is no systematic difference

between the two, during the entire period. However, there are two significant moments, one in 1996 and the other in 2007, during which the two time series do not overlap.

Figure 9: Youth Unemployment Rate in Denmark by gender, 1990 - 2010



Data Source: Unemployment rate tables of the Employment and Unemployment Database, Eurostat, April 2011.

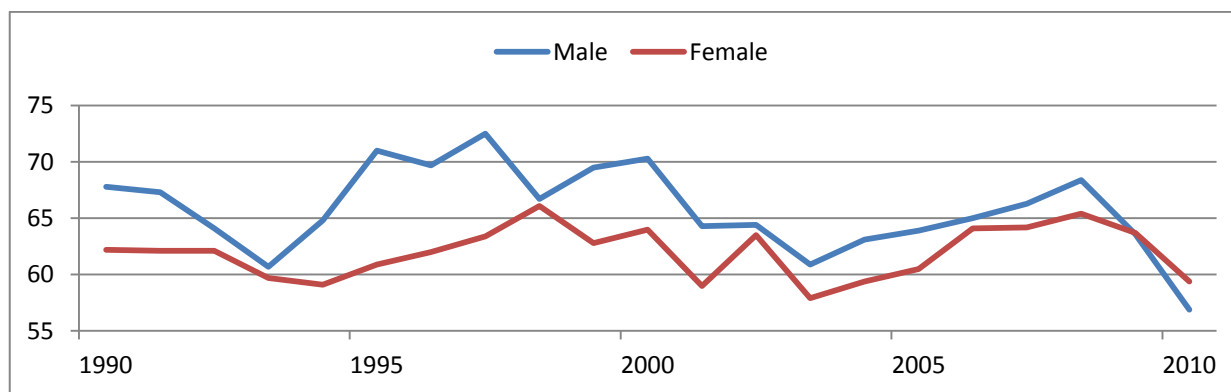
As soon as the YUP took off in 1996, the program had a very strong impact on both rates. The proportion of the female indicator dropped from 11.7 % to 7.3 % in only two years. For the male youth there is a similar pattern, indeed, it decreased from 9.2 % to 6.3

The financial crisis produced severe consequences on youth unemployment, indeed, once again the overlapping rates have been diverging after 2007. The gap has been enlarging taking the female rate to a lower level, of about 4 percentage points, compared to the male rate.

Applying the same analysis to Denmark's youth employment rate, Figure 10 illustrates a less volatile pattern and a smaller deviation between male and female compared to the previous graph. The two time series tend to follow the same movements over almost the entire period.

In the past 20 years, the average female and male youth employment rate was 62 % and 65.8 % respectively, which reflected an average difference of only 3.8 percentage points. However, as it can be seen from the chart below in the middle of the 90s this gap was larger; the female employment rate was much lower compared to the rate for the opposite gender. As a matter of fact, the disparity reached peak values of 10.1 in 1995 and of 9.1 in 1997. From the beginning of the second decade, the two rates have been experiencing approximately the same changes and have reduced the initial deviation.

Figure 10: Youth Employment Rate in Denmark by gender 1990- 2010



Data Source: Employment rate tables of the Employment and Unemployment Database, Eurostat, April 2011

In regards to the financial crisis, it is worth looking at the effects it had on the male and female youth employment. From the previous graph, the average change for the male rate between 2008 and 2010 was equal to -8.8 %, decreasing from 68.4 % to 56.9 %. Instead, in the female's case, the average change amounted to -4.7 %, dropping from 65.4 % to 59.4%. These results clearly present stronger effects on the male youth employment due to the recent financial crisis, which caused it to fall under the female rate.

From a geographic point of view, the Danish youth unemployment rate is relatively homogeneous over the whole country. In 2010, there were no major differences between the five regions under analysis: Zealand, North Jutland, Central Jutland, South Denmark and the capital region. However, Central Jutland experienced the lowest level of youth unemployment, which stands out from a rate equal to 3.9 %. Furthermore, also at a regional level the female unemployment rate appear slightly lower than the male rate.

Table 1: Regional division of Danish youth unemployment rate (in %)

In 2010	Total	Male	Female
Capital Region	5	6.1	4
Zealand	6.2	6.8	5.6
South Denmark	4.8	5.2	4.4
Central Jutland	3.9	4.3	3.5
North Jutland	5	5.3	4.7

Data Source: Unemployment tables. Labor Market data set. Danmarks Statistiksbank, June 2011.

In terms of internal migration in 2010 approximately 37.710 Danes between 15 and 24 years old left their home region for a new residence in another part of the country. Among these 53 % were females, against 46 % males. Both genders experience the highest migration, in regards to age, between 18 and 21, even if the girls tend to leave home slightly earlier compared to the boys. The region that received the majority of the migration flow is the capital region which gave accommodation to 37 % of the local immigrants, followed by Central Jutland with 24 % and South of Denmark with 16.3 %. There are two main reasons to explain these movements on one side education, and on the other, job opportunities. As a matter of fact, these areas hold the three largest cities in Denmark: Copenhagen, Aarhus and Odense, in which are located the major Danish universities and schools. Furthermore, these cities may offer better job opportunities to the Danish youth.

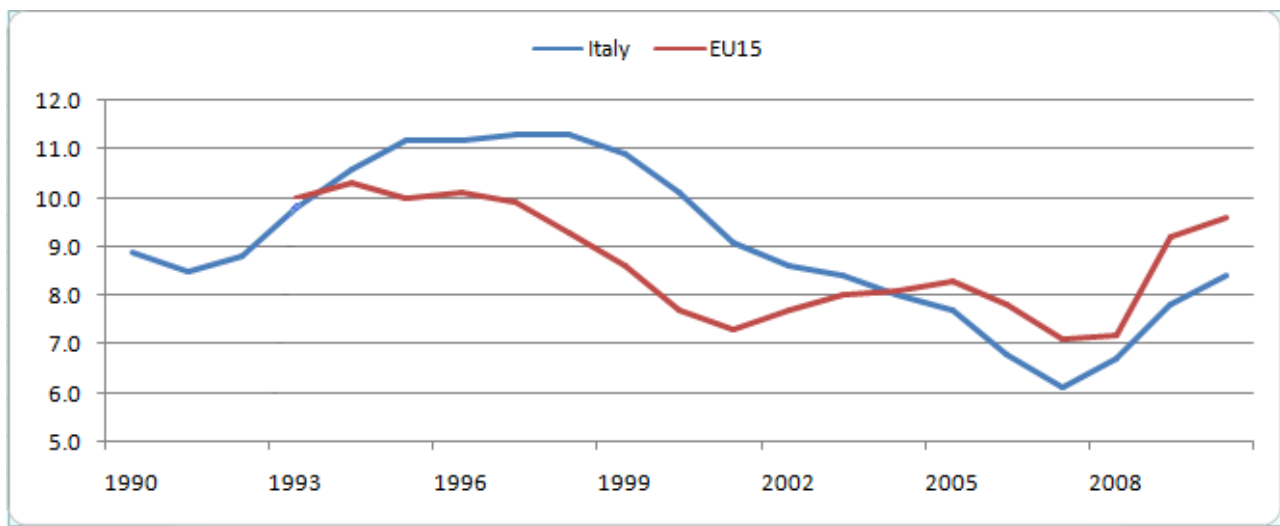
Summing up, over the last twenty years, the Danish labor market introduced important changes in the labor market policy. The main purpose was to decrease unemployment through training and support of the unemployed during their job hunt. The youngsters have been part of these changes, the YUP introduced in 1996 targets young people out of work and have a low education. The program motivates them to be active in their job hunt and forces them to choose between undertaking ordinary or vocational education, and finding a job.

Looking at youth unemployment under a gender and regional level, the country appears rather homogeneous; indeed, there is no major difference between male and female, as well as, between areas.

4 THE ITALIAN CASE

Looking at the same time period, 1990-2010, Italy's total unemployment rate has been increasing in the first decade, and decreasing in the last 10 years. Figure 11 illustrates a steady increase between 1990 and 1998, during which the total unemployment rate passed from 8.5 % to 11.3 %. After reaching this maximum level, the rate started descending, indeed, just before the financial crisis, it dropped to 6.1 %. Due to the recent recession Italy's unemployment rate started increasing once again. By the end of 2010, it equaled 8.4 %.

Figure 11: Total unemployment rate in Italy and EU-15, 1990-2010



Data Source: Unemployment rate tables of the Employment and Unemployment Database, Eurostat, May 2011.

On the basis of this economic indicator, the graph above provides also a comparison between Italy and the average rate for the EU-15. Between 1993 and 2004 the average unemployment rate of the European countries was significantly lower compared to the situation in the Italian labor market. However, a few years later Italy's unemployment rate has declined from 2004 to 2007 creating a gap-rate of approximately one percentage point with the EU-15. Moreover, the financial crisis produced large effects on the European labor market, which increased, over the last three years, the rate difference between Italy and EU-15.

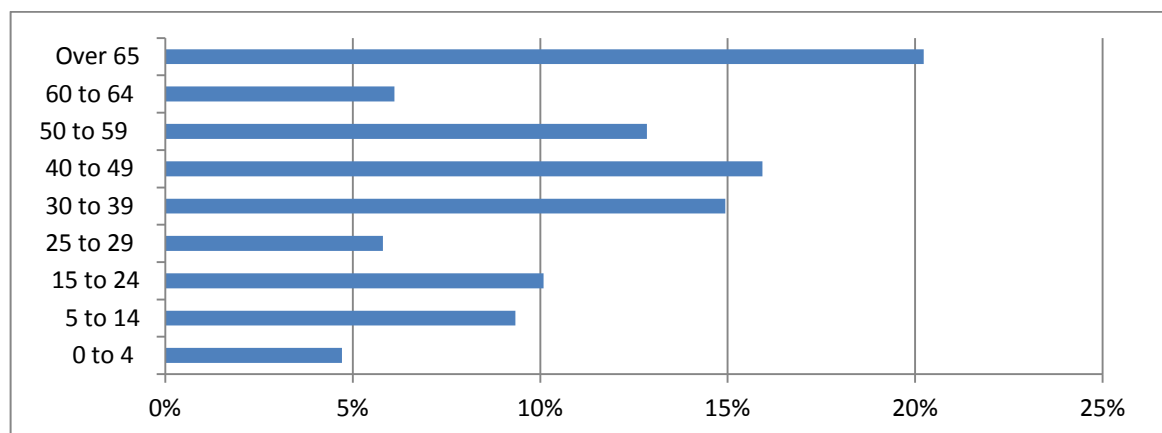
This chapter will elaborate on several aspects regarding the Italian labor market. Section 4.1 and 4.2 provide respectively, a brief analysis of the country under a demographic perspective, and the

description of the labor market. History, outcome and costs of Italy's LMP will be presented in section 4.3; followed by the limitations of the labor system. Last but not least, section 4.5 will go into detail with the Italian youth and their position in the labor market.

4.1 Population Structure

The Italian demographic profile is comparable to the Danish case, presented in section 3.1, with the only difference in the overall size of the population, which is around eleven times larger than Denmark's. As a matter of fact, the last census, completed in the fall of 2001, disclosed a population of almost 57 million inhabitants. Nowadays, national estimates reveal a population of approximately 60.3 million people that has been growing on average at 0.31 % annually over the past 20 years.

Figure 12: Structure of the population in Italy at 1st January 2010

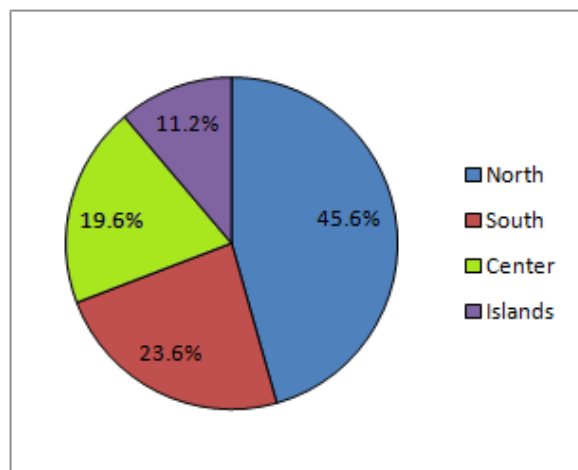


Data Source: Demography – National data tables of the Population Database, Eurostat, April 2011.

Figure 12 illustrates that around 55 % of the Italian society is over 40 years old, while roughly 14 % are not yet teenagers. As a matter of fact, only 6 out of 60 million Italians are between 15 and 24 years old.

In regards to the population's distribution across the country, Figure 13 gives a representation of the Italian citizens under a regional division. In 2009, approximately 45.6 % of the population resided in the North, the majority in the big cities such as Milan and Turin. In the South, there was around 24 % of the total 60 million, followed by the Center, with 20 % and the Island, 11.2 %.

Figure 13: Regional distribution of Italian population in 2009



Data Source: Demography – National data tables of the Population Database, ISTAT, June 2011

4.2 Main features of the Italian Labor Market

Opposite to the Danish case presented in the previous chapter, Italy's labor market is known for its very low flexibility and high employee protection. In other words, workers experience a long recruiting process, especially while seeking for their first job; however, once a job is secured it is hard to lose it.

The combination of CBA and EPL has been the main reason behind the market's rigidity. Indeed, they both tend to discourage temporary hiring and layoffs. However, over the last fifteen years, various factors among which globalization, EU directives, and increasing attention towards social issues, have pressurized Italy to rethink the country's labor market policy.

The main features that characterize the Italian labor market are:

1. The 'Dual' labor market
2. High employees protection
3. Regional and gender differences
4. Unemployment benefits system

These characteristics are presented in detail in the next four sections.

4.2.1 The 'Dual' Labor Market

Prior to the recent measures that increased flexibility in the market, Italy's traditional LMP offered different opportunities to the labor force compared to present times. As a matter of fact, workers were hired on the basis of open-end contracts; regulations guaranteed high protection from layoff and the positive correlation between wages and seniority shaped the remuneration and career path within the organization. These characteristics are still present in the main labor market; however, in the last fifteen years the Italian labor system saw significant changes in its structure. The introduction of additional employment contracts, opposite to the typical one, improved the working opportunities especially for first-job seekers. Nowadays, new entrants are offered an intern contract of four to 12 months; they are not legally protected from dismissal; they work standard amount of hours but receive a lower wage compared to the ordinary employees. At expiration, the intern contract is commonly renewed or substituted with a temporary contract. These initial fixed-term contracts have become the prerequisite to obtain a permanent full-time working agreement within a firm.

The distinction among permanent workers and interns was the starting point for a 'dual' labor market. This notion highlights the co-existence of two labor systems, a primary and a secondary one, that have individual features in terms of regulation, contract agreement, working conditions, etc. Indeed, the main differences can be presented on several levels, such as:

- Contract agreements: as mentioned earlier, the main labor market is characterized solely by permanent open-end contracts; while the secondary labor market is known for the atypical contracts, which have a fixed term.
- Pension contributions: firms have to provide for part of their personnel's pension income. In the case of ordinary workers, employers are obliged by law to pay out 33 % of their employees' salary, while for temporary workers this proportion goes down to 26.72 % (Berton, Richiardi, & Sacchi, 2009).
- Wages: even though nowadays new entrants have a higher education compared to the last decade, the entry wage has decreased. As a matter of fact, nowadays the starting salary is 11 % lower than ten years ago. Moreover, the monthly remuneration of a permanent worker in his 30s is 35 % higher than a newly entrant in his 20s (Boeri & Garibaldi, 2008).

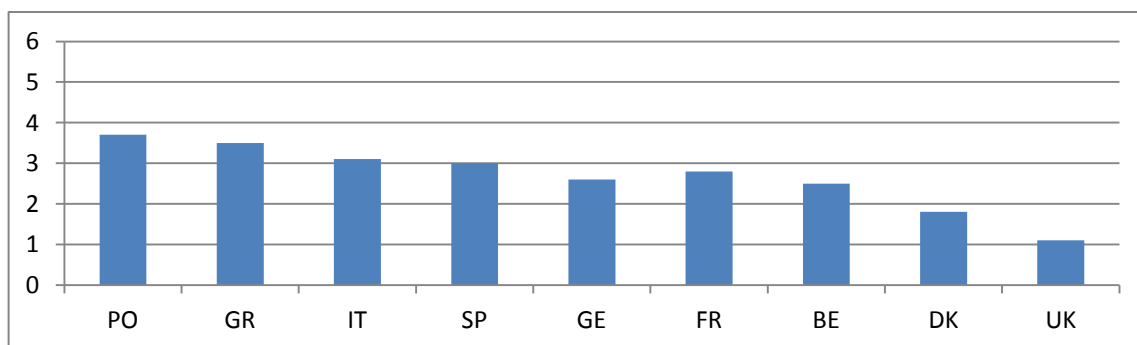
- Leaving and/or firing conditions: within the secondary labor market there are no rules governing this topic, indeed the contract can be interrupted at any time by the intern or the company without notice or particular formality. Moreover, the intern does not have the right to any compensation or severance payment, or 'Trattamento di fine rapporto (TFR)', which is a sum paid out to workers when they leave a job, independently from the reason: firing, new occupation or retirement (ACTL, 1997).

According to the Charter of Workers' Rights (Statuto dei Lavoratori), employers are allowed to fire permanent employees only under specific conditions in line with the regulation. In case of unfair dismissal, employers are obliged to re-hire the worker, which will also receive compensation of at least two and half months' salary (CGIL, 1970).

4.2.2 Employment Regulations

As mentioned earlier, the Italian labor market is known for its high level of employment protection, which partially explains the rigidity of the market. In order to measure the employment protection legislation (EPL) the OECD provided the Employment Protection Index, which includes: protection of regular employment and regulation on temporary contracts, as well as, rules regarding dismissal (Trevisan, 2006).

Figure 14: Employment Protection Index from OCED 1999



Data Source: Labor Market – Employment Protection Index, OECD, 1999

Figure 14 compares a few European nations on the basis of this index in the late 90s. As expected, Italy was among the most strict EPL, ranking third after Portugal and Greece.

This aspect produces two effects, on one side, it creates strong entry barriers for new entrants; and on the other, it generates low worker turnover, which results in longer lengths of service.

Given that a permanent employee can be dismissed only if certain conditions are legally valid, the employer is obliged to provide a high severance payment if the worker leaves the firm; the combination of the two might generate an entry barrier for new candidates. As a matter of fact, there are low incentives to discharge staff members, on one side, due to the high firing costs, and on the other because of the benefits deriving from a long term agreement between employer and employees. This entry barrier derives from the fact that newly hired workers in the company usually fill new vacancies, and this might not occur as often.

Several economic studies suggest that strict EPL is correlated to high mean job tenure and low labor flows (OECD, 1999), (Sousa-Poza & Henneberger, 2004), (Micco & Pagés, 2004). As a matter of fact, the Italian case simply confirms these results. Figure 3, in section 3.2.2, provides a graphical representation of the average years of tenure and Italy has the longest length of service, of almost 12 years.

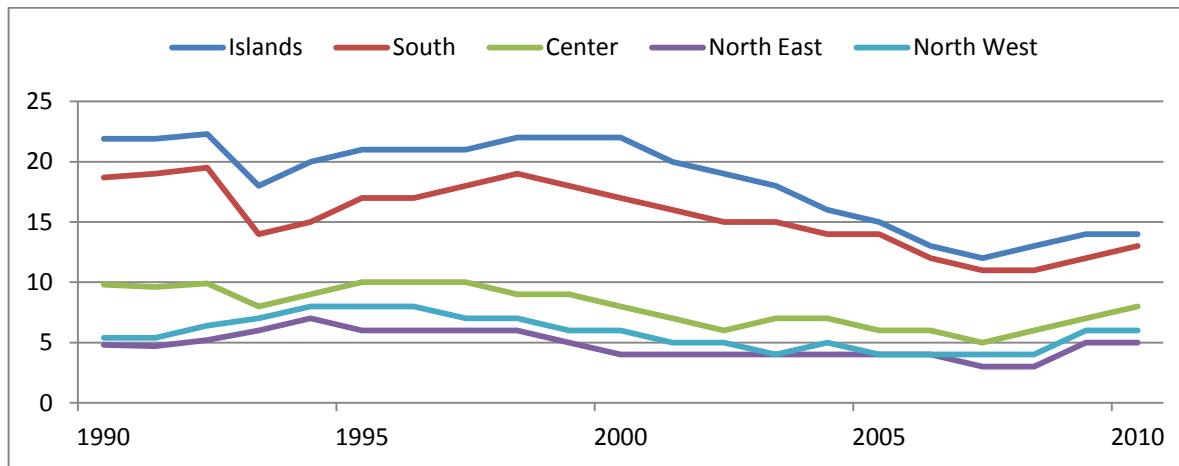
These characteristics have been changing over time; indeed, with the introduction of the atypical contracts employers have reduced the overall financial outflow consequently to the discharge of an ordinary employee. In the long run, low firing-cost might produce higher employee turnover and lower duration of unemployment (Berton, Richiardi, & Sacchi, 2009).

4.2.3 Regional and Gender Differences

The Italian labor market is characterized by strong disparities on one side, related to regional segmentations, and on the other, in regards to gender diversity.

Under an economic perspective, the differences between the North and the Mezzogiorno (which includes South and Islands) have been matter of concern ever since Italy became a country in the middle of 1800s. The structural problems deriving from: inefficient public administration, poor infrastructures and lack of investments in the Southern regions have enhanced this gap especially in issues concerning the labor market.

Figure 15: Unemployment rate in the five regional areas from 1990 to 2010



Data Source: Labor Market – National data tables on regional unemployment, ISTAT, June 2011

Figure 15 pictures the total unemployment rate distinguishing five regional areas. The graph illustrates a systematic difference between North and South but it is also possible to see a similar pattern within the two areas. As a matter of fact, over the whole period North West, North East and Center never crossed an unemployment rate higher than 10 %; on the contrary South and Islands never had a rate lower than 10 %.

In terms of productivity the North of Italy realized higher levels relative to the Southern part of the country. Indeed, according to the Italian Central Bank one third of the population lives in the South producing only one fourth of the total GDP. Moreover, the cost of living is approximately 16-17 % higher in the North than in the Mezzogiorno (Cannari & Franco, 2011). This would suggest a divergence also in wages, higher remunerations in the North and lower in the South. Instead, a few studies have proved the opposite; there is a substantial lack of wage differentiation between the two areas. To counterbalance the inconsistency between wages and productivity the government introduced a few measures, among which the *patti territoriali* or *contratti d'area*. The purpose of these agreements was to create collaboration among social partners at a local level in order to promote investments and increase the job creation. Furthermore, these contracts contributed to an upturn of economic activities in the Southern regions, and the trade unions have approved greater flexibility in working agreements (S. Prasad & Utili, 1998).

Figure 16: Italy's employment rate by gender from 1990 to 2010

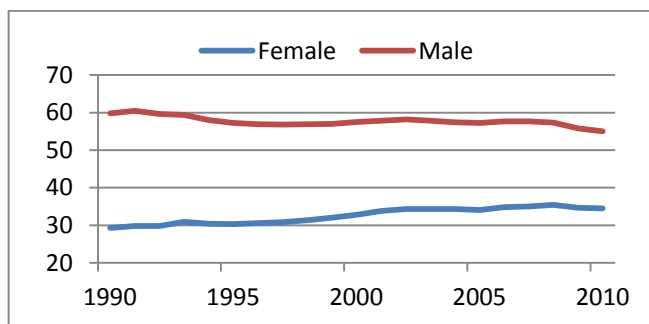
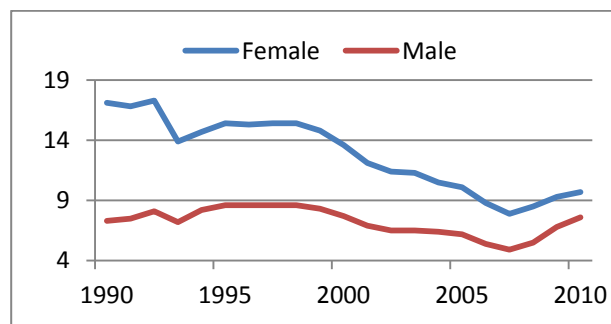


Figure 17: Italy's unemployment rate by gender from 1990 to 2010



Data Source: Labor Market – National data tables on regional unemployment, ISTAT, June 2011

On the other side, the Italian labor market presents significant disparities also under a gender perspective. Figure 16 provides a simple comparison between female and male employment indicator. The deep gender inequality emerges from the systematic difference that separates the two time series over the entire period; indeed, the mean gap is of 25.2 percentage points. Furthermore, even though there has been a slight convergence of the two rates and the inequality has been decreasing the male employment rate is still higher than the female rate.

Similar but opposite results can be seen in Figure 17. The graph illustrates the unemployment rate differentiating the two genders. In this case the two time series clearly converge towards each other; indeed, the gap decreased from 9.8 % to 2.1 % over the two decades. This was in particular due to a drop of the women's unemployment rate which declined from 17 %, in 1990, to 9.7 %, in 2010. The male rate, instead, has been rather stable over the period, ranging between 5 % and 9 %.

From Figure 18 it is also possible to analyze the impact of the financial crisis on the Italian unemployment. During the last three years the two series have been following a similar pattern; however, due to the recession the male unemployment realized a higher increase compared to the female's indicator. As a matter of fact, the male rate increased by 2.7 percentage points, while the women's rate by 1.8.

Combining the two, gender and regional disparity, it is possible to rank the unemployment rate of the four groups. As it can be seen from Table 2, the groups that have the lowest unemployment indicator are the males from the North of Italy, followed by females coming from the same area. Third are

males from the South and last, those that present the highest unemployment rate are the Southern females.

Table 2: Unemployment rate by gender and regional differentiation (in %)

Regional area/ Gender	Male	Female
North	5.1	7
South	12	15.8

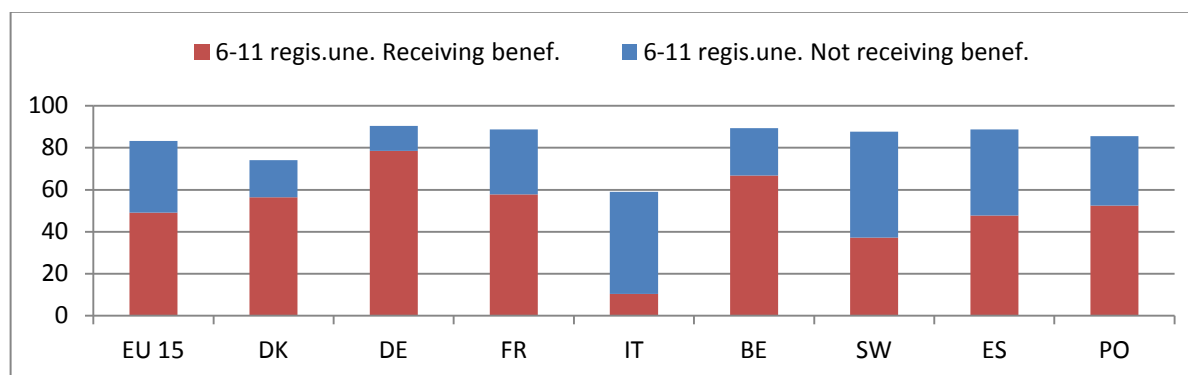
Data Source: Unemployment tables. Labor Market data set. ISTAT, June 2011

The striking fact is that even though the level of education of Italian women is generally higher compared to men, they still have less job opportunities compared to their peers in the opposite sex. This is visible especially in the South where due to poor employment prospects is more often to see withdraws from the labor market (Pugliese, 1995).

4.2.4 Unemployment Benefit System

Even though, the Italian regulation guarantees high levels of security and protection for full time permanent workers, it does not provide income security for the majority of the unemployed. Figure 18 estimates graphically the proportion of registered unemployed, with duration of their status between 6 and 11 months, which receive social benefits, across EU countries.

Figure 18: Registered unemployed that received social benefits in 2010 (in %)



Data Source: Unemployment rate tables of the Employment and Unemployment Database, Eurostat, July 2011.

Approximately 50 % of the registered unemployed were entitled to collect social benefits in EU-15, against the 34.1 % of those who did not receive any income compensation. Germany is the country that has the highest result, 78.5 % of the registered unemployed are offered unemployment benefits. On the other extreme, only 10 % of Italians out of work obtained assistance.

In order to be eligible for the unemployment benefits, an Italian unemployed has to present an application to the INPS (Istituto Nazionale Previdenza Sociale - National Institute for Social Welfare), which is the national social security institute that takes care of pensions and welfare. The reason behind the unemployment status must be one of the following: dismissal, termination of the contract, suspension for lack of work or resignation under specific reasons (among these: abuse, mobbing, etc). Moreover, the few eligible must be members of INPS for the last two years and have accumulated at least 52 weeks of contribution within this institution. The ordinary unemployment compensation lasts eight month (one year if the unemployed is above 50 years old) and it gives the right to receive around 60 % of the salary before tax for the first six months, 50 % for the seventh month and 40 % for the last month. Furthermore, the social benefit can reach a maximum amount of 850 Euros this can be greater, closer to 1000 Euros, only if during the working life the current unemployed had a salary above 1850 Euro (Boeri & Garibaldi, 2008).

From what stated above it is clear that unemployment insurance benefits are rather limited and inefficient. However, the welfare system presents another component, which is worth mentioning about: the Cassa Integrazione Guadagni (CIG). The initial purpose of the CIG was to protect employees that were temporarily laid-off from work due to reductions or suspensions of the activity by industrial firms. At the beginning these special social benefits gave financial compensation only to workers within the manufacture sector, nowadays it includes also the construction industry. Even though it has been expanding over time it is still restricted to industrial and commercial enterprise of a specific size. The benefits provided by CGI last for maximum one year and assure 80 % of the last earner salary. Under specific conditions, for instance: restructuring or reorganization of the firms, it is possible to obtain similar benefits for a longer period of time, up to four years (S. Prasad & Utili, 1998).

4.3 Italy's LMP in time and outcome

4.3.1 Time line of the LMP

Between 1955 and mid 80s, the Italian LMP was mainly concerned of guaranteeing a secure employment to all workers. The Charter of Workers' Rights, known as the Statuto dei Lavoratori, introduced in 1970, regulated hiring and firing procedures, workers' mobility within firms and the payment structure. This set of rules generated most of the market rigidities that characterize the Italian labor system.

Due to this concern, the initial labor market principles obliged employers to offer solely open-end contracts to all employees. However, already in 1955 the atypical contracts had their first regulation, with the introduction of rules concerning apprenticeship contracts. Moreover, in 1962 fixed-term working agreements were allowed under specific conditions or circumstances, for example, jobs that had seasonality or extraordinary tasks.

Given the low flexibility of the labor system, it was difficult to find the first job but at the same time one would rarely be discharged once secured an occupation. However, since 1984 there has been a greater attention towards new solutions that facilitate the entry into the labor market. One of the main results was the introduction of rules establishing the first job training contracts, which ran out after one or two years and had the purpose of enhancing the qualifications of the trainees. In the following decade, these contractual forms were extended to all economics sectors and the required age limit was increased from 29 to 32 (Sciulli, 2006).

A few years later, in 1987, the Italian government projected a set of rules liberalizing the use of temporary contracts. The aim was to increase the employers' flexibility and reduce the high cost of unfair dismissal. The duration of these contracts had a limit of 15 months, and could be renewed for maximum two times (Kugler & Pica, 2005).

Due to several factors among which globalization and directives presented by the EU, Italy started to design a new LMP for the country. In the last twenty years the government introduced important labor market reforms, the main ones are: *Pacchetto Treu* in 1997 and *Biagi's law* in 2003.

The Pacchetto Treu gave legal recognition to employment contracts that were already known in the market, such as: intern positions and the coordinate and continuous collaboration (co.co.co). This latter one represented a special arrangement between firms and self-employed workers. Furthermore, the reform modified the regulation on temporary contracts, as well as, trainee positions. The reform also introduced another important measure that allowed the creation of Temporary Work Agencies, which permitted private employment centers. After this reform temporary contracts became common in most sectors. Firms found these working arrangements very appealing especially because of the low pension contributions, which implied a lower outflow compared to ordinary contracts. This law stated also all the circumstances through which temporary contracts should than develop into a typical open-end agreements, to reduce occasions of abuse (Sciulli, 2006).

A few years later a Legislative Decree known as Salvi's Decree was introduced as an EU directive. This law gave a better layout to previous reforms and improved the work conditions between part-time employees and employers. The main purpose was to eliminate the administrative and juridical difficulties and guarantee same opportunities to all workers independently from their contract typology. Furthermore, part-time jobs upgraded their flexibility by reducing many of the limitations, such as: the impossibility of changing the working time after the contract was signed, the fixed number of part-time workers to hire and especially the prohibition of having a supplementary job on the side (Boeri & Garibaldi, 2008). The increase of flexibility in the labor market enhanced employment and job creation, which resulted in new working positions. The service sector had the strongest increase in employment of around 4 % during that year (EIU, 2001).

The new millennium brought several changes among this was the introduction of tax incentives to firms that converted fixed-end contract into permanent contracts. In 2001, Berlusconi's government declared that such fiscal measure could not be sustained by the state. As a matter of fact, one year later, it was suspended, and because of the complains from the public opinion it was later on substituted with a complicated and inefficient mechanism of resource allocation.

In 2003, Biagi's law was disclosed, and continued the liberalization process of atypical contracts that was initiated by the reform in 1997. Its purpose was to raise the employment rate through a more dynamic labor market and job creation. To do so, the law introduced new flexible employment

contracts and strengthened the role of private employment agencies. As in the Pacchetto Treu, the firms that made use of these new working arrangements benefited from cost reductions, in terms of taxation and mandatory contribution.

It is worth mentioning that even though there have been laws regulating atypical contracts since 1955, these working agreements were not widely used in the Italian labor market until the late 90s. Furthermore, during the last decade, the government realized the need to reform certain areas of the labor market, such as: lower the restrictions concerning dismissal, an effective unemployment insurance system, and higher wage differentiation where productivity levels diverge. However, these matters have caused several discussions with the trade unions, leaving them unsolved.

4.3.2 Achievements

The Italian LMP has improved several aspects of the labor market by increasing the flexibility, promoting job creation and upgrading the working opportunities of the new entrants. These achievements can be divided according to:

- Part-time and temporary jobs
- Unemployment
- Youth

As it was done in the previous chapter, the first three will be discussed in this section, while the results concerning youth unemployment will be analyzed individually in section 4.5.

The introduction of atypical contracts and their legal framework had a very strong impact on the labor force and the market's trends. The Pacchetto Treu and Salvi's Decree, which mainly targeted temporary and part-time workers, have been the turning points for the two contractual agreements. These regulations were fully implemented in the mid 90s and have been widely used ever since. Figure 19 illustrates part-time and temporary workers as a percentage of total employees. Both times series had a constant increase over time, indeed, at the beginning of the 90s part-time workers constituted only 4.7 % of all employees, while temporary workers were equal to 5.2 %. At the end of the period, these numbers almost tripled, reaching 14.8 % and 12.7 % respectively.

Figure 19: Part-time and Temporary workers as a % of total employees 1990-2010

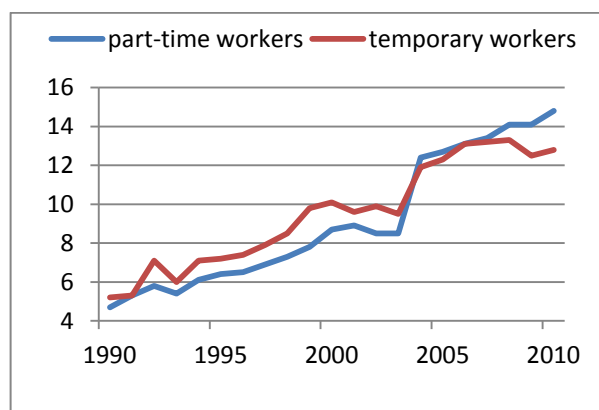
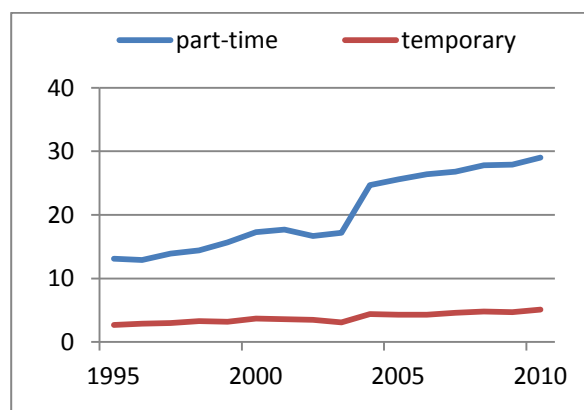


Figure 20: Part-time and Temporary women as a % of total women employees 1990-2010



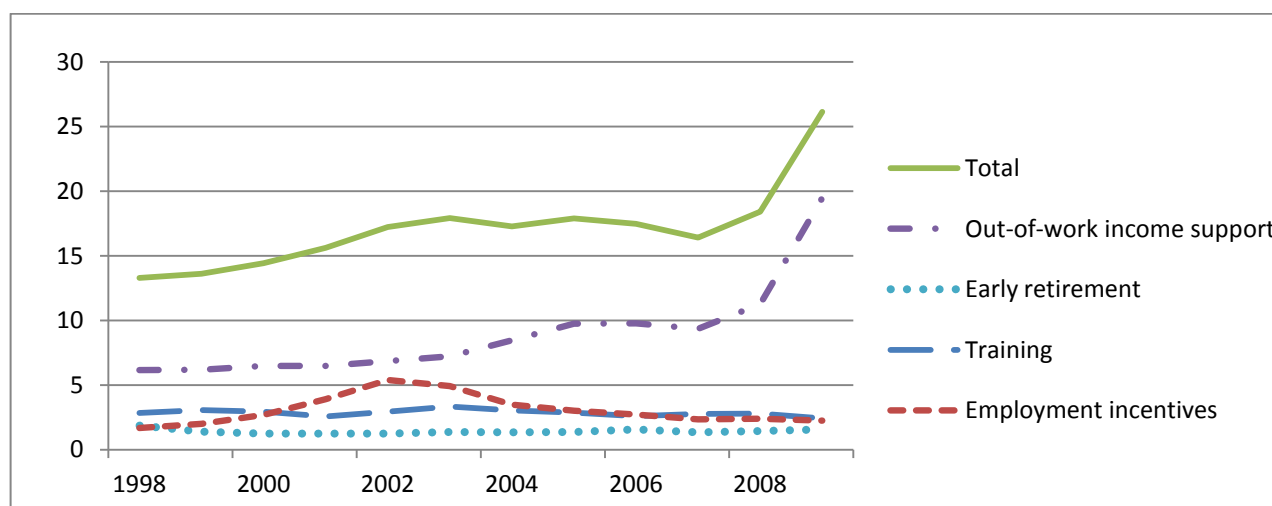
Data Source: Unemployment rate tables of the Employment and Unemployment Database, Eurostat, July 2011.

The fall in the overall unemployment rate suggests a linkage with the introduction of the atypical contracts. As mentioned earlier, these flexible working agreements have increased the job opportunities in the market, especially for women and youngsters (Boeri & Garibaldi, 2008). Analyzing in detail the pattern of the total unemployment rate in Figure 11 is possible to see a significant reduction between 1997 and 2007. In 10 years, the unemployment rate dropped from 11 % to almost 6 %. Similar pattern is visible for the female unemployment rate illustrated in Figure 17, which has been declining ever since 1997. An explanation to this last case could be that the number of women occupying a part-time position has been rising over time. Figure 20 provides a graphic representation of the part-time and temporary female workers as a percentage of total female employees. It is interesting to see that in 1995 only 13 % were employed part-time, while 15 years later almost 30 % of all women working have a part-time job.

4.3.3 The costs of the Italian LMP

Assessing the Italian LMP under a cost perspective, Figure 21 provides a simple illustration of the major outflows between 1998 and 2009. These public expenditures are addressed as LMP measures and LM support. The first one was defined in section 3.3.3, includes: training and employment incentives. The latter one covers interventions that offer direct or indirect financial assistance to people that receive compensation for disadvantage caused by labor market incidents (EC, 2006). Specifically to Italy, the main LM supports are early retirement and out-of-work income support.

Figure 21: Cost of Italy's LMP – Mill. Euros



Data Source: LMP– National data table, LMP Database, Eurostat, May 2011.

From Figure 21, the total cost had a constant increase between 1998 and 2007. This phase was followed by a steep rise that lasted until the end of the period, reaching a maximum level of over 26 million Euros.

Looking at the costs under a more detailed perspective and focusing on the components mentioned previously, Figure 21 shows that in 2009 almost 75 % of the total public expenditure was allocated for out-of-work income support. This cost refers to financial supports to compensate individuals from wage or salary loss in case of: unemployment due to short-term contract, restructuring of the firm or temporary idle for economic reasons. The graph above shows that it has increased over time, at the beginning of the period it amounted to 6 million Euros; while at the end of 2009 it tripled reaching 19 million Euros. In the last year, approximately 60 % of the total out-of-work income support was paid out as mobility allowance and ordinary unemployment benefit.

Training costs, instead, have been rather stable over the whole decade, ranging between 2.4 to 3.3 million Euros. However, its share as part of the total public outflow had a drastic decrease passing from 21.5 % to only 9 % in ten years. Training expenses differentiate in apprenticeship and training work costs. The first one, which refers to a paid training agreement where at completion the participants receive a diploma, became the major component. As a matter of fact, approximately 84

% of the total training costs were allocated under apprenticeship at the end of the period. The second one embraces all expenses related to training within the workplace. These, instead, have significantly dropped over time, in the last year they amounted to only 0.01 % of total training costs.

Financial public supports due to early retirement aim to assist older people to take on full or partial early retirement. This cost has been very stable, varying between 1.5 and 1.8 million Euros during the decade. However, looking at the large picture, this component has been decreasing constantly as a portion of the total LMP expenditures.

From Figure 24 it is possible to see that employment incentives follow a unique pattern compared to the other three costs. As a matter of fact, it has been increasing during the first five years; reaching a peak value of almost 5 million Euros, after that it has been decreasing until 2.2 million Euros in 2009. Most of this capital took the form of incentives for employers to recruit people in order to reduce, if not eliminate, long-term unemployment. Indeed, in 2009, 60 % of total employment incentives were used for this purpose.

4.4 Limitations of Italy's 'dual' labor market

As it was presented above, the recent reforms have been one of the main reasons underlying Italy's 'dual' labor market. The two systems co-exist and observe different regulations and working conditions.

Even though, the dual labor market has increased the flexibility and contributed to the raise of employment, looking at it from the atypical workers' perspective it has also developed a few disadvantages. In regards to this, there are four main problems in the Italian dual system:

1. The labor market does not offer equal working conditions to all employees. Indeed, people with identical jobs but with distinct contracts face different protection and rights. The atypical contracts do not guarantee legal and/or unions' support, which makes it hard to control whether they secure the minimum working standards from their employers.
2. The increasing focus on contractual variety pressurized the governments to recognize additional working agreements, which created of a complex and inefficient system. Indeed, there are several unused employment contracts.

3. Given that the state has allowed different pension contributions according to the type of worker, firms have taken advantage of the lower labor costs associated to the atypical contracts. It is clear that the dual labor market will present major problems once these pensions will be paid out. Indeed, it was estimated that the retirement funds will not guarantee the normal living standards. In order to solve this future problem, a few adjustments have been carried out lately; indeed, the pension contribution for atypical workers has increased from 13 % to 24 %.
4. In the long run this system will not increase employment. The two markets are independent and do not overlap, full-time workers going into pension are substituted by temporary workers, which are not integrated in the organization as ordinary employees. Firms have increased employment through this system but they did not gain the power of discharging the permanent worker. Therefore, the atypical workers have to face a stand-by or waiting effect in order to become permanent employees, once the former ones retire.
5. The Italian unemployment benefits system does not support or assist youngsters without a job. This weakness in the scheme may not ease their entry or re-entry into the labor market. However, reintegration is not just a problem for the Italian youth, indeed; another segment of the population facing similar concerns is individuals over 50 years of age. As a matter of fact, almost 60 % of those that fall in a state of unemployment at this age will be without a job for over a year, while 45 % for over two years. The duration of unemployment for these 'experienced' workers has been increasing over time, generating significant problems given that most of them have the responsibility of supporting their families (Boeri & Garibaldi, 2008).

Summing up, the dual system has increased the flexibility of finding and obtaining a job, raised employment through temporary contracts. However, it downgraded the protection for some workers, and increased differences between employees leading to an unequal labor system.

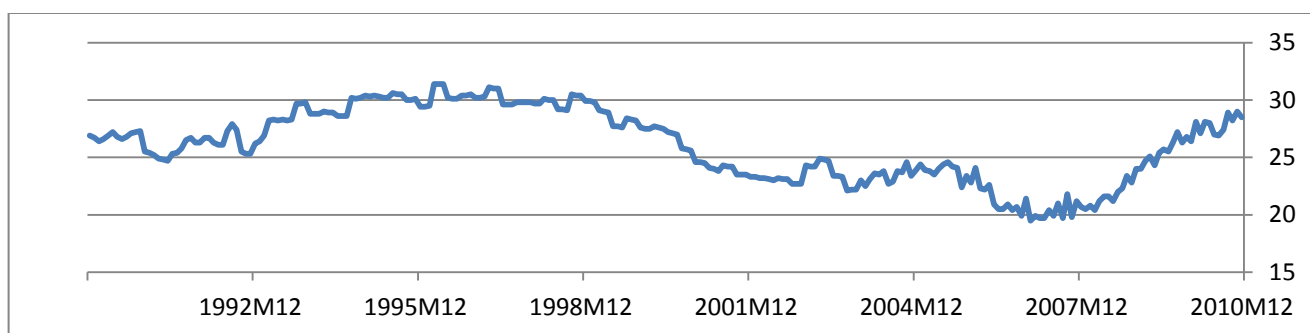
4.5 Italy's Youth

4.5.1 Macroeconomic analysis

As mentioned earlier in the chapter, the Italian youth constitutes approximately 10 % of the total population, equal to 6 million individuals. Among these 28 % are part of labor force and 20 % are employed. Furthermore, 61 % of these young workers have an occupation within the service sector, while 35 % are employed in the manufacturing/construction industry. For what concerns the youngsters that are not part of the labor force, 85 % of these, stated that the main reason for not working or seeking for a job is to continue their education or undertake a special training. Instead, 4.5 % of these declared that there are no jobs available.

Figure 22 provides an illustration of how Italy's youth unemployment rate has developed over the last two decades.

Figure 22: Youth Unemployment Rate Italy



Data Source: Unemployment rate tables of the Employment and Unemployment Database, Eurostat, April 2011.

At the beginning of the 90s, Italy went through an economic recession, partially due to difficulties with the public debt, the country was pressured to cut costs, privatize most state-owned companies and reduce the government's intervention in the economy. This affected the overall unemployment rate, as well as, the youth rate that rose steadily until the late 90s. The graph above illustrates a value equal to 26.9 % at the beginning of the period, followed by a peak of 31 % at the end of 1997.

The recovery from the economic slump was possible through higher taxation and budget cuts, which determined a period of stable growth and high employment starting from 1998-1999. This

prosperous period and the introduction of Treu's package contributed to the reduction in the indicator, which started its decline in those years. Indeed, by 2002 the rate moved down to 22.7 %.

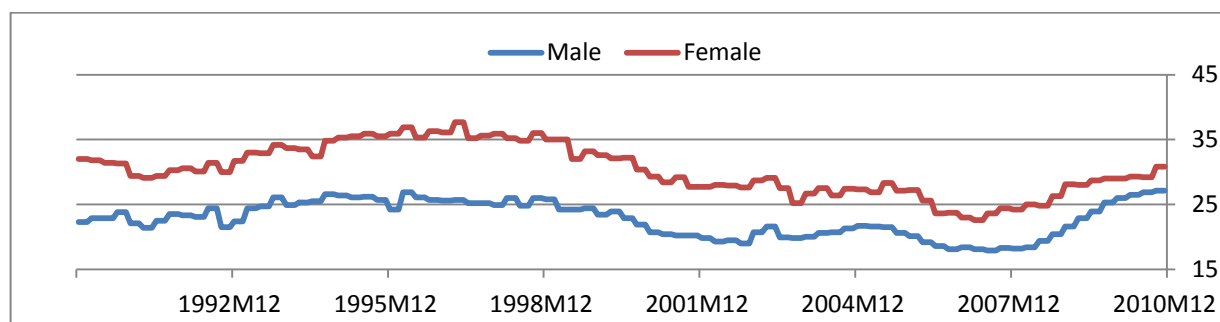
From 2003 to 2005, Italy's youth unemployment rate was quite volatile ranging between 22 to 24 %. Biagi's law was established in the same period and produced positive outcomes, upgrading the market's flexibility and presenting better job opportunities to all workers. As a result of this reform, the youth unemployment experienced a steady decline, reaching the lowest level over the entire period of 19.5 %, in 2007. Although, the market's condition and the reforms were favoring youth employment and trying to eliminate jobless youngsters, the financial crisis produced opposite effects to these positive movements. As it can be seen from the graph above, after 2008 the rate has been moving upwards reaching 29 % in the late 2010, approximately 10 percentage points higher compared to the pre-crisis times.

Summing up, also in this case, the major reductions in the youth unemployment overlap with the Italian labor market reforms. Given that, there many other factors contributing to the development of the youth unemployment rate, it is difficult to isolate the individual factors, however it possible to say that Italy's LMP has been partially contributing to its decline.

4.5.2 A few comparisons

Analyzing the Italian youth unemployment under a gender perspective provides a better overview of the market. Figure 23 gives a graphic representation of the gap between male and female youth unemployment rate.

Figure 23: Youth Unemployment Rate in Italy by gender, 1990 - 2010



Data Source: Unemployment rate tables of the Employment and Unemployment Database, Eurostat, April 2011.

The two time series never overlap indicating a systematic difference between them over the entire period. However, they both follow a similar pattern and have been converging towards each reducing the gap.

Over the whole period, the female youth unemployment rate has been significantly higher than the male rate, even though they present a similar development, the female indicator increases and decreases more than the male rate. At the beginning of the period the two indicators amounted to 32 % and 22.3 %, respectively for female and male. By 1996, both rate reached their peak values equal to 37 % and 27 %. After this point, the two time series started declining until 2007, year during which they touched the lowest level 22.6 % and 19.5 %, reducing the gap to 4-5 percentage points. Due to the financial crisis both rates started increase once again; however they have been converging towards each other, which decreased the disparity down to 2-3 %. In 2010, the average youth rate for females was equal to 29.6 %, while for the men was 27.8 %.

From a geographic point of view, the Italian youth unemployment rate is relatively heterogeneous, especially between North and South. Through Table 3 it is possible to see the difference between the five areas under analysis: North West, North East, Center, South and Islands. The regional differences are very pronounced in certain areas, indeed, it reaches almost 20 percentage points between the North East and the South. The former one is the area that experienced the lowest level for the youth unemployment, which stands out from a rate equal to 19.1 %. On the contrary South and Islands have the highest rate: 38.8 %.

Table 3: Regional division of Italian youth unemployment rate (in %)

In 2010	Total	Male	Female
North West	21.7	21.1	22.6
North East	19.1	16.2	23
Center	25.9	24.9	27.4
South and Islands	38.8	37.7	40.6

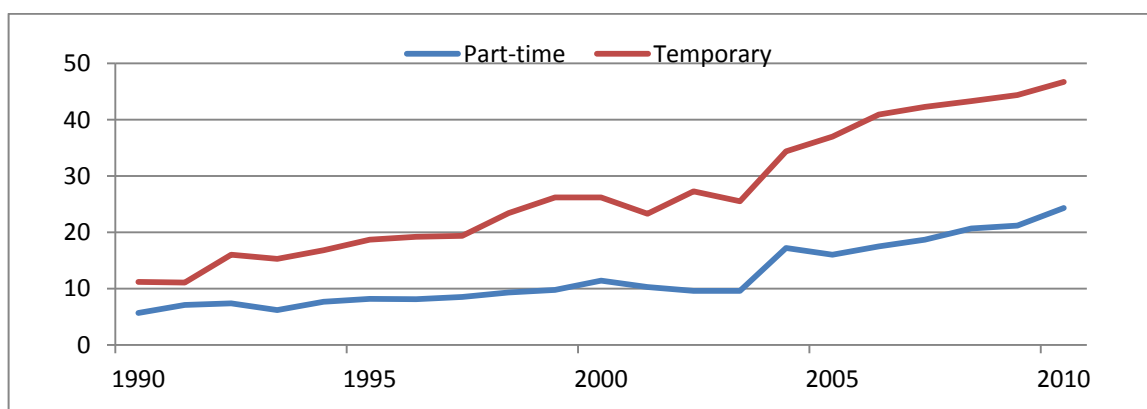
Data Source: Unemployment tables. Labor Market data set, ISTAT July 2011.

Furthermore, also at a regional level the female unemployment rate appears higher than the male rate. In this case South and Islands show highest rates: 37.7 % for men and 40.6 % for female. However, the gap difference varies from 1.5 percentage points, in the North West, to 7, in the North East.

Taking a look at the external and internal migration flow, it would be interesting to see the case of the Italian youth but unfortunately there is no data available regarding this specific age group. A possible explanation is due to the fact that Italians tend to leave their parents home at a relatively old age. The main reasons are related to a cultural factor, as well as, the lack of financial independence until their late 20's - early 30's.

Even though, it is worth mentioning about the Italian migration on the basis of a study provided by ISTAT. This report analyzes both internal and external migration, however only the first one will be taken into account. Regarding this matter, there has been a reverse trend and a decline in the flow. As a matter of fact, the typical migration flow from South to North, which characterized the country for decades, is not as common as it used to be nowadays (ISTAT, 2011). Given the lack of differentiation in salaries between the two areas and lower prices in the South, less people are willing to move to other parts of the country (Boeri & Garibaldi, 2008).

Figure 24: Youth in part-time and temporary jobs



Data Source: Statistical Report, ISTAT July 2011

Looking at the impact of the atypical contracts on the young workers, it is possible to see that also in this case the number of part-time and temporary workers has been rising over the past 20 years. Figure 24 provides a graphic representation of part-time and temporary workers between 15 and 24 years of old as a percentage of total employees of the same age. As it can be seen both categories have increased over time, in 1990, part-time and temporary workers were respectively 5.7 % and 11.2 %, while in 2010 they reached 24.3 % and 46.7 %.

In sum, the introduction of the atypical contracts, the focus on higher flexibility and the creation of a 'dual' labor market enhanced the working opportunities for the young people. However, it is worth underlining that the probability of finding a job has increased together with the probability of losing it, due to the lower EPL offered by the new working agreements. Moreover, the development of labor market policy contributed to the raise in employment and decline in unemployment over the last decade but it was not successful in reducing the regional and gender gaps, which characterize the Italian labor market.

5 COMPARING: ITALY - DENMARK

In this chapter the two labor markets, Danish and Italian, are compared and analyzed on the basis of youth unemployment. The differences between the two indicators are investigated under four measurements, which are:

1. Youth unemployment and employment rate
2. Ratio youth unemployment rate to the adult unemployment rate
3. Youth unemployment as a proportion of total unemployment
4. Youth unemployment as a proportion of the youth population.

The four dimensions presented above, are assessed separately in the following sections.

5.1 Youth employment and unemployment rate

As it was discussed in the previous chapters, the labor market policies, as well as, the market's structure have a strong impact on youth employment and unemployment. Given that the two countries have very different features, these characteristics reflect in their labor market outcome.

Figure 25: Comparison youth employment rate between Denmark and Italy (%)

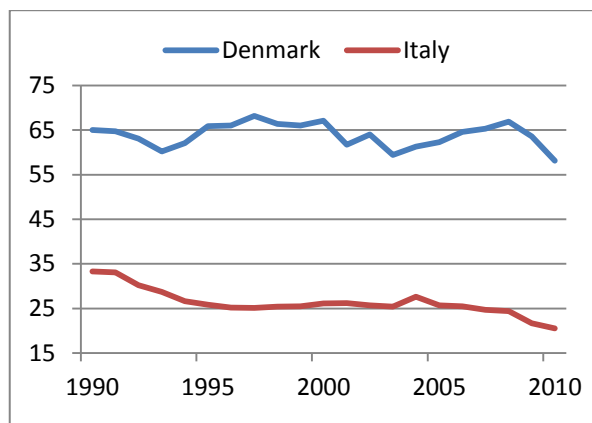
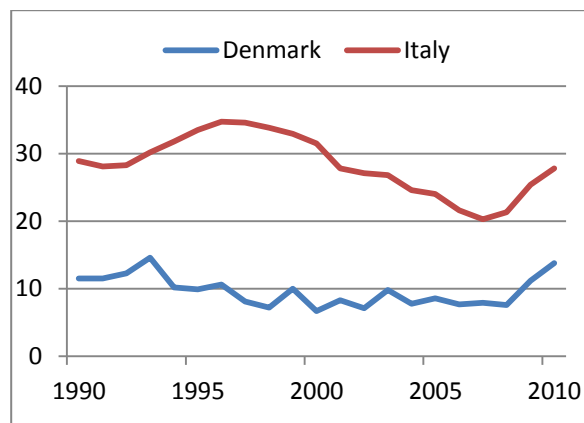


Figure 26: Comparison youth unemployment rate between Denmark and Italy (%)



Data Source: Unemployment rate tables of the Employment and Unemployment Database, Eurostat, April 2011.

Figure 25 and Figure 26 provide an illustration of the two indicators. As it can be seen, in both cases there is a net difference between the two. In regards to the youth employment rate, Denmark presents a higher rate, which has been fluctuating between 58 % and 67 %, while Italy employment rate has been on average 37.6 percentage points lower compared to the Scandinavia country. As a matter of fact, over the last two decades it has been moving between 31 % and 43 %. The youth unemployment rate, instead, presents similar features but reverse to the previous graph. Denmark presents a fairly low rate that has been on average 18.7 percentage points lower than the Italian indicator. The latter one has been oscillating between 34.7 and 20.3 %.

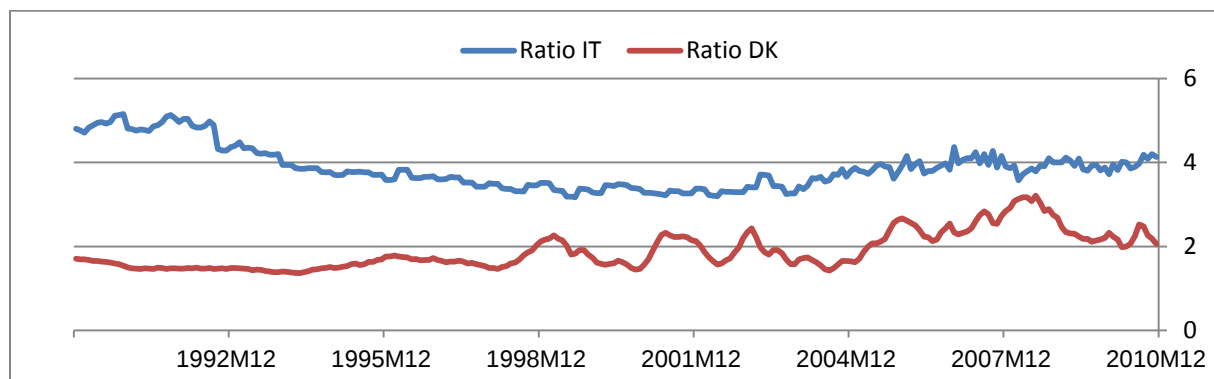
Having a look at the difference between the indicators over the entire period, Figure 25 illustrates an increase of the mismatch, while Figure 26 presents a reduction. The two employment rates have been diverging from each other, while the unemployment rates have been converging. In Figure 25 it is possible to see that the amplification of this inequality has been stronger during two significant moments. The first one is associated to the Danish economic recovery in the late 90s that favored the increase of the youth employment in the country, and the other, the recent financial crisis that produced a severe reduction in both indicators. Throughout the two events the gap reached approximately 40 percentage points. Figure 26, instead, shows a different pattern. As a matter of fact, the mismatch has been decreasing after the mid 90s, when it reached the maximum value of 26.5 percentage points. During the following 15 years, the gap has dropped to 14 by the end of 2010.

5.2 Ratio youth unemployment rate to the adult unemployment rate

The second measurement is the ratio between the youth unemployment rate and the adult unemployment rate. This ratio specifically measures the relative disadvantage of the youth compared to adults. This relation highlights whether young unemployed are affected by general market conditions or they are facing specific weaknesses in the labor system. As a matter of fact, if the ratio is low, and both unemployment rates are high, then a possible explanation is that general macroeconomic conditions impacts unemployment, causing higher youth unemployment. On the contrary, if the youth rate is high, while the adult rate is low, then macroeconomic conditions are not relevant. This highlights the presence of specific problems

that characterize the role of youngsters in the labor market (Caroleo & Pastore, 2009). Given that young people are less experienced, they are also the first ones to be laid off compared to adult workers; in both cases, Italy and Denmark, this ratio is expected to be positive and greater than 1.

Figure 27: Comparing ratios, youth unemployment rate over adult unemployment rate



Data Source: Unemployment rate tables of the Employment and Unemployment Database, Eurostat, April 2011.

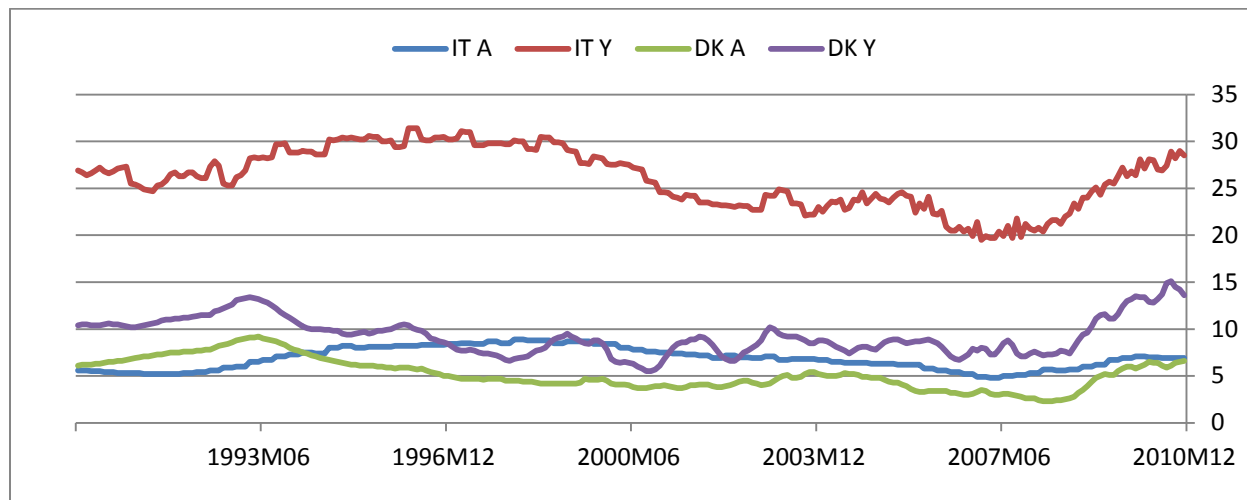
Over the last 20 years this ratio has been fluctuating between 5 and 3 for Italy, and between 1 and slightly above 3 for Denmark. The youth unemployment in Italy is currently four times higher than that of an adult. In Denmark, instead, youth unemployment rate is double the adult rate.

As it was discussed previously, the financial crisis had a very strong impact on unemployment, especially for youngsters. In 2010, the youth indicator reached 28.5 % for Italy and 13.6 % for Denmark, while the adult indicator was respectively 6.9 % and 6.6 %.

The graph below provides an illustration of all four the indicators youth and adult unemployment rate in Denmark and Italy. Both countries show a positive correlation between adult and youth unemployment rate (0.72-0.77), this explains the similar pattern between the two indicators. As a matter of fact, in both cases when the adult unemployment rate decreases, also the youth rate experiences a solid decline, and vice versa, when the adult unemployment rate increases, the youth rate raises more. Considering this pair of indicators, Italy presents an

average difference of almost 20 percentage points, while in the Danish market this gap is much smaller approximately 4.1.

Figure 28: Danish and Italian youth unemployment rate and adult unemployment rate



Data Source: Unemployment rate tables of the Employment and Unemployment Database, Eurostat, April 2011.

Furthermore, Figure 28 shows that the Italian youth unemployment rate is significantly higher than the other three. The two adult unemployment rates fluctuate around the same range between 2.3 % to 9.2 %, while the Danish youth unemployment rate, has always been below 10 % for most of the period apart from the early 90s and during the financial crisis, where it increased touching the peak value of 15 % at the end of 2010.

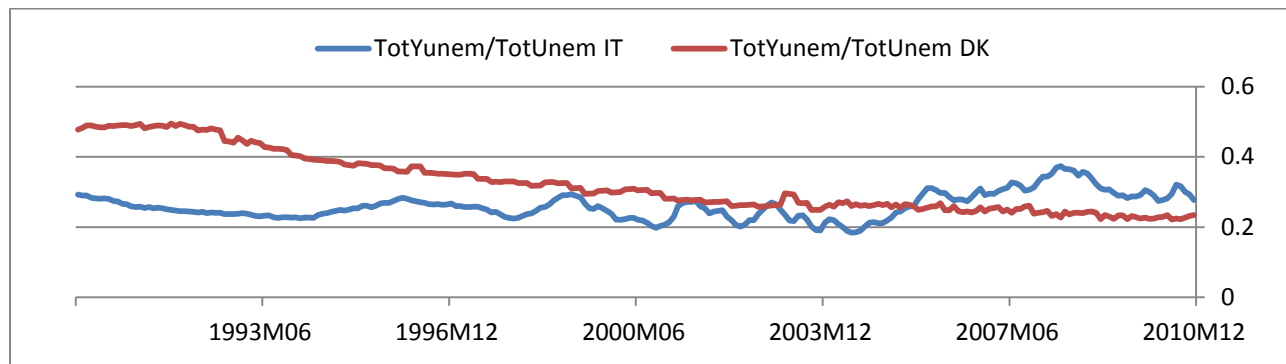
Comparing the two ratios, as well as, the unemployment rates, it is worth mentioning that in the case of Denmark, the youth unemployment rate is clearly affected by general macroeconomic conditions. In the case of Italy, instead, the youth rate is significantly higher compared to the adult rate, which underlines the youngsters' difficulties within the market.

This difference is also related to the fact that in Denmark's EPL creates limited asymmetries between the new and senior employees, compared to Italy, which explains also the fairly equal job destruction across workers during the recent financial crisis (O'Higgins, 1997).

5.3 Youth unemployment as a proportion of total unemployment

The third indicator illustrates the number of young unemployed as a proportion of total unemployed.

Figure 29: Youth unemployment as a proportion of total unemployment in Denmark and Italy



Data Source: Unemployment rate tables of the Employment and Unemployment Database, Eurostat, April 2011.

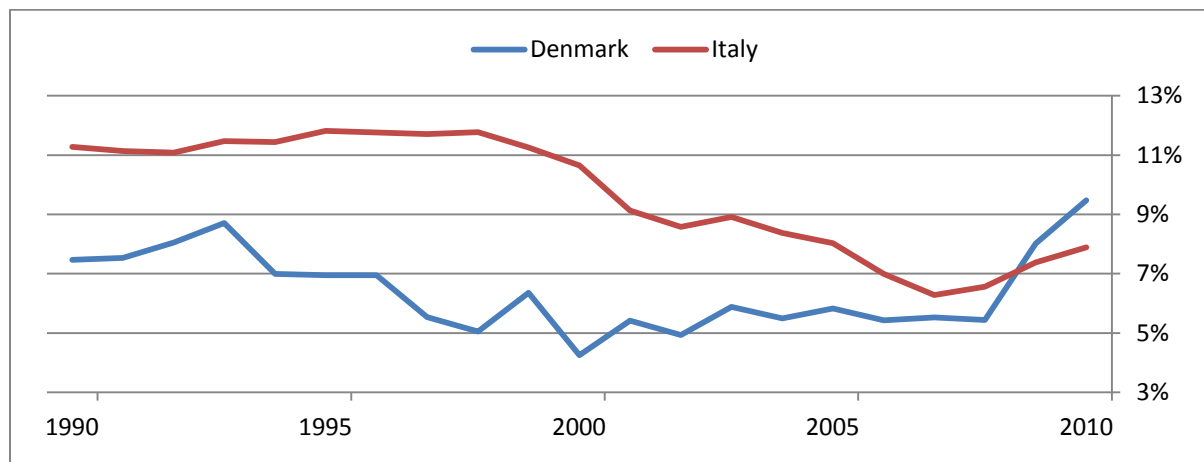
It is worth noting that the two labor markets are not comparable in size; indeed, over the past 20 years the total number of Italian unemployed has been on average 18 times higher than in Denmark. Looking instead at total youth unemployment, the number of Italian youngsters without a job is currently 9.6 times higher than in the Danish case.

As it can be seen from the graph above, in 2010, approximately one third of Italy's unemployed were individuals between 15 and 24; in the same year, almost one fourth of Danes without a job were youngsters. This proportion has been decreasing over time for the Scandinavian country; indeed, in 1990 almost 50 % of the labor force out of work was constituted by young people. In the case of Italy, this ratio has been fluctuating over time; indeed, it has been ranging between 20 % and 37 %.

5.4 Youth unemployment as a proportion of the youth population

The last measurement indicates the ratio between youth unemployment over total youth population. Also in this case, it is necessary to keep in mind that the two countries are different in size. As a matter of fact, Denmark's total youth population counts approximately 677 thousand people, while for Italy they are around 6 million.

Figure 30: Youth unemployment as a proportion of the youth population



Data Source: Unemployment rate tables of the Employment and Unemployment Database, Eurostat, April 2011.

From Figure 30 shows that at the beginning of the 90s, 11 % of Italy's youngsters were unemployed, while in Denmark this ratio was around 7.5 %. For the Mediterranean country this proportion increased in the mid 90s and then started its decline reaching 8 % by 2010. On the opposite, for Denmark it has been fluctuating between 4 % and 7 % since 1993; however, due to the financial crisis this ratio has been increasing especially over the last three years. In 2010, almost 10 % of the Danish youth was unemployed.

Summing up, the four indicators related to youth unemployment presented above, illustrate strong differences between the two countries. As it can be seen, the Danish and Italian labor market are difficult to compare given the disparity in the size of the youth population and the features of labor system presented in the previous chapters. However, in both nations youth unemployment/ employment were significantly affected during the financial crisis. Given so, the next chapter presents an econometric analysis that includes also this aspect.

6 ANALYZING YOUTH UNEMPLOYMENT

As mentioned in the initial chapter youth unemployment is very sensitive to economic changes. In order to determine whether there is a significant link between the countries' economy and the development of the indicator, it was important to seek for variables that could provide a wide sample, and at the same time could represent economic factors. For these reasons growth in real GDP, short-term interest rate and inflation have been considered as appropriate variables for this analysis.

As a matter of fact, growth in real GDP is associated to an enlargement of the economic activities, which suggests job creation and reduction of unemployment. Thus, there should be a negative relationship between this variable and youth unemployment. The interest rate, instead, is closely related to an expansion or a contraction of government policies. Therefore, keeping growth in real GDP constant, a reduction in the interest rate should determine a decrease in unemployment, which indicates a positive relationship. The last variable is connected to the theoretical framework supporting Phillips Curve, which assumes that an increase in inflation is associated to a decrease in unemployment, therefore a negative relationship.

Given these expectations, the following analysis will check whether the general assumptions stated above hold in the two countries. However, prior to that there will be a brief presentation of the theory that validates the investigation.

6.1 Theoretical background

The analysis section of this dissertation involves variables which are categorized as time series, defined as "*set of observations on the value that a variable takes at different times*" (Gujarati & Porter, 2009, p. 22). In order to analyze the performance of this type of data, it is necessary to verify its stationarity.

6.1.1 Stationarity

A time series is stationary if '*its mean, variance and autocovariance (at various lags) remain the same no matter at what point we measure them; that is, they are time invariant.*' (Gujarati & Porter, 2009). On the opposite, if it is not stationary it indicates that the mean/variance change

over time. In this latter case, the analysis of the time series is restricted to a specific period of time due to the lack of mean reversion. In other words, the time series is not identically distributed; therefore its behavior cannot be generalized over time. Given that, this aspect has to be taken into account, to avoid the possibility of generating a spurious regression while evaluating the linear combination of the time series, which would result in inaccurate t statistic and estimates (Wooldridge, 2002). Therefore, the Dickey-Fuller or Augmented Dickey-Fuller test will be computed in order to assess the stationarity of the time series.

6.1.2 Analyzing the relationships

The relationship between the time series will be analyzed on the basis of the following tests:

Granger Causality test

The Granger Causality test is based on the assumption that if variable A significantly influences variable B, then there it is possible to state that A causes B. On the basis of this hypothesis the restricted and unrestricted equation are determined and test was follows:

$$F \text{ test} = [(ESS_{res} - ESS_{unres}) / \# \text{ restrictions}] * [DF_{unres} / ESS_{unres}]$$

In the case the F statistic is greater than F critical then the null hypothesis can be rejected. This implies that A does not cause B.

Co-integration

The co-integration test tries to verify whether there is a long-term relationship between two variables which are not stationary. The Engle-Granger test is implemented to check whether the non-stationary processes are co-integrated.

The Engle –Granger two steps procedure consists of:

1. Estimation of the following regression: $Y = \alpha + \beta * X$, and generation of the residuals (Y and X are the non-stationary variables).
2. The Augmented Dickey-Fuller test is applied to the residuals to assess their stationarity.

In the case the error terms are not stationary then it is possible to conclude that the two time series are not co-integrated, which implies that there is no relationship in the long-run between the two variables (Wooldridge, 2002).

In the following two sections, the tests presented above are performed on the data representing the two countries.

6.2 Denmark

6.2.1 Test for Stationarity

In order to analyze this relationship, and provide a correct interpretation of the results, it is necessary to verify whether these time series are stationary. Therefore, the four variables will be tested individually.

▪ Inflation

Looking at the Augmented Dickey-Fuller test in Table 4, as well as the ACF and the PACF in APPENDIX 1, it is possible to conclude that inflation is stationary. The ACF declines exponentially in a wave pattern, while the PACF show a partial autocorrelation significantly different from 0 for the first five lags. Moreover, plotting the time series over time, as in the first graph in the appendix, inflation can be consider a random walk with a drift, also called single mean.

In order to compute the Dickey-Fuller test on the basis of correct lag it is necessary to test whether there is serial autocorrelation. Using Godfrey's general Lagrange multiplier test, or simply the LM test, several cases have been tested. The aim of this process was to detect which lag does not present autocorrelation. For this specific time series there is not autocorrelation after the fifth lag, the results derive from the following equation:

$$\Delta 1 \text{Inflation} = \beta_1 + \beta_2 * (\text{Lag1 Inflation}) + \beta_3 * (\Delta 1 \text{Lag2 Inflation}) + \beta_4 * (\Delta 1 \text{Lag3 Inflation}) + \beta_5 * (\Delta 1 \text{Lag4 Inflation}) + \beta_6 * (\Delta 1 \text{Lag5 Inflation}) \quad (1)$$

Where $\Delta 1$ refers to the first difference and $\Delta 1 \text{Lag}$ refers to the first difference respectively to a specific lag.

This regression provides an LM statistics for $p=4$ equal to 4.1384 which is lower than the critical value of 9.49 ($\chi^2_{0.95}(4)$), which does not reject the null hypothesis of no serial correlation.

Going back to Table 4, the tau value in absolute terms is 4.67, which is higher than 2.89, the critical value at 5 % level. Given so the null hypothesis has been rejected, inflation is stationary.

▪ Growth in Real GDP

Also growth in real GDP is stationary. From APPENDIX 1, the ACF declines exponentially in a wave pattern, while for the PACF there are no significant spikes, which indicate the presence of no serial correlation after the first lag. This was verified by the LM, which was computed on the following equation:

$$\Delta 1 \text{Growth RealGDP} = \beta_1 + \beta_2 * (\text{Lag1 Growth RealGDP}) \quad (2)$$

As expected, the null hypothesis was not rejected, the LM statistic for $p=4$ is 4.2012, therefore no autocorrelation after the first lag.

Looking at APPENDIX #1 once again, the first graph suggests that also growth in real GDP is a random walk with a drift.

From Table 4, the Dickey-Fuller test confirms the stationarity of the time series.

▪ Short-term Interest Rate

Plotting short-term interest rate against time, it is possible to classify this time series as a random walk with drift around a deterministic trend.

From the Dickey-Fuller test, the null hypothesis of no stationarity cannot be rejected, as the tau statistic is lower than 3.45, which is the critical value at 5 % level for this specific case. The ACF presents a slowly declining, while the PACF shows a partial autocorrelation significantly different from 0 for the first lag, which reinforce the results of the Dickey-Fuller test.

Checking whether there serial correlation on equation (3), the LM statistic for $p=4$ equals 2.9036, therefore there is no autocorrelation.

$$\Delta 1 \text{ ST IntRt} = \beta_1 + \beta_2 * (\text{Lag1 ST IntRt}) \quad (3)$$

Given that the variable is not stationary, it is necessary to find the suitable transformation of the time series in order to reject the unit root test. As a matter of fact, by taking the first difference of the short-term interest rate, the Dickey-Fuller test strongly rejects the null hypothesis, which implies that the first difference of the time series is stationary, or in other words it's integrated of first order.

▪ Youth Unemployment Rate

As it can be seen from Table 4 and APPENDIX 1, the time series is not stationary. Before proceeding with the transform of the variable it is useful to check whether there is serial correlation. From equation (4), the LM statistic indicates for $p=4$, a value of 5.1534, which implies no autocorrelation after the fourth lag.

$$\Delta 1 \text{Youth UnRT} = \beta_1 + \beta_2 * (\text{Lag1Youth UnRT}) + \beta_3 * (\Delta 1 \text{Lag1Youth UnRT}) + \beta_4 * (\Delta 1 \text{Lag2Youth UnRT}) + \beta_5 * (\Delta 1 \text{Lag3Youth UnRT}) + \beta_6 * (\Delta 1 \text{Lag4Youth UnRT}) \quad (4)$$

As in the previous case, by taking the first difference of youth unemployment rate, the time series becomes stationary.

Summing up, inflation and growth in real GDP are stationary, while for short-term interest rate and youth unemployment rate it is necessary to take the first difference in order to establish the time series' stationarity.

Table 4: Augmented Dickey-Fuller Test all variables

Augmented Dickey-Fuller Unit Root Tests			
Variables	Type	Tau	Pr < Tau
Inflation (CPI)	Single mean	-4.67	0.0003
Growth in Real GDP	Single mean	-9.79	<.0001
Short- term Interest Rate	Trend	-2.40	0.3758
Youth Unemployment Rate	Single mean	-0.83	0.8061
Variables in First Difference	Type	Tau	Pr < Tau
Short- term Interest Rate	Trend	-9.14	<.0001
Youth Unemployment Rate	Single mean	-4.07	0.0019

6.2.2 Analyzing the relationships

Correlation Coefficients

Table 5 reports the correlation coefficients between the Danish youth unemployment rate and the other three variables. As it can be seen, there is a negative correlation between the youth indicator and inflation, while for the other two, growth in real GDP and short-term interest rate there is a positive correlation. On the basis of the initial hypothesis, if a country's economy is prosperous this should influence positively employment and produce negative effects on unemployment. An increase in growth of GDP and prices should indicate a negative change on youth unemployment, while an increase in and interest rate should determine a reduction. This is confirmed by the negative correlation with inflation and the positive relation with interest rate. In the case of growth in GDP, instead, there is a positive correlation which contradicts the assumption stated above.

Table 5: Correlation Coefficients - Denmark

Variables	Growth in real GDP	Inflation	Short-term Interest Rate
Youth Unemployment Rate	0.013	-0.095	0.265

Granger Causality Test

From Appendix 3, the Granger Causality Test indicates that only growth in real GDP causes changes in youth unemployment. In the case of the other two variables, inflation and short-term interest rate, the test provides opposite findings.

Given these results, the Granger Causality Test partially confirms the initial hypothesis, which links the development of youth unemployment to the economic factors.

Engle-Granger Test

Given that youth unemployment and short-term interest rate become stationary by taking the first difference; this has to be taken into account during the econometric analysis in order to avoid spurious regressions.

Given that the two processes are integrated of first order, it would be interesting to see whether they move together in the long-run, or in other words if they are co-integrated of first order. The Engle-Granger 2 step-procedure test long-run equilibrium.

As it can be seen from APPENDIX 5, the co-integration test confirms the stationarity of the residuals; indeed, Dickey-Fuller test equals $2.21 > 1.931$ (critical value at 5 % level of the zero mean), which indicates that the two variables are co-integrated. There is a long term relationship between the two present a relationship in the long run.

6.2.3 Regression Modeling

Once performed the stationarity test, it is meaningful to assess the relationship between the variables. The next section follows with an econometric analysis based on two regression models. Model 1 aims to analyze which factors are significant to changes in youth unemployment, considering the unemployment indicator as the dependent variable and the other three, growth of real GDP, inflation and first difference short-term interest rate, as independent variables. Model 2, instead, adds to the first regression a dummy variable associated to the recent financial crisis starting from the second quarter 2009.

Model 1

$$\Delta 1 \text{ Youth UnRt} = \beta_1 + \beta_2 * \text{Inflation} + \beta_3 * \text{Growth RealGDP} + \beta_4 * \Delta 1 \text{ ST IntRt}$$

As expected, the estimated coefficients for inflation and growth in real GDP have a negative sign. Therefore, a positive change of one unit in inflation reduces the dependent variable by - 0.194, and of - 0.132 after an increase in growth of real GDP. In the case of the interest rate, the coefficient should have a positive sign, given that an increase in the interest rate should determine and higher unemployment rate. However, the estimated coefficient equals - 0.074.

From Table 6, only growth in real GDP is significant at borderline 5 % level. Moreover, the adjusted R squared of 0.032, suggest that these three variables are not sufficient to explain the changes in the dependent variable.

Table 6: Model 1 - Denmark

Variables	Estimated Coeff.	Stand. Error	t statistics	p-value
Intercept	0.188	0.134	1.40	0.164
Inflation	-0.194	0.199	-0.97	0.335
Growth Real GDP	-0.132	0.068	-1.94	0.056
$\Delta 1$ ST Inter. Rate	-0.074	0.098	-0.75	0.455

Testing the overall model, and investigating on the assumptions of the normality, no autocorrelation and no heteroscedasticity of the error terms, the results showed strong evidence of the last two. Therefore, to correct the error terms from autocorrelation and heteroscedasticity, the Newey-West test was employed. APPENDIX 6 illustrates the outcome of this test and validates that growth in real GDP is still the only significant variable but this time at 1 % level.

Model 2

Given that the previous model had problem with autocorrelation and heteroscedasticity, the introduction of a dummy variable does not change the outcome. Therefore it is necessary to implement the Newey-West test. The equation is as follows:

$$\Delta 1 \text{ Youth UnRt} = \beta_1 + \beta_2 * \text{Inflation} + \beta_3 * \text{Growth RealGDP} + \beta_4 * \Delta 1 \text{ ST IntRt} + \beta_5 * \text{dummy crisis}$$

Table 7 illustrates all the statistical values deriving from the regression above. The dummy variable and the growth in real GDP are both significant, the first one at 1 % level, the latter one at 10 % level. The R squared as well as the adjusted R squared, have increased respectively to 0.14 and 0.09. The latter one indicates that that 9 % of the changes in the youth unemployment

rate are explained by these variables, which is 6 percentage points higher relatively to the first model; however it is still fairly low.

Table 7: Model 2 – Denmark corrected with Newey-West test

Variables	Estimated Coeff.	Robust Std. Error	t statistics	p-value
Intercept	0.135	0.129	1.04	0.299
Inflation	-0.059	0.109	-0.54	0.592
Growth Real GDP	-0.123	0.071	-1.73	0.088
$\Delta 1$ ST Inter. Rate	-0.19	0.211	-0.90	0.371
Dummy crisis	0.557	0.217	2.56	0.012

The sign of the coefficients is identical to the previous model. However this time, one unit increase in inflation reduces the dependent variable by - 0.059; while in the case of growth of real GDP and interest rate youth unemployment will decline respectively by - 0.123 and - 0.19.

Looking at meaning of the dummy variable it is possible to notice that, when:

- Dummy crisis is equal to 0, referring to a normal period for the economy, then the equation is:

$$\Delta 1 \text{ Youth UnRt} = 0.135 - 0.059 \text{ Inflation} - 0.123 \text{ Growth RealGDP} - 0.19 \Delta 1 \text{ ST IntRt}$$

- Dummy crisis is equal to 1, refers to the period of crisis, in this case the equation has a higher intercept and is:

$$\Delta 1 \text{ Youth UnRt} = 0.692 - 0.059 \text{ Inflation} - 0.123 \text{ Growth RealGDP} - 0.19 \Delta 1 \text{ ST IntRt}$$

The first equation illustrates the changes of youth unemployment as a function of the three variables in a normal period, the second equation takes into account the financial crisis. As expect, when there is an economic downturn youth unemployment raises more compared to normal times. The differential between the two is included in the intercept, which is 0.557 higher during a period of recession.

From the above, the two models confirm that in the short-term changes in youth unemployment derive in part from growth in real GDP. In the period of crisis, this variable is still significant which validates once again the relationship. Inflation and short-term interest do not produce effects in youth unemployment; a possible explanation could be the size of the same. Moreover, the low R square emphasizes that there are other factors should be included in this analysis. The Grange causality test supports these results, indeed, only growth in real GDP causes changes in the youth indicator.

From the co-integration test instead, short-term interest is co-integrated with youth unemployment rate therefore there a long term relationship between the two.

6.3 Italy

6.3.1 Test for Stationarity

In the following section the three variables are going to be analyzed under the perspective of the Italian labor market.

▪ Inflation

From the graphs in APPENDIX 2, it is clear that inflation is not stationary. In the first diagram the time series is plotted over time, inflation seems to follow a downward trend; hence it's considered a random walk with trend. Also the unit root test in Table 4 rejects the null hypothesis the tau statistics is lower than the critical value at 5 % level.

At this point, it is necessary to check for serial autocorrelation with the LM test and to see whether the first difference is stationary. According to the results from the following equation, in this case there is no autocorrelation from the fourth lag:

$$\Delta 1 \text{Inflation} = \beta_1 + \beta_2 * (\text{Lag1 Inflation}) + \beta_3 * (\Delta 1 \text{Lag1 Inflation}) + \beta_4 * (\Delta 1 \text{Lag2 Inflation}) + \beta_5 * (\Delta 1 \text{Lag3 Inflation}) \quad (\#)$$

Proceeding with the transformation of the time series, by taking the first difference, Inflation is now a stationary process as it can be seen from Table 4.

▪ *Growth in real GDP*

Plotting growth in real GDP against time, suggests that the time series is a random walk with a drift. From APPENDIX 2, the ACF declines slowly, while the PACF does not present significant spikes, which would indicate no stationarity, as well as, no serial autocorrelation after the first lag. However, the Dickey - Fuller test rejects the unit root, accepting that growth in real GDP is stationary. The LM test instead, reinforces the PACF, indeed; there is no serial autocorrelation.

▪ *Short-Term Interest Rate*

The short-term interest rate plotted against time presents a downward trend, given so the time series is considered a random walk with drift around a deterministic trend.

LM statistic on equation (5) confirms the null hypothesis of no autocorrelation after the first lag.

$$\Delta 1 \text{ ST IntRT} = \beta_1 + \beta_2 * (\text{Lag1 ST IntRT}) + \beta_3 * (\Delta 1 \text{ Lag1 ST IntRT}) \quad (5)$$

The Dickey Fuller test in Table 4, does not reject the unit root, the process is not stationary. However, by taking the first difference the time series is now stationary with a tau statistics equal to 6.07 which is greater than the critical value at 5 % level, 3.45.

Table 8 Augmented Dickey-Fuller Test all variables

Augmented Dickey-Fuller Unit Root Tests			
Variables	Type	Tau	Pr < Tau
Inflation	Trend	-2.98	0.146
Growth in Real GDP	Single mean	-4.87	0.0002
Short- term Interest Rate	Trend	-1.38	0.589
Youth Unemployment Rate	Single mean	-1.19	0.676
Variables in First Difference	Type	Tau	Pr < Tau
Inflation	Trend	-5.11	0.0001
Short- term Interest Rate	Trend	-6.07	<.0001
Youth Unemployment Rate	Single mean	-9.71	<.0001

▪ *Youth Unemployment Rate*

The time series is a random walk with drift. The unit root test rejects the null hypothesis; thus youth unemployment rate is not stationary. Checking for serial correlation, the LM statistics indicates no autocorrelation, according to the results from the following regression:

$$\Delta 1 \text{Youth UnRt} = \beta_1 + \beta_2 * (\text{Lag1 Youth UnRt})$$

Taking the first difference of youth unemployment, now the time series is stationary, confirmed by exponentially declining ACF, and by the Dickey - Fuller test.

From the above, it is possible to see that once transformed youth unemployment, inflation and the interest rate into stationary time series, it is possible to analysis the relationship between the variables.

6.3.2 Analyzing the relationships

Correlation Coefficients

As it can be seen from Table 9 there is a positive correlation between youth unemployment and the other three variables. One the correlation between youth unemployment and the interest rate matches with the initial hypothesis. In this case, an increase in GDP growth, prices and short-term interest rate would suggest a positive change in youth unemployment rate.

Table 9: Correlation Coefficients – Italy

Variables	Growth in real GDP	Inflation	Short-term Interest Rate
Youth Unemployment Rate	0.233	0.014	0.397

Granger Causality Test

From Appendix 4, the Granger Causality Test reveals that changes in inflation and in short-term interest rate cause changes in youth unemployment, while the opposite result for growth in GDP. However, in this last case it is worth keeping in mind that the outcome is right on the limit.

Given these results, the Granger Causality Test partially confirms the initial hypothesis, which links the development of youth unemployment to the economic factors.

Engle-Granger Test

Three out of four variables are stationary taking the first difference. On the basis of the various economic theories, youth unemployment should have a long-term relationship with the other variables. This implies that youth unemployment should be co-integrated of first order, with inflation and the interest rate. However, as it can be seen from APPENDIX 5 the Engle-Granger 2 step-procedure for Italy, reveals the opposite results. The residual are not stationary, this indicates that there is no co-integration between the variables, therefore there is no long-term relationship.

6.3.3 Regression Modeling

As in the case of Denmark, once performed the stationarity test, follows the econometric analysis, which considers the first difference of youth unemployment rate as the dependent variable.

This first model takes into account only the relationship between the three variables, which are growth in real GDP, first difference of inflation and first difference of the short-term interest rate. The second model instead introduces a dummy variable associated to the recent financial crisis starting from the second quarter 2009. Both models are corrected with the Newey-West test, in order to eliminate problems deriving from autocorrelation and heteroscedasticity.

Model 1

$$\Delta 1 \text{ Youth UnRt} = \beta_1 + \beta_2 * \text{Inflation} + \beta_3 * \text{Growth RealGDP} + \beta_4 * \Delta 1 \text{ ST IntRt}$$

The coefficients for inflation and short-term interest rate are positive, while for what concerns growth in real GDP the parameter has a negative sign. Therefore, one unit increase in the growth of GDP reduces the dependent variable by 0.464, while the same increase in inflation and interest rate would raise it by 0.067 and 0.225 respectively. In line with the initial assumptions, the estimated coefficients of growth in real GDP and short term interest rate present respectively a negative and the positive sign.

Table 10: Model 1 – Italy corrected with Newey-West test

Variables	Estimated Coeff.	Robust Std. Error	t Value	p-value
Intercept	0.142	0.078	1.81	0.074
$\Delta 1$ Inflation	0.067	0.115	0.58	0.563
Growth real GDP	-0.464	0.108	-4.31	<.0001
$\Delta 1$ ST IntRt	0.225	0.246	0.91	0.364

Only growth in real GDP is significant. The adjusted R square of 0.08 indicates that these three independent variables are not sufficient to explain the changes in the youth unemployment rate.

Model 2

$$\Delta 1 \text{ Youth UnRt} = \beta_1 + \beta_2 * \text{Inflation} + \beta_3 * \text{Growth RealGDP} + \beta_4 * \Delta 1 \text{ ST IntRt} + \beta_5 * \text{dummy crisis}$$

Table 11: Model 2 – Italy corrected with Newey-West test

Variables	Estimated Coeff.	Robust Std. Error	t Value	p-value
Intercept	0.061	0.098	0.62	0.540
$\Delta 1$ Inflation	0.062	0.123	0.51	0.614
Growth real GDP	-0.385	0.168	-2.29	0.025
$\Delta 1$ ST IntRt	0.191	0.253	0.76	0.452
Dummy crisis	0.399	0.360	1.02	0.312

With the introduction of the dummy variable, the results slightly change compared to the previous model. The signs of three coefficients remained constant. However this time, one unit increase in the growth of GDP reduces the dependent variable by 0.385, while the same increase in inflation and interest rate would raise it by 0.062 and 0.191 respectively.

The growth in GDP is still the only significant variable, at 5 % level, which is statistically significant at 5 % level.

The R square of 0.15 and the adjusted R square of 0.105 indicate that the model has improved compared to the previous regression. The four independent variables explain approximately 10.5 % of the changes in the youth unemployment rate.

Looking at meaning of the dummy variable we can see that, when:

- Dummy crisis is equal to 0, referring to a normal period, then the equation is:

$$\Delta 1 \text{Youth Unem} = 0.061 + 0.062 * \Delta 1 \text{Inflation} - 0.385 * \text{Growth realGDP} + 0.191 * \Delta 1 \text{ST IntRt}$$

- Dummy crisis is equal to 1, referring to the period of the recession, this time the equation has a higher intercept:

$$\Delta 1 \text{Youth Unem} = 0.46 + 0.062 * \Delta 1 \text{Inflation} - 0.385 * \text{Growth realGDP} + 0.191 * \Delta 1 \text{ST IntRt}$$

As for the case of Denmark, the difference in the two equations lies in the intercept, implying that during a crisis the indicator is 0.3 higher compared to a normal period.

The two models presented above confirm that in the short-term there is a significant relationship between the changes in youth unemployment and the growth in real GDP. With the introduction of the dummy variable, this association does not change, while differently from the Denmark's analysis, the recession dummy is not statistically significant. It is important to mention that given the low R squared in both models, the independent variables are not sufficient to explain the development of youth unemployment rate.

From the co-integration test instead, inflation and short-term interest do not produce long term effects on youth unemployment; perhaps also in this case the cause could be the size of the sample. However, from the Grange causality these two variables cause changes in the indicator.

7 CONCLUSIONS

This thesis investigates on the characteristics and differences between Denmark and Italy's labor markets. Furthermore, it analyzes and compares the two youth unemployment rates on the basis of four indicators, as well as, the economic factors that influence youth unemployment in the two countries.

The Danish and Italian labor markets are very difficult to compare due to cultural, economic, political, and demographic differences. Even though, over the last twenty years both nations sustained important changes in their labor market policies. On one hand, the existing flexibility in Denmark pushed the government to focus on other plans to reduce unemployment among youngsters, such as assistance and training. On the other, the introduction of atypical contracts contributes to a higher degree of flexibility within the Italian labor system, which enhanced job opportunities for the young unemployed.

Looking at youth unemployment under a macroeconomic perspective and taking into account the relevant economic assumptions, we would expect long-term relationships between the indicator and the three variables. Furthermore, youth unemployment should be negatively related to growth in real GDP and inflation, and positively related to the interest rate.

The econometric analysis was applied to validate these expectations and the main results confirmed that the Danish and the Italian indicator are strongly influenced by growth in GDP. Opposite to the initial assumptions, interest rate and inflation are not significant to explain changes in youth unemployment. These results could be explained by the limited size of the sample, and due to demographic and political elements that fade these relationships. Furthermore, analyzing the effects deriving from the crisis the regression modeling illustrated statistical significance only in the case of Denmark. Moreover, there is no evidence of long-term relationships in the case of Italy, while for Denmark the co-integration test proved a long-term relationship between the indicator and the interest rate.

It is important to stress that youth unemployment is very sensitive to economic and financial dynamics. The results deriving from the econometric analysis have partially demonstrated this statement.

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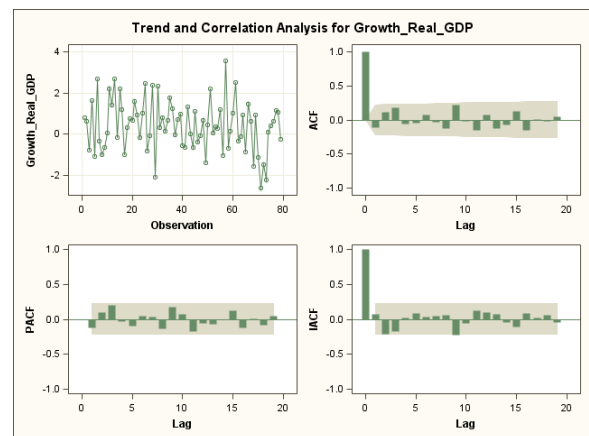
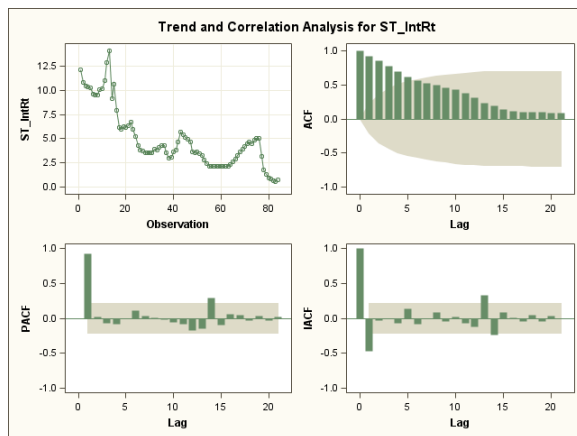
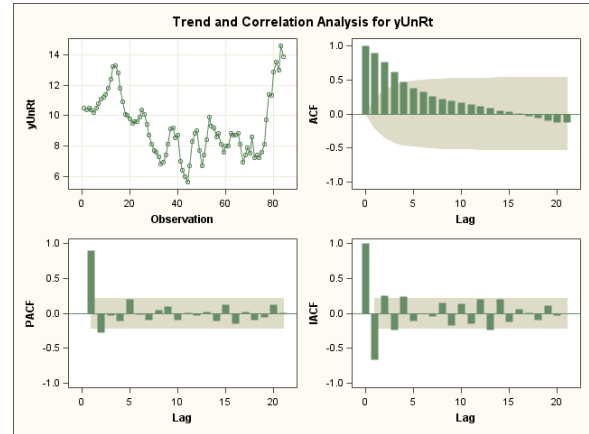
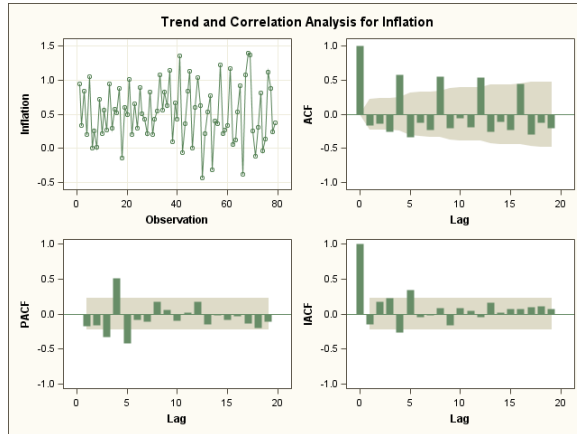
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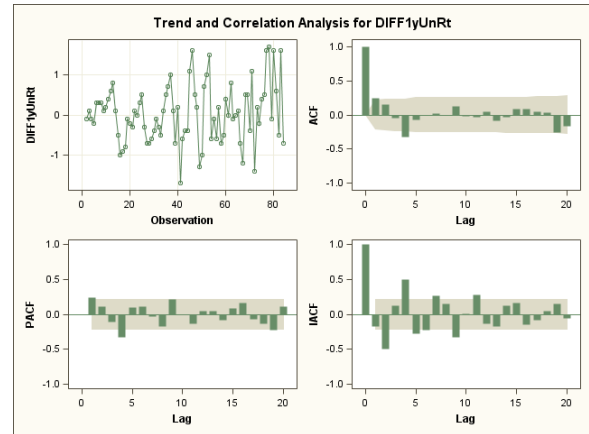
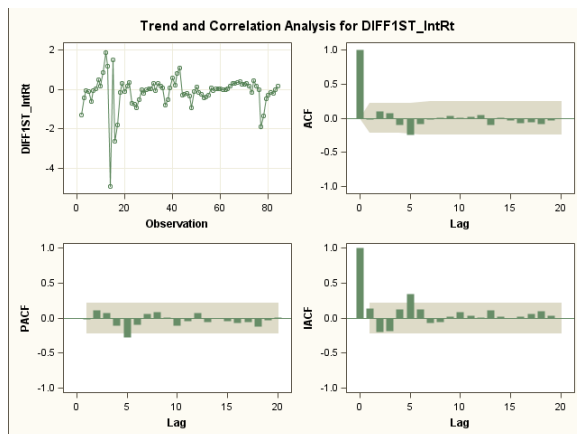
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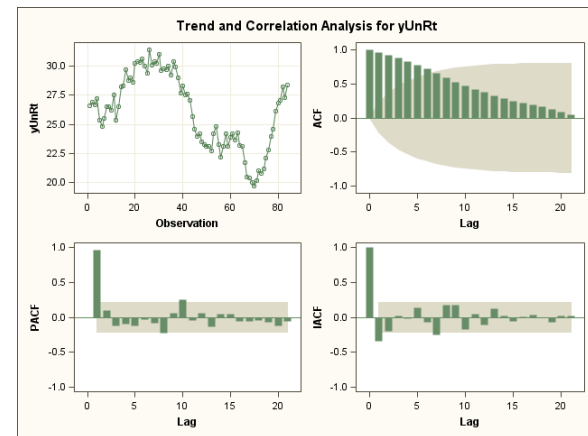
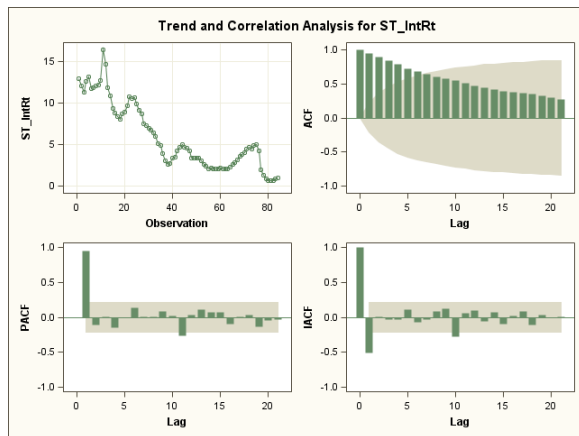
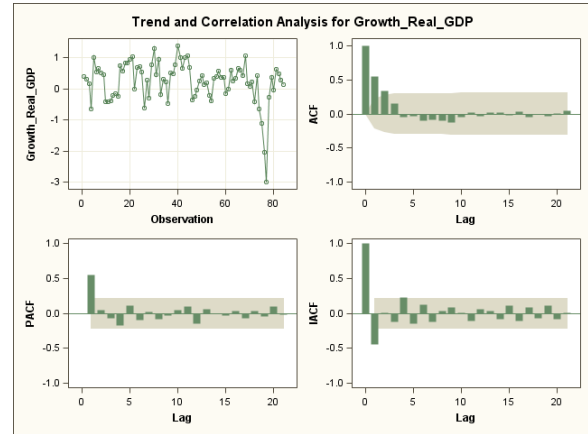
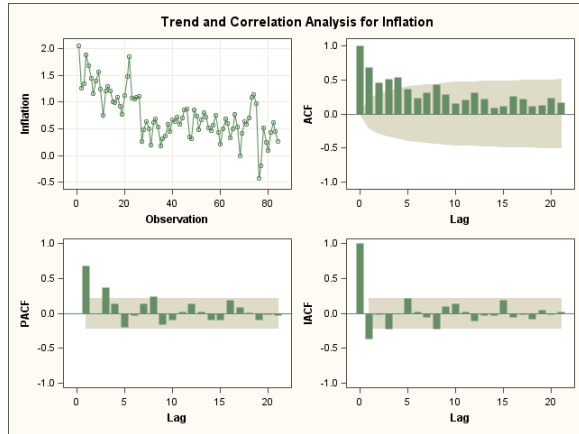
APPENDIX 1: Trends and Correlation for Denmark's variables



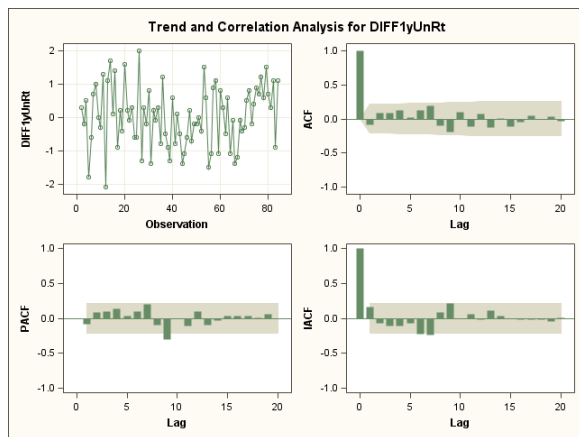
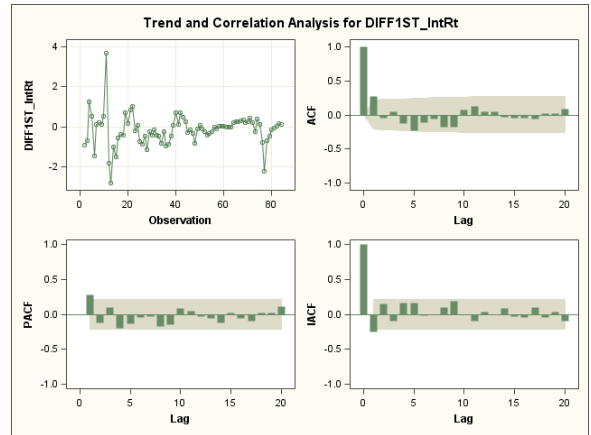
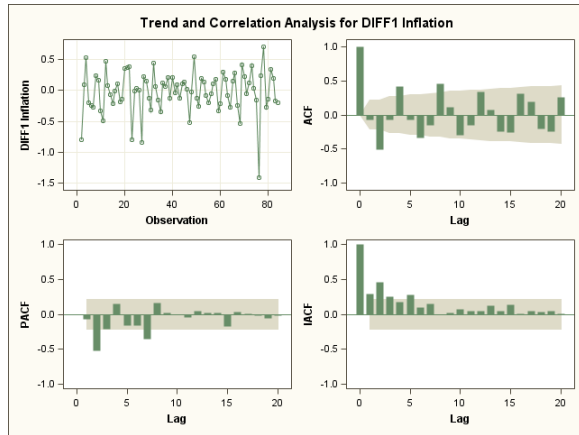
Variables in first difference



APPENDIX 2: Trends and Correlation for Italy's variables (1)



APPENDIX 2: Trends and Correlation for Italy's variables (2) - Variables in first difference



APPENDIX 3: Granger Causality Test - Denmark

The three tests were based on the following equations:

$$\text{RESTRICTED: } \Delta 1 \text{ Youth UnRt} = \beta_1 + \beta_2 (\text{LAG1 } \Delta 1 \text{ Youth UnRt}) + \beta_3 (\text{LAG2 } \Delta 1 \text{ Youth UnRt}) + \beta_4 (\text{LAG3 } \Delta 1 \text{ Youth UnRt}) + \beta_5 (\text{LAG4 } \Delta 1 \text{ Youth UnRt}) + \beta_6 (\text{LAG5 } \Delta 1 \text{ Youth UnRt})$$

$$\text{UNRESTRICTED: } \Delta 1 \text{ Youth UnRt} = \beta_1 + \beta_2 (\text{LAG1 } \Delta 1 \text{ Youth UnRt}) + \beta_3 (\text{LAG2 } \Delta 1 \text{ Youth UnRt}) + \beta_4 (\text{LAG3 } \Delta 1 \text{ Youth UnRt}) + \beta_5 (\text{LAG4 } \Delta 1 \text{ Youth UnRt}) + \beta_6 (\text{LAG5 } \Delta 1 \text{ Youth UnRt}) + \delta_1 (\text{LAG 1 Z}) + \delta_2 (\text{LAG2 Z}) + \delta_3 (\text{LAG 3 Z}) + \delta_4 (\text{LAG4 Z}) + \delta_5 (\text{LAG 5 Z})$$

Where Z is: growth in real GDP in the first test, inflation in the second one and change in short-term interest rate in the last one.

Once built the equations, the F-value is computed as follows:

$$F \text{ test} = [(ESS \text{ res} - ESS \text{ unres}) / \# \text{ restrictions}] * [DF \text{ unres} / ESS \text{ unres}]$$

TEST 1 - GROWTH in REAL GDP

$$F = [(34.02 - 27.65) / 5] * [63 / 27.65] = 2.901 > 2.368 = F \text{ critical } (5, 60)$$

We reject the null hypothesis → Growth in real GDP does cause changes in youth unemployment.

TEST 2 - INFLATION

$$F = [(34.02 - 29.8) / 5] * [63 / 28.9] = 1.838 < 2.368 = F \text{ critical } (5, 60)$$

We do not reject the null hypothesis → Inflation does not cause a changes in youth unemployment.

TEST 3 - CHANGE in SHORT-TERM INTEREST RATE

$$F = [(34.02 - 33.26) / 5] * [63 / 33.26] = 0.286 < 2.368 = F \text{ critical } (5, 60)$$

We do not reject the null hypothesis → Changes in short term interest rate do not cause a changes in youth unemployment

APPENDIX 4: Granger Causality Test - Italy

The three Granger Causality tests are based on the following equations.

$$\text{RESTRICTED: } \Delta 1 \text{ Youth UnRt} = \beta_1 + \beta_2 (\text{LAG1 } \Delta 1 \text{ Youth UnRt}) + \beta_3 (\text{LAG2 } \Delta 1 \text{ Youth UnRt}) + \beta_4 (\text{LAG3 } \Delta 1 \text{ Youth UnRt}) + \beta_5 (\text{LAG4 } \Delta 1 \text{ Youth UnRt})$$

$$\text{UNRESTRICTED: } \Delta 1 \text{ Youth UnRt} = \beta_1 + \beta_2 (\text{LAG1 } \Delta 1 \text{ Youth UnRt}) + \beta_3 (\text{LAG2 } \Delta 1 \text{ Youth UnRt}) + \beta_4 (\text{LAG3 } \Delta 1 \text{ Youth UnRt}) + \beta_5 (\text{LAG4 } \Delta 1 \text{ Youth UnRt}) + \delta_1 (\text{LAG 1 Z}) + \delta_2 (\text{LAG2 Z}) + \delta_3 (\text{LAG3 Z}) + \delta_4 (\text{LAG4 Z})$$

In this case, Z equals: growth in real GDP, change in Inflation and change in short term interest rate.

Once built the equations, the F-value is computed as follows:

$$F \text{ test} = [(ESS \text{ res} - ESS \text{ unres}) / \# \text{ restrictions}] * [DF \text{ unres} / ESS \text{ unres}]$$

TEST 1- GROWTH in REAL GDP

$$F = [(60.32 - 52.83) / 4] * [71 / 52.83] = 2.52 < 2.53 = F \text{ critical } (4, 60) \text{ at } 5 \% \text{ level}$$

We do not reject the null hypothesis, however it is borderline → Growth in real GDP do not cause changes in youth unemployment.

TEST 2 - CHANGE in INFLATION

$$F = [(60.32 - 49.609) / 4] * [71 / 49.609] = 2.56 > 2.53 = F \text{ critical } (4, 60) \text{ at } 5 \% \text{ level}$$

We reject the null hypothesis → Changes in inflation do cause changes in youth unemployment.

TEST 3 - CHANGE in SHORT-TERM INTEREST RATE

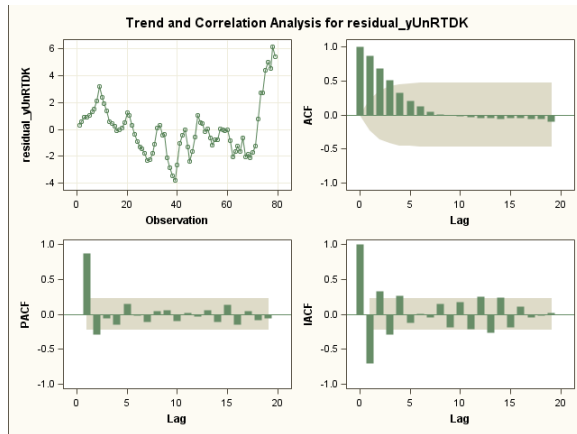
$$F = [(60.32 - 52.38) / 4] * [71 / 52.38] = 2.695 > 2.53 = F \text{ critical } (4, 60) \text{ at } 5 \% \text{ level}$$

We reject the null hypothesis → Changes in the interest rate cause changes in youth unemployment.

APPENDIX 5: Engle-Granger Test – trend and correlation, and the Dickey-Fuller test of the error terms

Denmark

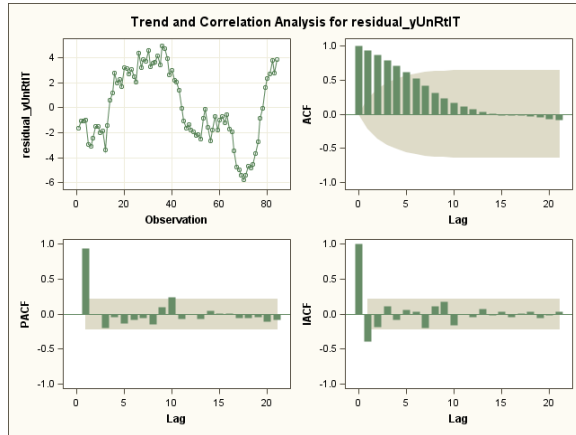
The residuals under analysis derive from the following regression: $\text{Youth UnRt} = \alpha + \beta * \text{ST IntRt}$



Augmented Dickey-Fuller Unit Root Tests							
Type	Lags	Rho	Pr < Rho	Tau	Pr < Tau	F	Pr > F
Zero Mean	0	-2.5944	0.2664	-0.70	0.4123		
	1	-10.0416	0.0252	-1.75	0.0766		
	2	-17.8993	0.0023	-2.21	0.0270		
Single Mean	0	-2.4934	0.7136	-0.67	0.8482	0.50	0.9501
	1	-9.7895	0.1292	-1.70	0.4273	1.57	0.6738
	2	-17.5650	0.0155	-2.16	0.2222	2.43	0.4593
Trend	0	-2.4405	0.9553	-0.66	0.9724	1.28	0.9186
	1	-8.8985	0.4914	-1.60	0.7831	1.98	0.7818
	2	-15.3849	0.1442	-2.02	0.5809	2.74	0.6346

Italy (1)

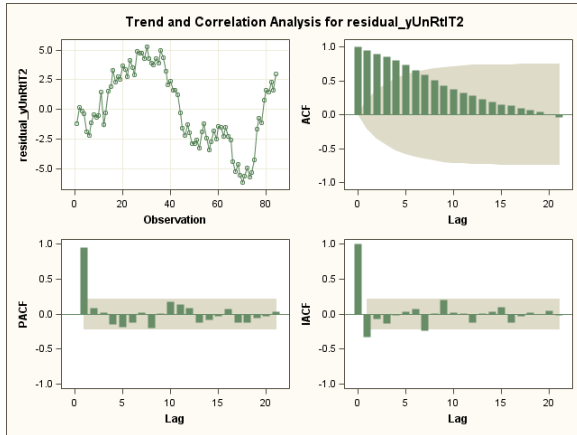
These error terms derive from the following regression: $\text{Youth UnRt} = \alpha + \beta * \text{ST IntRt}$



Augmented Dickey-Fuller Unit Root Tests							
Type	Lags	Rho	Pr < Rho	Tau	Pr < Tau	F	Pr > F
Zero Mean	0	-3.6981	0.1836	-1.25	0.1942		
	1	-4.0741	0.1625	-1.27	0.1858		
	2	-6.3340	0.0798	-1.58	0.1068		
Single Mean	0	-3.6681	0.5693	-1.23	0.6583	0.96	0.8265
	1	-4.0247	0.5279	-1.26	0.6469	0.94	0.8315
	2	-6.2352	0.3173	-1.56	0.4988	1.33	0.7353
Trend	0	-3.5676	0.9067	-1.14	0.9150	0.75	0.9900
	1	-3.8335	0.8918	-1.13	0.9165	0.79	0.9871
	2	-6.3124	0.7069	-1.47	0.8307	1.20	0.9343

Italy (2)

The error terms derive from the following regression: Youth UnRt = $\alpha + \beta * \text{Inflation}$



Augmented Dickey-Fuller Unit Root Tests							
Type	Lags	Rho	Pr < Rho	Tau	Pr < Tau	F	Pr > F
Zero Mean	0	-3.8300	0.1759	-1.32	0.1706		
	1	-3.4090	0.2019	-1.21	0.2066		
	2	-3.0853	0.2251	-1.12	0.2360		
Single Mean	0	-3.8146	0.5521	-1.31	0.6216	0.97	0.8250
	1	-3.3928	0.6021	-1.20	0.6732	0.77	0.8746
	2	-3.0582	0.6431	-1.11	0.7092	0.69	0.8953
Trend	0	-4.3198	0.8615	-1.29	0.8821	0.90	0.9784
	1	-3.3645	0.9172	-1.02	0.9357	0.71	0.9900
	2	-3.0682	0.9311	-0.94	0.9465	0.61	0.9900

APPENDIX 6: NEWEY-WEST METHOD

Newey-West Test –Model 1 Denmark

Nonlinear GMM Parameter Estimates				
Parameter	Estimate	Approx Std Err	t Value	Approx Pr > t
B0	0.189	0.137	1.37	0.173
B1	-0.074	0.122	-0.61	0.546
B2	-0.132	0.077	-1.72	0.089
B3	-0.194	0.213	-0.91	0.366

Newey-West Test –Model 1 Italy

Nonlinear GMM Parameter Estimates				
Parameter	Estimate	Approx Std Err	t Value	Approx Pr > t
B0	0.142	0.078	1.81	0.074
B1	0.067	0.115	0.58	0.563
B2	-0.464	0.108	-4.31	<.0001
B3	0.225	0.246	0.91	0.364

Newey-West Test – Model 2 Denmark

Nonlinear GMM Parameter Estimates				
Parameter	Estimate	Approx Std Err	t Value	Approx Pr > t
B0	0.135	0.129	1.04	0.299
B1	-0.059	0.109	-0.54	0.592
B2	-0.123	0.071	-1.73	0.088
B3	-0.19	0.211	-0.90	0.371
B4	0.557	0.217	2.56	0.012

Newey-West Test –Model 2 Italy

Nonlinear GMM Parameter Estimates				
Parameter	Estimate	Approx Std Err	t Value	Approx Pr > t
B0	0.061	0.098	0.62	0.540
B1	0.062	0.123	0.51	0.614
B2	-0.385	0.168	-2.29	0.025
B3	0.191	0.253	0.76	0.452
B4	0.366	0.360	1.02	0.312

Where:

B0 is the intercept

B1 is coefficient of inflation for Denmark and Change in inflation for Italy

B2 is coefficient of growth in real GDP

B3 is coefficient of change in short-term interest rate

B4 is coefficient of the dummy crisis