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Bachelor Thesis

Unemployment in Portugal

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Declaration

I declare that I have worked on my bachelor thesis titled "The Unemployment in Portugal" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the bachelor thesis, I declare that the thesis does not break copyrights of any third person.

In Prague on 12.03.2015

Rui Pedro Portugal Betencourt Adão

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Nezaměstnanost v Portugalsku

Unemployment in Portugal

Souhrn

Moje bakalářská práce poskytne teoretický pohled na nezaměstnanost a skutečnou analogii k portugalskému trhu práce. Teoretická část bude spojovat většinu teorií spojených s nezaměstnaností v souvislosti s dalšími ukazateli. Praktická část bude zahrnovat obecný přehled míry nezaměstnanosti od vstupu do EU a analogii vztahu k ostatním ukazatelům.

Podstata mojí bakalářské práce zahrnuje porovnání nezaměstnanosti s ostatními makroekonomickými indikátory a rozdělení pracovních sil na jednotlivé skupiny lidí a členění podle jednotlivých regionů Portugalska. Praktická část bakalářské práce bude založena na znalosti získané z teorie.

Summary

My bachelor thesis will provide a theoretical view of unemployment and a practical analogy of the Portuguese labor market. The theoretical part will synthesize most of the theories associated with unemployment and its relation to other indicators. The practical part will include an overview of unemployment rates since the entrance in the EU and an analogy of its relation with other indicators.

The gist of my bachelor thesis includes comparisons of unemployment with other macroeconomic indicators and the labor force segmentation into groups of people and regions of Portugal. The practical part of the thesis will be based on the knowledge acquired from the theory.

Klíčová slova: nezaměstnanost, trh práce, pracovní síla, globalizace, míra nezaměstnanosti, poptávka turismu, HDP, inflace.

Keywords: unemployment, labor market, labor force, globalization, unemployment rate, tourism demand, GDP, inflation.

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Introduction

My bachelor thesis “Unemployment in Portugal” is a matter of increasing concern over the previous years. Since 2010 the unemployment rates reached alarming levels in Portugal. This levels of unemployment along with the economic situation lived in the country can be associated with the increasing exposure to more competitive international markets due to globalization. The loss of a job has negative consequences either on the social, economic or politic level. High unemployment rates might provoke uncertainty about the future and that is always problematic for an economy. It is known that it is not possible to have the whole workforce employed at the same time, the reasons why will be provided ahead.

One of the most important indicators used in macroeconomics is unemployment. Macroeconomic indicators are used to describe the situation of an economy. Employment indicators reflect the health of an economy. For a better understanding of an economy’s health we need to know how many jobs are being created or destroyed and the percentage of employed workforce.

The unemployment has always its causes and its consequences do not affect all the people in the same way. Nowadays economies have to grow in order to keep stability. This growth implies adjustments which have to be done based on e.g. resources (alternative energies) or technological development (automation). Those adjustments are mainly affecting the labor force whose skills have to be constantly adapted. Otherwise there won’t be labor demand for obsolete skills.

The bachelor thesis “Unemployment in Portugal” will allow a better understanding of the actual situation in the country as well as it will provide data and respective analogy of several indicators.

Aims and Methodology

I pretend with my bachelor thesis to provide an insight on one of the most important macroeconomic indicators which is unemployment. I found this topic interesting mainly due to the actual situation in my country. The main aim is to understand what the main problems in the Portuguese labor force are and how it has changed over the previous years. I will compare unemployment to other indicators through data provided by both Portuguese (INE, Pordata) and European (Eurostat) statistical entities. The probability for an individual to be unemployed depends on many factors as education level, age, activity sector or geographical region. I will provide statistical data in order to analyze the relations between all those factors and unemployment.

The bachelor thesis included study of literature, data collection, descriptive and comparative methods. Most of the tables were elaborated on MS Excel after the extraction of data from statistical entities.

The thesis will be divided into two main parts. The first one will provide a theoretical view of unemployment and its relation with inflation, education and globalization. The theoretical part will include some of the most important theories of employment. Its main goal is to provide a better understanding of the matter in order to analyze the Portuguese situation. In the second part I will analyze the unemployment mainly since Portugal belongs to the EU. The unemployment will be often compared to other indicators which might not show a constant correlation, however I will choose the indicators which mostly affect the Portuguese labor force and also, for some indicators, compare it to the situation in the whole Europe.

I. Theory of unemployment

1. Definition of Unemployment

Unemployment occurs when people who are looking for employment are unable to find a job. A population can be divided into the ones who are in the labor force (L) and those who are not. The labor force includes those people who are employed and those who are unemployed but would like to find a job. This concept might provoke indecision about whether some people are included in the labor force or not, in theory, anyone would be willing to be employed in return for a generous enough wage. Economists solve this problem by defining unemployment in terms of an individual's willingness to be employed at some prevailing market wage. Government statistics define the unemployed as those who are waiting to be recalled due to a required layoff by the employer, or those who searched for work in the previous month (fact which cannot be accurately measured).

According to the Portuguese institute of statistics (INE), unemployed are "all persons aged between 15 and 74 who during the reference period:

- a) Neither had a job nor were at work;
- b) Were available for paid employment or self-employment;
- c) Had actively sought work, i.e. had taken specific steps during the specified period (reference period or the three previous weeks) to seek paid employment or self-employment." (metadata of unemployment rates – INE).

Thus there are several requirements for an individual to be considered as unemployed. The unemployment indicators might hide those people who give up from actively looking for a job.

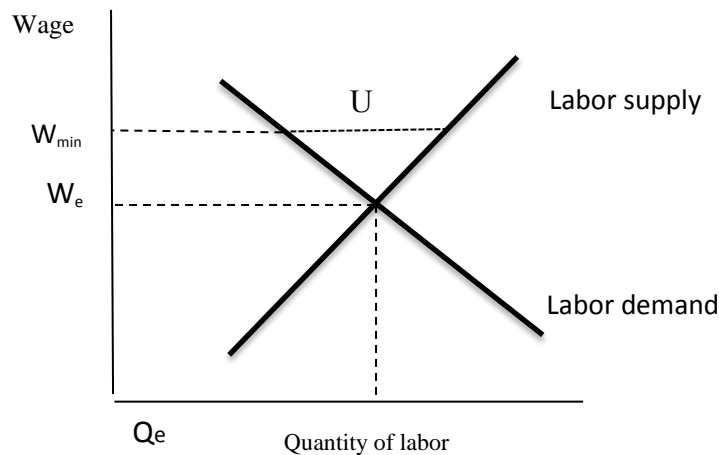
The level of unemployment has several possible causes, it varies among different territories where, for instance competition is variable, certain activity sectors are more affected than others and the qualification of the workforce. It is extremely important to know what the causes of unemployment are to cope with it and find its solutions. The unemployment due to competition with countries which provide lower wages, increased substantially during the last three decades.

In equilibrium, demand and supply of labor are intersected at some point which determines the equilibrium real wage rate and full employment. The full employment doesn't mean that there is no unemployment, the frictional and structural unemployment can always be found as a part of the natural rate of unemployment, its definition will be provided ahead.

1.1. Labor supply and demand

A labor market can be represented by supply-and-demand curves. In a labor market workers supply labor to firms in exchange for wages and firms demand workers. A firm's demand for labor is dependent on the demand for its output. "Their total output and the way in which they combine labor and capital depend on three forces: product demand, the amount of labor and capital they can acquire at given prices, and the choice of technologies available to them." (*Modern Labor Economics*, 2011) A firm will demand more labor if the demand for its output increases, on the other side if sales (demand for firm's output) decrease then the firm has to reduce its demand for labor.

Figure 1 - Labor supply and demand reaction on minimum wages



Source: Charles I. Jones – "Macroeconomics" - adapted

The figure 1 is a simple illustration of the labor supply and demand. The intersection of the two curves determines full employment at a given wage level for respective quantity of labor. According to the classical theory, full employment is attainable and when achieved represents the equilibrium of an economy. J.M. Keynes argued that a labor market does not have to be fully employed to be considered in equilibrium. If wages are set at " W_{min} " then supply of labor is higher than its demand. Individuals are willing to work more when wages are higher, we can look at wages as the price of leisure, when wages are higher people consume less leisure and work more. It means that there is a labor surplus. The distance between the two curves at the wage level " W_{min} " is the quantity of unemployed labor. On the other side if wages are below the equilibrium wage level then labor demand is higher than supply, it means that firms cannot find enough labor due to low wages.

Before a firm starts producing, a forecast for the quantity of demand should be done. Based on this forecast the firm can determine how much of labor should be employed. This

amount of labor is also based on the marginal product of labor, it shows the quantity change in output when a unit of labor is added.

1.2. Classical theory of employment

The classical theory of unemployment assumes that the labor market is self-regulated by the behavior of supply and demand. Adam Smith called "invisible hand" ("Wealth of Nations" 1776) to the forces which tended to adjust markets to their equilibrium. The supply of labor shows the quantity of labor which is able to sell its services for a given real wage level. The supply curve has a positive correlation between real wage and quantity of labor supplied. It means that as long as the real wage increases, the quantity of labor supplied rises as well. On the other side, the demand for labor shows the quantity of labor employers decide to employ at a given real wage level. The demand curve is negatively correlated, thus as real wages increase, the quantity of labor demanded decreases.

Before J.M. Keynes, classical economists as David Ricardo ("Principles of Political Economy and Taxation" 1817), Adam Smith ("Wealth of Nations" 1776), Jeant-Baptiste Say ("Say's Law" 1803), Léon Walras ("General Equilibrium Theory" 1870) and Alfred Marshal ("Principles of Economics" 1890) had a different view of the equilibrium in a certain labor market. Say's law assumed that supply creates its own demand in such a way that the amount of production will provide revenues which will be enough for the purchase of all the output produced. "Following Say's law, they were denying the possibility that there could be a general glut on markets; that there could be a general inadequacy of aggregate demand." ("Economics", Wonnacott, 1979). J.S. Mill wrote in his book "Principles of Political Economy" (1848) that no matter how much output is produced because there will always be enough demand for it. In the end of the 19th century L. Walras became known for the general equilibrium theory based upon rationality and equilibrium. L. Walras argued that in an economy all the supply equals the whole demand including money supply and demand. In the classical view and in case of a labor surplus, full employment is always achievable because of the prices' and wages' flexibility, for instance a decrease in the wage level allows firms to employ more workers. This theory implies fast adjustments of the whole labor market. For instance, the real wage of any employed individual would have to be reduced in case of a labor surplus. Thus involuntary unemployment is inexistent in this model because any individual gets a job at the current wage. Any obstacles for the self-adjustment on the labor market will refute the theory. The minimum wage level when settled above the equilibrium by governments is an example of obstacle which would provoke involuntary unemployment. In sum, the classical solutions for unemployment involve a lower expenditure on wages, labor market flexibility in order to make adjustments of prices and quantities, and lower production costs.

1.3. Keynesian theory of employment

J.M. Keynes wrote that the classical theory of employment has been based on two fundamental postulates. The first is that "the wage is equal to the marginal product of

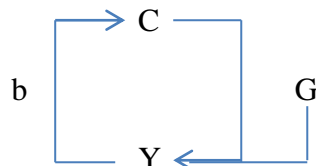
labor" (J.M. Keynes, 1936) which means that wages are determined by the value which would be lost if employment was to be reduced by one unit. The second postulate is, "the utility of the wage when a given volume of labor is employed is equal to the marginal disutility of that amount of employment"(J.M. Keynes, 1936), Keynes explained, "the real wage of an employed person is that which is just sufficient (in the estimation of the employed persons themselves) to induce the volume of labor actually employed to be forthcoming"(J.M. Keynes, 1936). This second statement simply means that as long as the utility of a wage exceeds the disutility of working in a given firm individuals will be willing to work. On the other side if the disutility of working to a given firm is higher than the utility of wages then, workers would not accept to work. The term disutility includes any kind of reason which might lead an individual to "consume leisure" rather than accept a wage which is below the individual's minimum acceptable wage. Both postulates are "subject to the qualification that the equality for each individual unit of labor may be disturbed by combination between employable units analogous to the imperfections of competition which qualify the first postulate."(J.M. Keynes, 1936). J.M. Keynes uses the word postulate to the classical theories, a postulate is a statement which is taken for granted, usually used as a basis of an argument and without any relevant proof.

John M. Keynes lived during the Great Depression. His book called "*The General Theory of Employment, Interest, and Money*", made several objections to the classical postulates as I mentioned before. Keynes' main goal was to develop an explanation of the existence of mass unemployment under capitalism. The Classical theory of full employment was rejected by Keynes who said that a labor market can be in equilibrium even if with relatively large amount of unemployed individuals. In the Keynesian model agents behave irrationally and need government interventions to recover from depressions. The main essence of his book was that "the volume of employment in equilibrium depends on the aggregate supply function, the propensity to consume, and the volume of investment" (J.M. Keynes, 1936). The sum of the propensity to consume (amount expected to be spent on consumption) and the volume of investment equals the effective demand. The MPC (marginal propensity to consume) increases when an increase in consumption is associated with an increase in income. The MPC equals the change in consumption divided by the change in disposable income. On the other side, the marginal propensity to save equals the change in saving over the change in disposable income. Keynes mentioned that the most effective way how to cope with high levels of unemployment is through increasing aggregate demand which then increases national product and consequently employment. Aggregate demand has 4 components, they are, personal consumption expenditures, investment demand, government purchases of goods and services, and the exports minus imports. The sum of all this components equals all the amount of goods and services purchased by consumers, firms and governments. An increase in purchases from any of the three agents will result in an increase of aggregate output. An increasing output due to increasing demand, according to the Keynesian theory, results in a decreasing unemployment rate. That explains why Keynes argued against the classical postulate which

states that supply creates its own demand, because the demand side is affected by propensity to consume and volume of investment which behave in an irrational way, the supply side cannot forecast or influence demand since it is a choice made by individuals whether it is time to save or to invest. J.M. Keynes also argued against the classical theory that wages cannot be adapted to the labor demand and supply equilibrium mainly due to established contracts which prevent major changes in wage levels and workers resistance to wage cuts. He described wages as sticky in the way that in case of an increase in unemployment, wages tend to stay the same or grow at a slower rate than with lower unemployment. Wages are said to be “sticky down” because, unlike the classical theory of wages determined by the supply and demand equilibrium, Keynes said that wages are more likely to rise rather than to fall. The solutions to unemployment given by J.M. Keynes include policies to stimulate aggregate demand, volume of investment and expansionary monetary policies.

One of the most interesting points of the Keynesian model is the cyclical behavior of the labor markets. Describing the cycle in few words, there is less production due to low demand, and low demand due to decreasing production. In case of a boost in demand, then production consequently increases. One of the instruments used to boost demand is government spending (G). If G increases then yield (Y) increases as well which then provokes an increase in consumption (C).

Figure 2 – Illustration of government expenditure’s influence on consumption



Source: “Introduction to Economy”, João C. das Neves 2011

If G increases by ΔG , then Y increases by the same quantity: $\Delta G = \Delta Y$. This increase in productivity boosts consumption. However the increase in consumption is lower than the increasing yields due to the marginal propensity to consume ($b < 1$).

In sum, “ $\Delta C = b \cdot \Delta Y = b \cdot \Delta G$ ” (Neves, 2011) where ΔC = change in consumption, b =MPC, ΔY =change in yields and ΔG = change in government expenditure.

The multiplier effect was meant to explain how to reduce unemployment, the reason of unemployment is a lack of demand. If for any reason (uncertainty, depression) demand(consumption, investment) decreases, then as demand is low, supply is not satisfied and accumulates stock, consequently employees are fired, yield decreases and there is less money for consumption which further reduces demand even more. As we can see on the figure 1 the cycle can be stimulated by government spending (G)

J.M. Keynes' work "The General Theory of Employment, interest, and money" was as influential as Adam Smith's "Wealth of Nations" and Karl Marx's "Das Kapital". In 1975 Lawrence R. Klein published a book named "The Keynesian Revolution".

Before Keynes came up with the General Theory, his model was used to overcome the Great Depression in the 1930's. The best example is Germany. When they were defeated in 1918, I World War, the country was devastated and with the Great Depression of 1929-33 things just got worse. However, the German government found out that government expenditure was a way how to keep people employed (manufacturing weapons). Hitler came to power in 1933 and his priority was to rebuild the German military forces, for his own interests. He paid people to march, then people had more money to spend and consequently firms could thrive. The 10 years of Hitler's economic success was essential for his popularity which later destroyed the world. The main point of this example was that government expenditure, even if with low productivity, is important to keep people employed. It is a starting point to boost any economy from a depression.

1.3.1. Extensions of the Keynesian model

A) Taxes

The total consumption cannot be determined by the total income but from the disposable income. The amount paid in taxes (T) does not affect consumption decisions. Thus the consumption function becomes:

Formula 1: Tax influence on consumption

$$C=a+b*(Y-T), \text{ (Neves, 2011)}$$

B) Money Market

The Keynesian money market prices are considered as constant. In fact, the model suggests that an increase in production (below full employment) does not change price's level. If prices are fixed, and as income is determined by the goods market, there is only one last factor determined by the money markets: the interest rate. The Keynesian model does not consider consumption choices at the long-run, thus interest rates are not affected by consumption but can be determined by the money markets.

C) Interest rate effect on demand

When considering interest rates, we will find out that it has influence on the goods market. J.M. Keynes simplified this point looking only at investment and durable goods' consumption. This was his way how to look to future consumption.

Keynes, in order to simplify one of the most complex economic problems, considers a basic correlation. Since interest rates can be defined by the price, or more precisely, the opportunity cost of an investment, as interest rates increase, consumption and investment decreases. The interest is a cost for the ones who invest or buy credit, but it benefits the ones who save and lend money.

1.3.2. The Keynesian economic cycle

The Keynesian model was elaborated while the world was experiencing the Great Depression and everyone started to mistrust the economic system under capitalism. In the classical model it is assumed that an economy works perfectly, with the economic agents taking rational decisions and markets always tended to find the equilibrium. In the Keynesian model the perspective is different. J.M. Keynes explained that the economic agents are irrational. This difference between the two theories is essential to understand what makes them so different from each other. It was very important when people were considered to make irrational choices. It was concluded that the markets have to be regulated by governments through interventions to boost economic activity. Besides this difference of perspectives, there are other distinctions between the Keynesian and classical theories.

“One of the differences is that, since there is no consideration about the intertemporal consumer choices, there is no distinction between permanent and transitional effects, because there always is only one period taken into consideration.” (J. C. Neves, 2011).

The government interventions to reduce unemployment might be directed to supply or demand. I will expose now different types of policies which aim to reduce unemployment:

a) Demand side policies

a. Fiscal policy

Fiscal policy helps aggregate demand to increase and consequently reduces unemployment. J.M. Keynes was a strong advocate of fiscal policy, or demand side policies. Usually this type of policy includes decreasing taxes (which contributes for higher disposable income for workers, thus more money can be spent and sent back into production) and increasing government expenditures. An increasing aggregate demand leads to an increase in Real GDP (if firms can produce more, demand for new employees will increase and therefore lower demand-deficient unemployment). When there is an increase in AD, the equilibrium point or intersection with AS will move towards a higher quantity and price of labor.

b. Monetary Policy

The main goal of a monetary policy is to increase spending or investment and decrease savings. The effective and only way to do so is through decreasing interest rates. As the price of money (interest rates) is reduced, then people will prefer to invest or spend rather than borrowing money.

b) Supply side policies

The supply side policies don't aim to increase the whole aggregate demand like the demand side policies do. It deals more with micro-economic issues. It is usually used by governments in order to correct imperfections in labor markets. Such policies include education – in order to develop skills by the labor market demand; better job information – to help reduce frictional unemployment; reduce the power of trade unions; employment subsidies – to reduce voluntary unemployment; improve labor market flexibility – usually associated with lower structural unemployment, an example of higher flexibility is when the process of hiring and firing becomes easier; better geographical mobility – the labor demand is not geographically homogeneous, some people have to travel in order to have better job opportunities.

1.4. Unemployment indicators

The unemployment is one of the main macroeconomic indicators. For a better understanding of an economy's "health" it's important to look at the unemployment development during a given period. The two most widely used measures of unemployment in a given labor market are:

- the unemployment rate which is a ratio between the unemployed and the labor force.

By labor force it is meant the sum of the employed individuals and those people who are actively seeking a job (unemployed). When an economy

Formula 2 – Unemployment rate

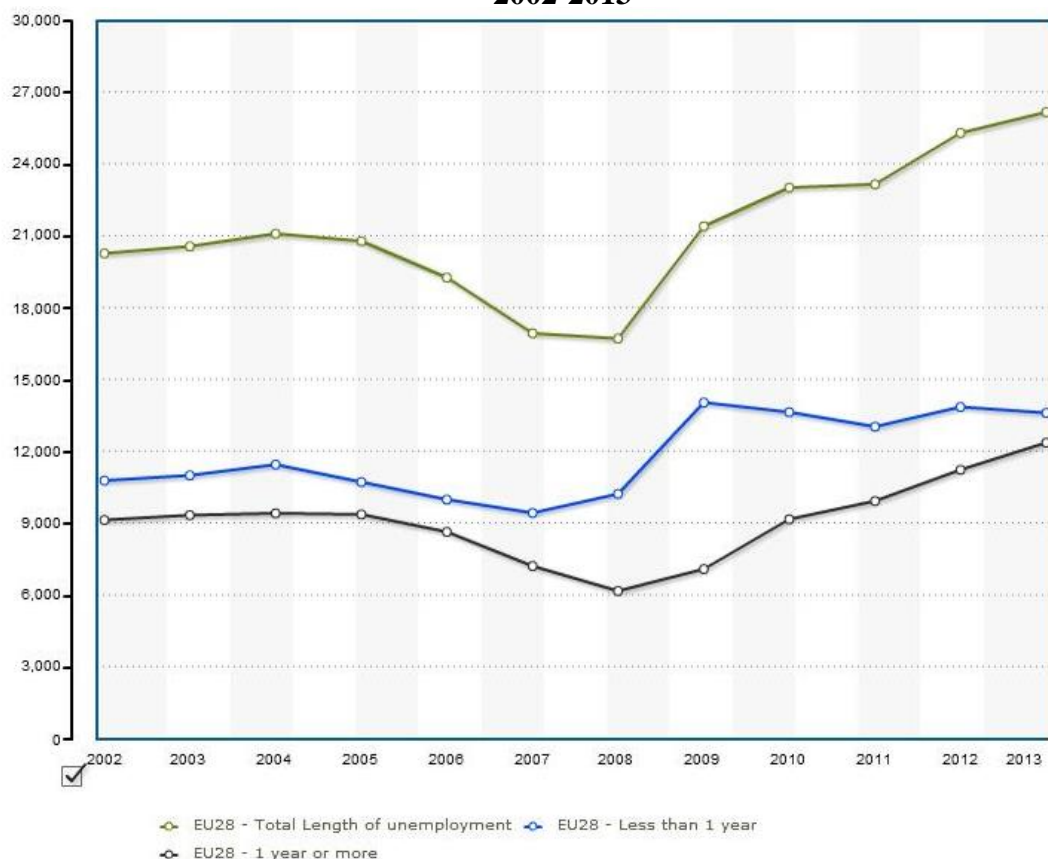
$$\text{Unemployment Rate} = \left(\frac{\text{Unemployed}}{\text{Labour Force}} \right) * 100$$

experiences a decrease in the unemployment rate it means growth of the economy, generally inflation is expected and interest rates tend to increase. In order to analyze the behavior of inflation it is important to look at Average Hourly Earnings. The unemployment rate measure has several limitations which should be taken into account. It does not provide specific information about the living conditions of the unemployed:

- The people who are not actively looking for a job, for instance someone who tried and then gave up, are not considered to be unemployed,

- The statistics of unemployment don't show anything about the earnings level of those who are employed,
 - A considerable part of the unemployed are not the primary source of the family's income,
 - A considerable part of the unemployed receive some support either from the government or from private supplemental unemployment insurance.
- and the duration of unemployment which represents the length of time an individual who is classified as unemployed is actively looking for a job. Two useful measures for the duration of unemployment are the mean and the median. While the mean represents the arithmetic average computed from single periods of unemployment, the median shows the midpoint from the distribution of unemployment's periods. The figure 3 shows the unemployment by length, it is divided into the ones who are unemployed for less than a year and those who are without any job for 1 year or more. The data suggests that those who are unemployed for less than a year represent a higher percentage of the total unemployment than those unemployed for more than a year.

**Figure 3 – Total unemployment and by length in the EU28 (thousands)
2002-2013**



Source: Eurostat, Pordata, 2014

2. Types of Unemployment

Unemployment can be classified according to several factors. We cannot place all the unemployed in the same basket because each type of unemployment may have different impacts in certain economy. There is always unemployment, at any given period of time, someone might be switching jobs or otherwise unemployed.

2.1. Frictional unemployment

The frictional unemployment one of the least problematic types among all. As I mentioned before this type of unemployment can always be found, it is mainly caused by miscalculation in a "between jobs" situation, intermittent demand or the voluntary resignation of workers due to low wage rates. It may happen due to the time an individual spends looking for a job, either after graduating or after losing the previous one. Nowadays with internet the labor recruitment became much easier due to an approximation between employers and employees. Frictional unemployment also includes those individuals who, due to some delay, are not working until all the required procedures involved in changing from one job to another are concluded. The women re-entrance in the workforce after having children may also be considered as frictional unemployment.

2.2. Structural unemployment

The structural unemployment is caused by a mismatch between labor skills and the qualifications required by employers. A loss of productivity in traditional sectors which often provide obsolete goods or services requires labor to acquire new skills and move to more dynamic sectors. A lack in restructuration and modernization policies increases structural unemployment. An adjustment of the labor supply to the labor demand is needed in order to cope with this type of unemployment, the labor skills will correspond to employers' needs in the long run.

2.3. Cyclical unemployment

This type is also known as Keynesian unemployment. J.M. Keynes defined cyclical unemployment as a consequence of a deficient-demand for labor. Keynesian theory states that the falling aggregate demand for goods and services in an economy contributes to a decrease in production and consequently, due to "sticky down" wages, employers decide to reduce the quantity of labor employed. Thus quantity of labor demanded is lower than supply. This type of unemployment is explained by cyclical behavior of economy from depressions to prosperity.

The economists who defend the classical theory of employment reject cyclical unemployment because, without any government intervention, wages can easily be reduced in order to increase employment. Keynesian economists on the other side see the solution for unemployment passing through interventions from governments in order to increase aggregate demand.

2.4. Seasonal unemployment

The seasonal unemployment is one of the types which are never inexistent. Some jobs are related to specific periods of the year, others are dependent on other factors. To be more specific we may classify two separate types of causes for seasonality in unemployment, first are the natural causes, mostly affecting agriculture and tourism, and second, the social causes linked to tradition. Often economists use seasonal adjustment to look at unemployment excluding jobs which are performed just in few months in a year.

Usually unemployment is higher in January and February when temperatures are lower. In June employment is expected to rise due to students who enter the labor force and look for summer jobs.

2.4.1. Seasonal adjustment

The levels of unemployment vary according to certain periods of the year as well as consumption does. When economists need to analyze non-seasonal trends of e.g. unemployment rate, a seasonal adjustment has to be done. It is important to free the unemployment rate of its seasonal influence. Once the seasonal component is removed from the time series of unemployment rate, it becomes easier to make a more detailed analysis and get more meaningful results.

3. Natural rate of unemployment, Voluntary and Involuntary unemployment

3.1. Natural rate of unemployment

As I mentioned before, it is assumed that there is always a part of the labor force which is unemployed either due to voluntary or involuntary reasons. There are many factors which might influence an individual to be unemployed. A labor force is said to be fully employed when the rate of unemployment equals the natural rate. The natural rate of unemployment is the target of any economy's labor force, it is the rate of unemployment including all the "natural" processes which delay or affect the communication between labor suppliers and demanders. The natural rate of unemployment includes two of the four types of unemployment given before, they are the frictional (e.g. time spent when changing from one job to another) and structural (e.g. the individuals whose skills are not demanded).

3.2. Voluntary unemployment

An individual might choose to be unemployed, not all the unemployed labor force is involuntarily in such a situation. Some people decide that being unemployed with all the subsidies from governments is worth more than working for low wages, or if the work desired by an individual cannot be achieved due to not enough schooling or skills to do so. The people who choose to be unemployed are not included in unemployment rates since

they are not actively looking for a job. We may conclude that voluntary unemployment is a labor supply side type of unemployment.

3.3. Involuntary unemployment

The involuntary unemployment happens when an individual is willing to work at the current wage level but there is no demand to satisfy it. It is worse for an economy when the amount of people who are said to be involuntarily unemployed increases than if those people would be voluntarily unemployed. The causes of involuntary unemployment may be for instance, low education degree, reduced experience or in the case when an employee gets fired.

4. The relationship between unemployment and inflation

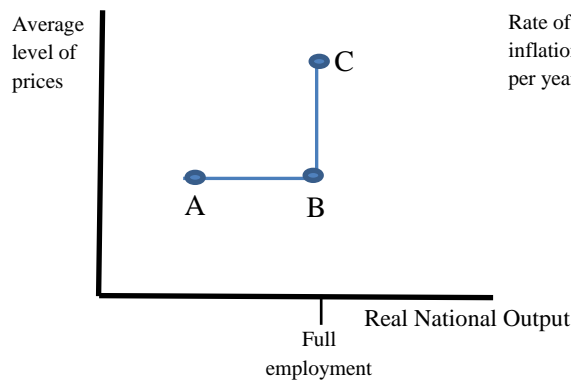
4.1. Definition of inflation

An increase in prices can only be considered as inflation if it's continuous, permanent and verified in most part of products. Inflation is necessarily a decrease in the value of money. Some currencies are "stronger" than others due to its value stability.

4.2. Relationship with unemployment

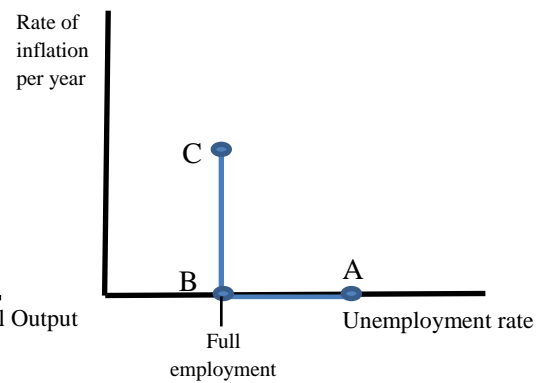
The previous topics regarding the Keynesian theory regarded mainly the demand side as the main focus when attempting to recover from high unemployment rates. However the supply side is as important as demand. J.M. Keynes introduced the aggregate supply function which depends on the relation between the Real National Product and the Average level of Prices. The figure 4 illustrates the behavior of the simple Keynesian aggregate supply in case of a high unemployment rate. An increase in aggregate demand will increase the real national output from A to B. The period before reaching full employment does not cause increasing average level of prices (inflation). Full employment does not mean zero unemployment but represents the equilibrium in a certain labor market. The stability of an economy is positively correlated with the proximity to point B, that is to say, an economy has to control aggregate demand in order to be as close as possible from point B. An increase in aggregate demand beyond B (full employment) will increase the average level of prices, moving towards point C. In other words, the inflation provoked by the increase in aggregate demand is explained by the limited resources to satisfy the increasing demand.

Figure 4 – Keynesian RNO related with Inflation in Keynesian model



Source: Economics, Paul Wonnacott & Ronald Wannacott, 1979

Figure 5 – Unemployment rate related with Inflation in Keynesian model



Source: Economics, Paul Wonnacott & Ronald Wannacott, 1979

The figure 5 is the same Keynesian simple aggregate supply as figure 4, the movement from A to B occurs in a different direction because the x-axis was changed from Real National Output to Unemployment rate.

Inflation might be classified either as demand-pull or cost-push. Demand-pull is when demand rises beyond full employment and prices begin to rise. Cost-push inflation means that the rise in the prices' level is caused by an increase in wages and other costs.

4.3. Phillip's curve

Angus William Phillips (1914-1975) related unemployment and inflation and got to a conclusion in 1958. The behavior of the supply curve is not exactly L shaped, the Keynesian simple aggregate supply lacks in consistency when compared with the Phillip's curve. The curve which relates the two factors, called Phillip's curve, contributed for his popularity at the time. A.W. Phillip's conclusion was based on observed real statistical data. The data was put into a graph and he observed a negative correlation between the level of unemployment and the rate of inflation. High levels of inflation were related to low unemployment.

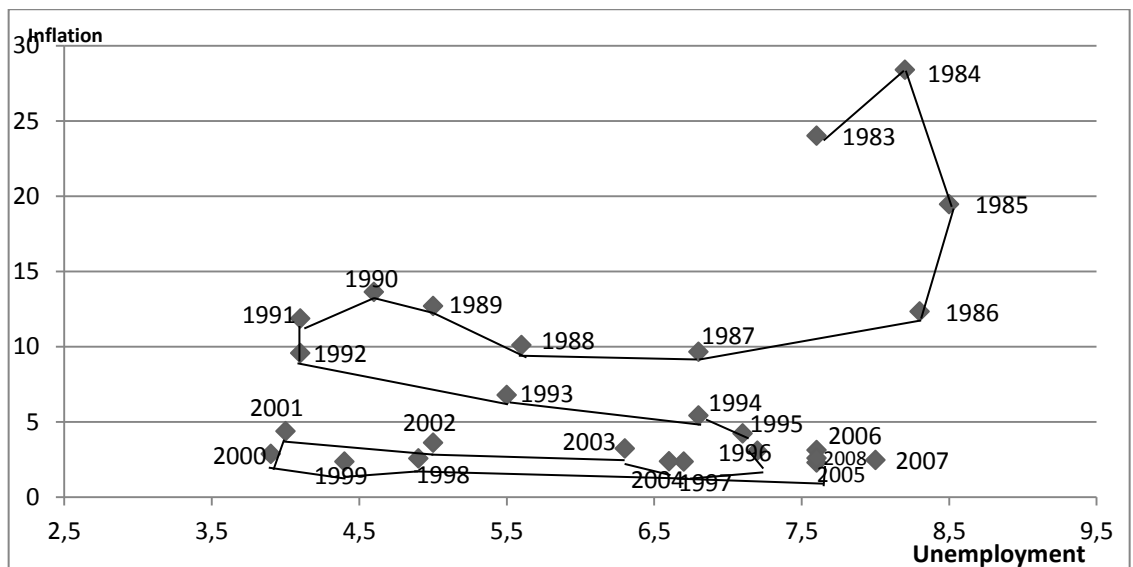
The attempts to explain the relation between unemployment and inflation increased over the decades of 1960 and 1970. João César das Neves, a Portuguese economist, described the Phillips curve as "an idea born from an empiric and realistic analysis, and even seemed to be real in the 60's, however, from the 70's, the idea was completely invalidated" (Neves, "Introdução à economia", 2011). If it works, it's only in certain cases and in short-term scenarios. For instance, an increase in government expenditures financed with money provokes an increase in employment and production (unemployment decreases), inflation increases, but, if production is lowered (a shock in oil prices), prices increase (inflation), but production and employment decrease (unemployment increases). Oil prices are

definitely having an enormous impact over the price of other goods or services. In sum, inflation is not necessarily negatively correlated with unemployment because it might be related with many other factors.

In 1967, Milton Friedman and Edmund Phelps discovered a flaw in the Phillips curve, they pointed that an important factor which affects wages was left behind, the worker's expectations of inflation. The conclusion after rethinking the Phillips curve was that the higher the expectations of an increasing inflation, the larger the leftward shift of the aggregate supply curve. The modified curve of Phillips made by Friedman and Phelps has played a key role in macroeconomic short-run models.

The rate of inflation is mainly influenced by firms' inflation expectation for the following years, the state of the economy and price shocks.

Figure 6 – Unemployment and inflation in Portugal 1983-2008



Source: PORDATA (data). "Introdução à Economia"- João César das Neves,2011

The graph on figure 6 describes the relation between inflation and unemployment in a period of 25 years. As we can observe, inflation and unemployment don't always behave as negatively correlated if we observe long periods of time. From all the movements from one year to another, most of them are negatively correlated as from 1987-1990 or from 2001-2008, however approximately 30% of all the movements were positively correlated which means that an increase or decrease in the inflation rate was respectively associated with an increase or decrease of the unemployment rate.

In sum, the Phillip's curve might be used in short-term scenarios. However it cannot be generalized for long-term behavior of the relation between inflation and unemployment.

5. Globalization and the labor markets

The economists who defend globalization and free markets believe that any country which opens borders for international markets will benefit by increasing standards of living due to the access to international goods and services, which consequently means an increase in employment. However, other economists fear that globalization would bring financial deregulation, economic recession, loss of purchasing power for people with lower incomes together with degradation of working conditions, increasing unemployment due to fewer interventions from the governments to help people with lower income and mainly to boost employment.

Globalization allows an easier geographical mobility, it might be forced (involuntary) or voluntary. The mobility of people might be provoked by several reasons as high unemployment rates, economic conditions, social sustainability or even due to the attraction to urban areas. The major cities are attractive due to a more diversified demand for workers. According to a revision of the “Trends in International Migrant Stock” by the United Nations in 2013, there are 231.5 million migrants (people living outside their hometown) in the world. In 1990, the same source registered 154.2 million migrants. It means a difference of 77,3 million people (about 33% of 2013). The worldwide average migration per year is 3.4 million. The increasing migration is a consequence of the increase in competition due to globalization. However, globalization provides more freedom and costs reduction for transporting goods. A lot of countries benefited from the better access to the international commerce which increased mainly the exports.

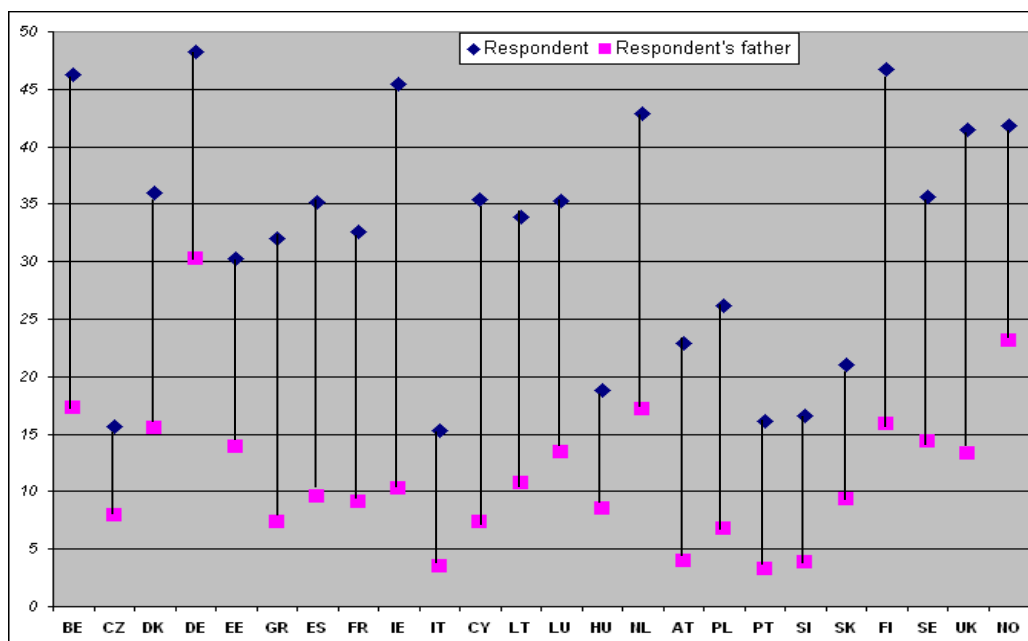
The increasing influence of the group of countries comprising China, India, Russia and Brazil (BRIC) in international markets has been provoking several changes in the world’s economy. It is a group of emerging economies with low cost production, low quality of workforce and a productive capacity which attracts a lot of industries. It provokes migration and increasing unemployment for other countries.

6. The returns to education

The returns to human capital investment or, in other words, returns to education are important when talking about causes and solutions for unemployment. The returns might be classified as private/social return or monetary/non-monetary return. “The private rate of return is the yield on the investment in education that is received by the person making the investment, i.e. it is the relation between the direct costs of education paid by the student and the gain in net earnings associated with this investment. The social rate of return measures the yield to society from the resources devoted to education. (...) The monetary returns refer to the wage effects of education. Non-monetary effects include the effects of education on health and well-being.” (EU-SILC, “Returns to education in European countries” - 2011). The relation between education or training and wages, job quality or

work opportunities vary depending on different economies. Some countries might find a positive relation between the variables, thus the solution for a high unemployment rate might pass through investing in education. According to EU-SILC – European Union Statistics on Income and Living Conditions, a cross-sectional and longitudinal research coordinated by Eurostat and based on data from all the EU members – the members with higher amount of people who attained the tertiary level of education were Germany (48.3%), Finland (46.8%) and Belgium (46.2%), while the lowest amounts were registered in Slovenia (16.6%), Portugal (16.2%), Czech Republic (15.7%) and Italy (15.4%). In order to look at this figure and understand it we must consider hidden facts, for example, Slovenia is having almost 70% of people with upper secondary or post-secondary non-tertiary educational level while Portugal accounts with 15.5%.

Figure 7 – Total amount of people with tertiary schooling level in the EU



Source: Eurostat - European Community Statistics on Income and Living Conditions (EU-SILC)

The figure 7 shows us the result of the survey EU-SILC. It relates the amount of people with tertiary level of education that was included in the sample used for the survey to the level of those people's fathers. We can read from the figure above that Portugal has the lowest amount of fathers with tertiary level of education, however, from all the respondents 16.1% had post-secondary or tertiary level education. The countries which registered the biggest difference between the two variables were Ireland, Finland, Belgium, the United Kingdom, Cyprus, the Netherlands and Spain. "The differences are partially explained by the duration of compulsory education and the characteristics of the higher education systems (numerus clausus, selection procedures, student fees). As an example, in

Portugal, the school legislation in the 1950's has imposed 3 years (before 1956) or 4 years (after 1956) of compulsory education, and only for boys while during the same period, Belgium residents had to stay in school at least 8 years. Nowadays, the duration of full-time compulsory education is 9 years in both countries.” (EU-SILC, Returns to Education in European countries, 2011)

In sum, investment in human capital works almost the same way as investment in physical capital, consumption is reduced in order to achieve something better in the future. “For example, students give up the income they could make if they were not busy studying; they live frugally in the hope that the education will pay off in higher income after graduation. Similarly, apprentices may be willing to work for abnormally low wages if they are receiving training that is likely to lead to a better job in the future.” (“Economics”, Wonnacott 1979).

II. Unemployment in Portugal

In this practical part of the thesis, the aim is to describe the behavior of unemployment in Portugal, analyze the geographical distribution of unemployment through the continental part and islands of Portugal, labor force mobility within the country and migration to/from other countries, seasonal component of unemployment, its distribution among age groups, unemployment per attained level of education, determine the levels of employment among the three main activity sectors and for the last but not the least the relation between the two macroeconomic indicators inflation and GDP.

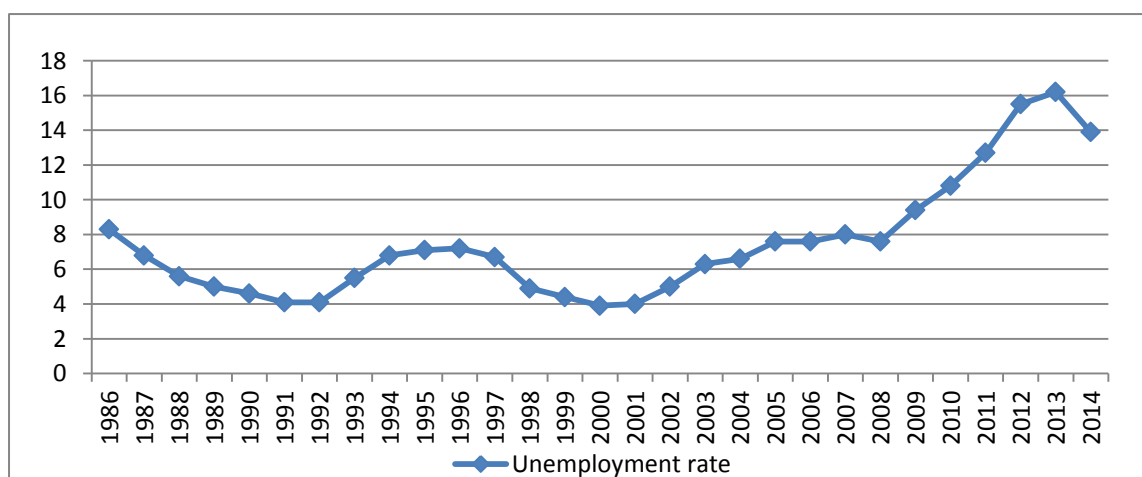
During the last decade, the macroeconomic indicator unemployment, has required detailed observations of its behavior in order to find out what were its causes and respective solutions. Portugal is one of the European countries which were affected the most. The increasing importance of the unemployment is mainly due to its consequences either at the psychological, social or geographic level.

1. Portugal as an EU member (general description of facts)

Portugal entered the European Union on the 1st of January 1986. In 28 years, the levels of unemployment changed a lot. There are two main periods of increasing unemployment rates. The first is associated with the recession of 1993 and the second with the crisis which several countries are still passing through from the beginning of the 21st century. The “steepest” increase in unemployment rates was registered from 2008.

Since the entrance to the EU, the sectors which increased employment the most were the service to families, public services and services to firms. On the other side, the sectors which registered the highest rates of unemployment were industries, energy production, water, agriculture and fisheries. The building construction sector reached 12% between 2000 and 2004 and ended 2010 with 10%.

Figure 8 – Unemployment rate in Portugal (1986 – 2014)



Source: Pordata; own representation

We may consider 2 main descendent cycles of the rates of unemployment since Portugal became a member of the EU, the graph in figure 8 shows us that the first was between 1986 and 1992 (it reached one of the lowest rates of unemployment in the history of Portugal as a EU member, the lowest was registered in 2000 when the unemployment rate was 3.9%), and the second between 1996 and 2000. This two cycled correspond to the intervals between the crisis of 1993 and 2003. However, since 2001 Portugal has more than doubled the unemployment rate and it tends to prevail on a long run. Besides 2008, unemployment increased every year.

The Portuguese unemployment rate, when comparing with the rest of the EU was more likely to be under the EU averages. In 2006 the unemployment rate reached levels over the average of the EU. According to data from Eurostat, Portugal had the highest proportion of employed population over 64 years old among EU27.

Portugal is nowadays in a situation of unemployment which affects the EU since 2000, according to data from Eurostat, Portugal passed from the 6th best country in terms of employment to the 8th worst in unemployment rate levels in 2010 and to the 4th worst in 2013.

2. Geographical distribution of the whole labor force and unemployment

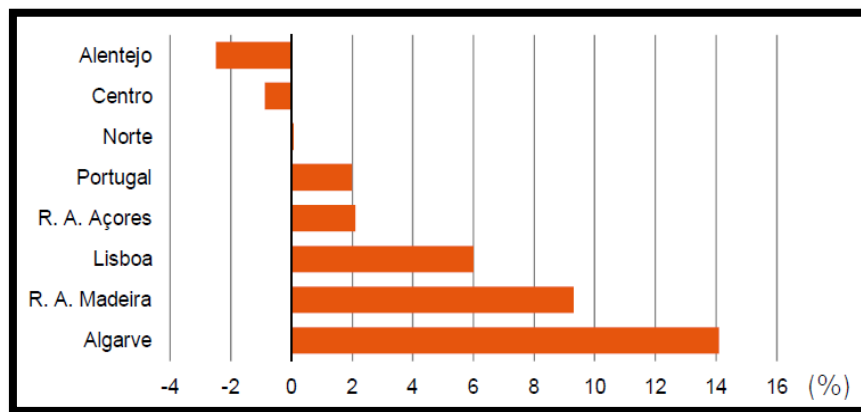
Before 1974, Portugal usually had high levels of employment. Unemployment was almost inexistent before the 25th of April of 1974, mainly due to high levels of emigration and to the Portuguese Colonial War which ended with the Coup d'État in 1974. From the year 1975 the rates of unemployment started to increase due to the people who went back to Portugal from the previous colonies, to the difficulties which some companies passed through due to the loss of the Portuguese colonies, and also due to the European crisis which “closed the doors” to Portuguese emigration.

The geographical mobility of labor force is a fundamental mechanism to adjust an economy, working as an alternative to the flexibility of real wages. Especially in case of recession, it allows the workforce to move to areas where job opportunities are better, thus adjusting the supply to the demand. Larry A. Sjaastad analyzed in 1962 the costs and returns of investing in human capital, “my effort in this paper has been to place human migration in an investment context and in so doing to formulate testable hypothesis germane to observed migration behavior” (Larry A. Sjaastad, 1962). In Portugal, the levels of mobility inside the country are not sufficiently high. The amount of migrants depends on several factors as age, family status, income or unemployment.

Portugal may be geographically characterized by high levels of migration from the rural areas in the eastern part of the country to the urban areas of the western coast (mainly

Lisbon and Porto). The most recent analysis of the Portuguese population's distribution was the Census of March, 2011 by INE. The census describes mainly the behavior of the population during the first decade of the 21st century. As we can see on the figure 9, Portugal increased its population in about 2% in the last decade. It is a lower increase than the one from the previous decade (1991-2001) which was of about 5%. The two areas where the population decreased were "Alentejo" (central southern part of the country) which lost 2.5% of its population from the year 2001 until 2011 and the central part of the country (not including Lisbon) which registered a decrease of less than 1%. The northern area stayed the same during the whole decade. The rest of the country saw its population increased over the last decade. Algarve (southern side) surprisingly increased 14.1% and Madeira (Islands) by 9.3%. Azores (islands) increased by about 2% and the capital Lisbon by around 6%.

Figure 9 – Variation of inhabitants, 2001-2011



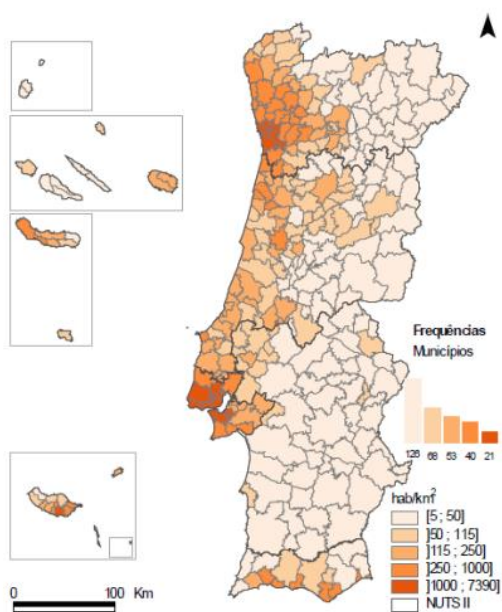
Source: *Censos 2011*, INE

The numbers shown before explain the Portuguese urbanization and rural desertification. Over the last years the city of Lisbon improved a lot its public transportation, it allows people to live in suburb areas where the costs of living are lower and get an income from the most developed parts of the country, it consequently allows those suburb areas to be developed and urbanized.

The figures 10 and 11 describe the geographical distribution of the Portuguese population through the country. The figure 10 represents the percentage change of population in each municipality from 2001 to 2011. The figure 11 represents the actual amount of inhabitants per Km² for each municipality. It is important to observe both figures because the percentage change does not give us the actual quantity of people living in a certain municipality. In the figure 10, the two brightest colors represent a decrease in the quantity of inhabitants. It is clear at the first sight that the population is mainly concentrated in the coastal areas, mainly all the coast between Porto (North) and Lisbon (center) and Algarve (South). In times of recession it is normal that people move to urban areas in order to find

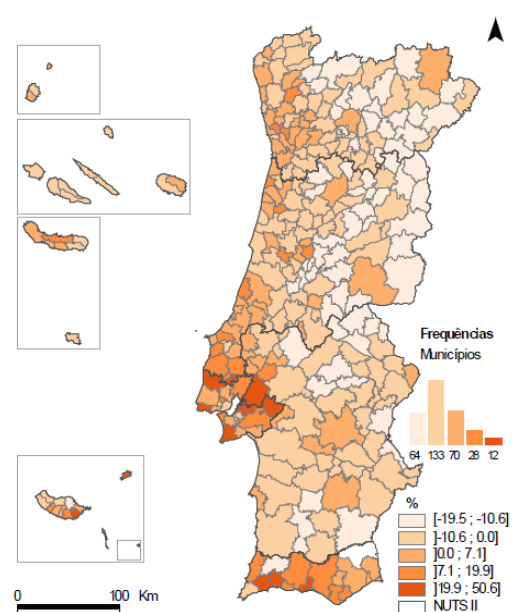
better job opportunities, the rural areas are usually the first ones being affected by any crisis. On the figure 11 it is also clear that the area between Lisbon's latitude and Algarve (Alentejo) is the least populated region with mostly 5-50 people per Km². The places which saw its quantity of inhabitants increasing the most were Mafra (+41%), Alcochete (+35%) and Sesimbra (+32%). All these three areas are around Lisbon, as I mentioned before, the quality of transports influence people's decision on how far they should live from the center of Lisbon.

Figure 10 – Geographical distribution of Population, %Δ 2001-2011



Source: *Censos 2011*, INE

Figure 11 – Geographical distribution of Population, inhabitants/Km² in 2011



Source: *Censos 2011*, INE

According to a research developed by João Pereira from the University of Évora in 2007, it was concluded that “the individuals living in the Eastern part of Portugal have a higher propensity to migrate 50Km or further from their origins than the ones in the coastal areas.” (J. Pereira, 2007). “At the level of mobility greater or equal to 50Km, we should also mention the fact that teenagers revealed a higher propensity to migrate” (J. Pereira 2007) than older people. According to the same research, the migratory movements lower than 50Km might be explained by family issues, either by the low propensity to migrate when having family or due to divorces which cause movements of the inhabitants which are usually lower than 50Km. “The results point to the fact that the difference of incomes due to journeys of less than 50Km is positively correlated and statistically significant in this type of mobility” (lower than 50Km), it means that levels of income have more influence in short movements of the Portuguese

population than in long migration situation. It seems to be a paradox that no statistical significance was found on the relation between the number of kilometers (away from origins) and income. However, the costs of moving to a further place are higher, either monetary or non-monetary (psychological) costs.

There are several ways how governments can increase mobility. Probably the one which is used the most is a duration reduction of unemployment subsidies, thus people cannot count on the help from the government and have to find a job even if outside their origins. If governments establish a minimum wage which an unemployed cannot refuse (if so, the individual would lose the subsidy) then the unemployed is forced to work. One really important problem in Portugal is the lack in the real estate rental market competition. It seriously affects the geographical mobility in the country. Recently some changes have been done in order to facilitate and simplify the eviction by the landlords (when rents are not paid). Investments in education boost mobility and decrease the risk aversion which helps to accede to wider labor markets. Education can improve the labor supplier's efficiency. In sum, one of the possible reasons for low mobility in Portugal might be the weak qualification of the workforce. There are other ways how to solve problems with mobility besides investment in education, for example the implementation policies to improve the efficiency of public transportation in order to connect large and medium sized cities.

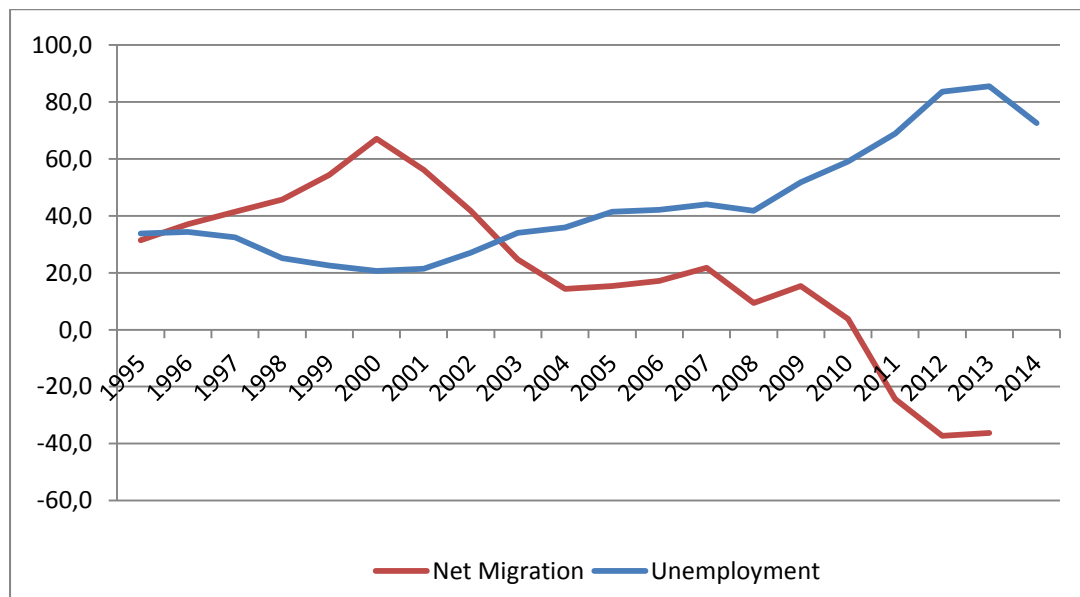
3. Migration in Portugal

The difference between the quantity of immigrants and emigrants in a certain country might explain some of the changes registered in the unemployment rates. When high levels of unemployment are expected the net migration tends to be negative, that means that the total quantity of emigrants (people who leave country) tends to exceed de quantity of immigrants (people who move in the country). This situation might lead to a reduction in the unemployment rate because the ones who emigrate are usually part of the unemployed workforce.

The chart in figure 12 relates the quantity of unemployed individuals (tens of thousands) and the net migration (thousands) in Portugal, the difference between the two variables from tens of thousands to thousands hides the fact that the unemployed individuals are always ten times higher than the net migration. The aim of this chart is to understand the behavior of both variables rather than specific numbers. The net migration increased until the year 2000 (67 100), the behavior of unemployment was the opposite. It generally decreased before the year 2000. From the beginning of the 21st century unemployment has been rising and net migration declining. The decreasing net migration is mainly due to the increasing emigration, the economic crisis forces a lot of people to go abroad in order to find better job offers and stability. The biggest changes in both indicators were registered approximately from the year 2010, in four years (until 2014) net migration decreased from

a positive value of 3 800 to -36 200 (40 000 people left Portugal, either emigrants or previous immigrants) and unemployment increased from 591 000 to 726 000 (135 000 became unemployed from 2010 until 2014). As I mentioned before this negative correlation between both indicators provokes a lowering of unemployment rates due to the fact that those who leave the country are mostly part of the unemployed workforce.

Figure 12 – Portuguese net migration (thousands) and unemployment (tens of thousands) 1995-2014



Source: Pordata, INE, own representation

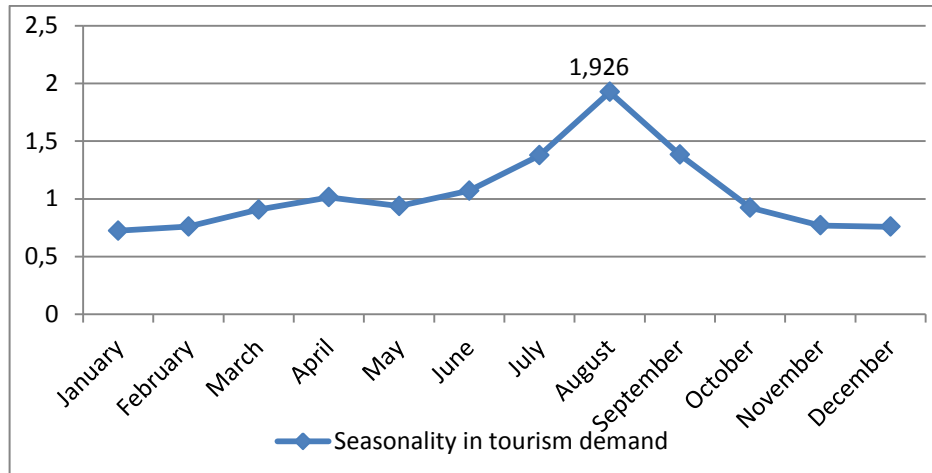
If we look at immigration and emigration separately we may have more accurate conclusions. According to the statistical data from PORDATA and INE, the quantity of permanent emigrants in 2008 was 20 357 individuals, in 2013 there were 53 786 emigrants registered. Obviously the biggest part of emigrants is from 20 to 64 years old, however, the emigration of the younger workforce raises more concerns about the future of an economy. The highest amount of emigrants in 2013 was for the people between 20 and 24 years old, 9 722 left Portugal permanently. The amount of temporary emigrants in this age (20-24) is, according to PORDATA, 11 692 individuals, it is also the highest amount of emigrants from all ages in 2013. The biggest concern about this situation is the fact that governments invest in education which then does not bring any future value for the Portuguese economy (excluding remittances). It also provokes ageing of the population (since the ones who stay in Portugal are mostly the ones who already retired) and the brain drain (loss of human capital).

4. Seasonal component of unemployment in Portugal

Seasonality in unemployment simply means periodic fluctuations of the quantity of unemployed individuals. The unemployment in Portugal is strongly affected by seasonality in certain parts of the country. The seasonal movements in unemployment rates reflect the different demand for labor in different times of the year. Its causes might be natural or social. The natural causes are essentially associated with different seasons of the year. It can be identified mostly in agriculture, tourism and energy consumption. The social causes are mostly linked with tradition. The seasons with higher unemployment rates might differ among countries with different predominant religions as well, mainly due to the fact that religious celebrations occur in different times of the year.

Tourism is one of the main sectors of the Portuguese economy. The chart in figure 13 provides the index of tourism demand for each month in Portugal. The term tourism demand includes all the spending from non-resident individuals on Portuguese commodities. The data was taken from an economic report called “Volatility and seasonality of tourism demand in Portugal” in 2010 by the Portuguese Bank (Banco de Portugal). The highest touristic demand is in summer, mostly in the southern part of Portugal. It reaches the highest demand in August (1,926) and the lowest is in January (0,723) and December (0,758). For a better understanding of the seasonal index it might be useful to compare with other countries. According to the same source, in August the UK had an index of 1,441 while Spain had 3,189. Obviously southern countries are more attractive in summer, France accounts with 2,479 while Germany had 1,706. The unemployment rates are dependent on the different seasons of the year. A lot of jobs are created in summertime due mainly to the weather. The city of Algarve is mostly dependent on tourism, in summer it always registers high levels of employment due to Portuguese and foreign workforce, however, in winter the rates of unemployment dramatically increase. The same happens in Alentejo, this region in the middle south of Portugal occupies more than a third of the Portuguese total area (31 551 km² in Alentejo compared with 92 212 km²) and it is becoming more attractive for tourism, it includes both inland and coastal areas. The northern part of the country is more stable in unemployment rates through the year.

Figure 13 – Seasonal index for tourism demand in Portugal (2010)



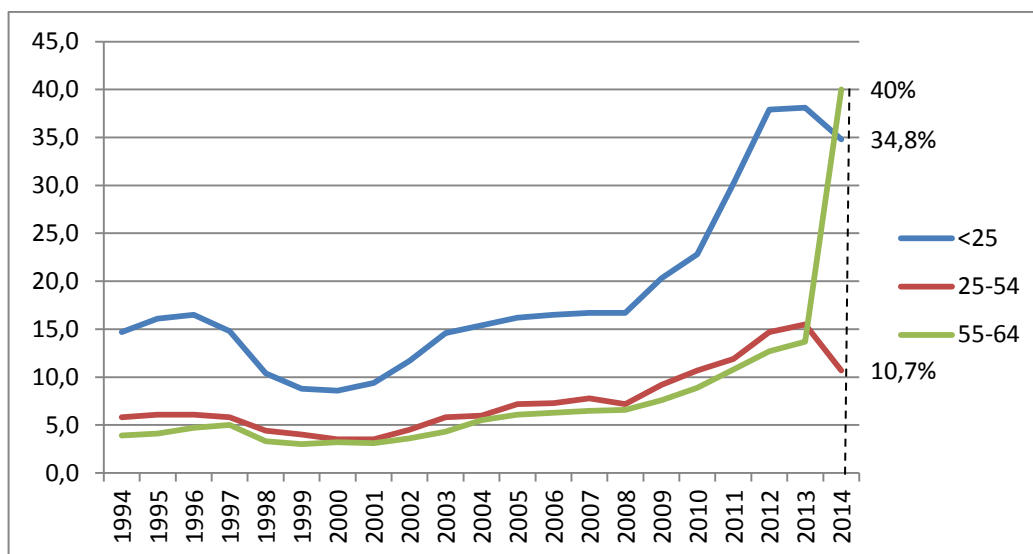
Source: Banco de Portugal, economic report 2010

5. Unemployment by age group

The unemployment always varies according to the age group. It is mainly explained by the fact that it is more difficult to find a job for someone who just entered the labor force than for those who already have experience from previous jobs. The younger workforce is often frictionally unemployed due to the time between graduation and the first job. I will describe the unemployment in Portugal through a chart which includes the entire workforce divided in three age groups.

The Figure 14 provides a representation of the Portuguese unemployment rates per age groups for the last two decades (1994-2014). It is clear that the unemployment for people under 25 years old is always the highest, followed by the other two age groups which have always been close from each other except in 2014 when the rate for the oldest group dramatically increased until 40%. Those aged between 25 and 64 accounted with the lowest rate among them in 2014 (10.7%) and those under 25 years old had 34.8% of unemployment. Those between 25 and 64 years old registered 15.5% of unemployment in 2013, from all the data from the 1980's it was the highest value ever registered for this age group. The unemployment rates generally increased since the beginning of the 21st century with the steepest increase registered since 2008.

Figure 14 – Unemployment rates by age group in Portugal 1995-2014



Source: Pordata; INE - Labor force survey 2015

6. Unemployment related with education

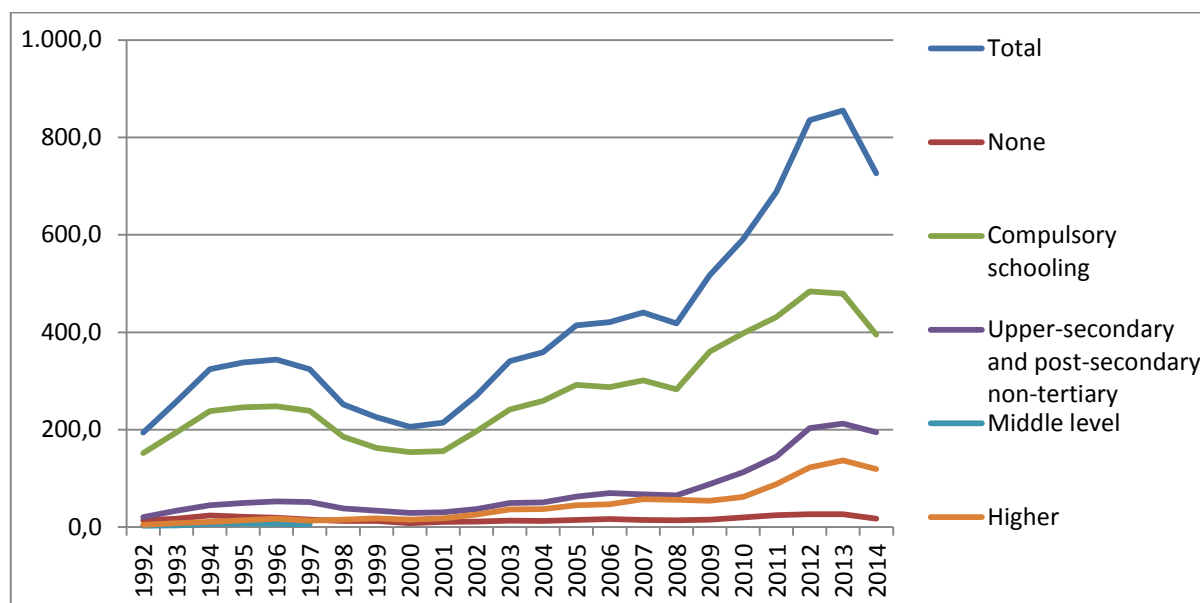
6.1. Unemployment rates related with attained degree of education

The chart in figure 15 represents the quantity of unemployment individuals in Portugal as a whole and by highest level of education completed. The chart, provided by INE and Pordata, uses data from 1992 until 2014. The unemployed part of the Portuguese workforce is divided into the ones who did not accomplish any level of education, those who attained the “compulsory schooling” (compulsory education level varies through the years), the ones with “upper-secondary and post-secondary non-tertiary” education, “middle level” education (only from 1992 until 1997 because from the year 1998, the minimum age for an individual to be considered as unemployed became 15, thus the middle level was added to compulsory schooling), and the last group is composed by the ones who attained a “higher” level of education, e.g bachelor degree.

The total unemployment shown in figure 15 behaves in the same way as the chart in figure 8 (Portuguese unemployment rates), the only difference is that now we look at thousands of people instead of percentages. All the curves tend to behave in the same way as the “total level of schooling” one. The individuals who only attained the compulsory schooling accounted always with the highest levels of unemployment. The difference between the total and the compulsory schooling equals the sum of the other levels of education. The values of unemployment for individuals who attained upper-secondary and post-secondary non-tertiary are always higher than those for individuals with a higher education level. The low unemployment of the group composed by those who did not achieve any level of education is explained by the fact that the numbers are expressed in thousands of people. If the unemployment of the curve “none” education would be calculated as a percentage of all the people who did not attain any degree, then the numbers would be higher. The

quantity of people without any education level achieved is not as significant as the other groups. In the last year of 2014 there was a reduction after 5 years of increasing unemployment rates. This reduction is partly explained by the fact that due to the economic crisis, part of the unemployed population decided to migrate to another country in order to find more job opportunities.

Figure 15 - Unemployment: total and by highest level of education (thousands)



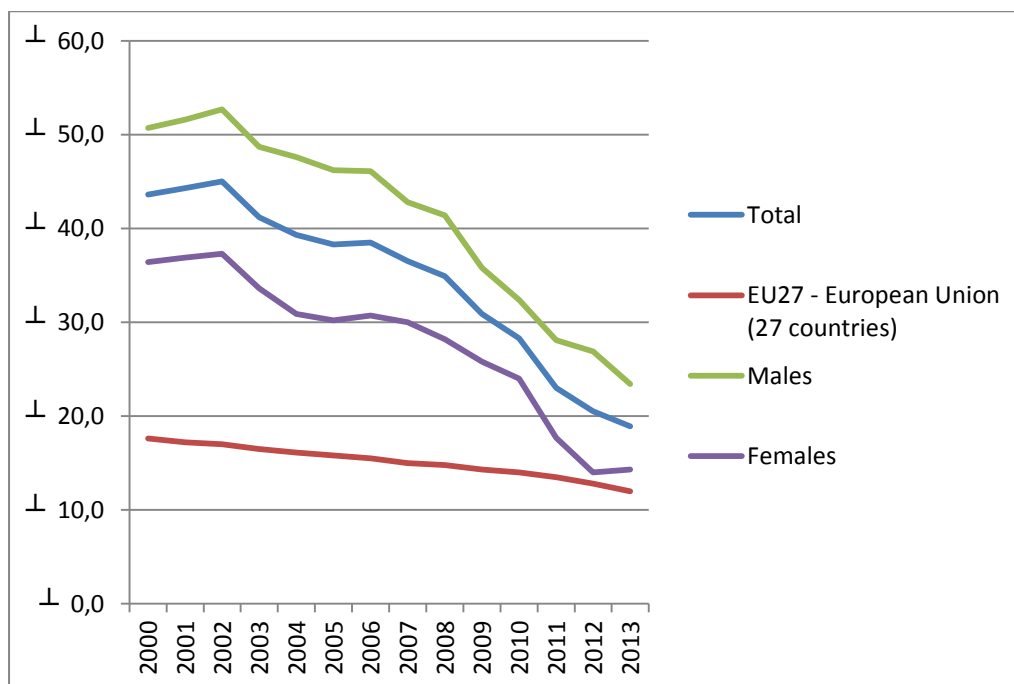
Source: INE, Pordata

6.2. Early leavers from education

In the beginning of the 2000's the quantity of people who decided to leave education/training before finishing the compulsory schooling was more than two times higher than it is nowadays in Portugal. The chart in figure 16 describes how the rates decreased from the year 2000 until 2013. The European average rate of early leavers from 27 countries in 2000 was 17.6% while Portugal accounted with 43.6%. One of the European Commission's goals of the Europe 2020's strategy is to reduce the quantity of teenagers who leave school in an early stage. This goal was established on the 31st of January 2011. The target is to reach a rate lower than 10% until 2020. The previous minister of education, training, culture and youth highlighted the importance of such a reduction, "Even in periods of crisis, as recognized by heads of state and government at the European Council in February, investing in education and training is a growth friendly investment if it is delivered efficiently and based on modernized and reformed education systems." (Androulla Vassiliou, 2011). In the case of Portugal, a change of 1 percentage point represents nearly 52 256 individuals according to the total Portuguese labor force in

2014 of 5 225 600 (source: PORDATA). The rate of early leavers from education/training for women has always been lower than for men. In the year 2000, 36.4% among all women in Portugal did not achieve any kind of degree. By the end of 2013 the rate for women decreased to less than half (14.3%) almost achieving the average total rate for EU27 (12%).

Figure 16 - Early leavers from education and training rate in Portugal and EU27 (%): total and by gender (2000-2013)



Sources: Pordata, INE (labor force survey), Eurostat and NSI (labor force survey), own representation

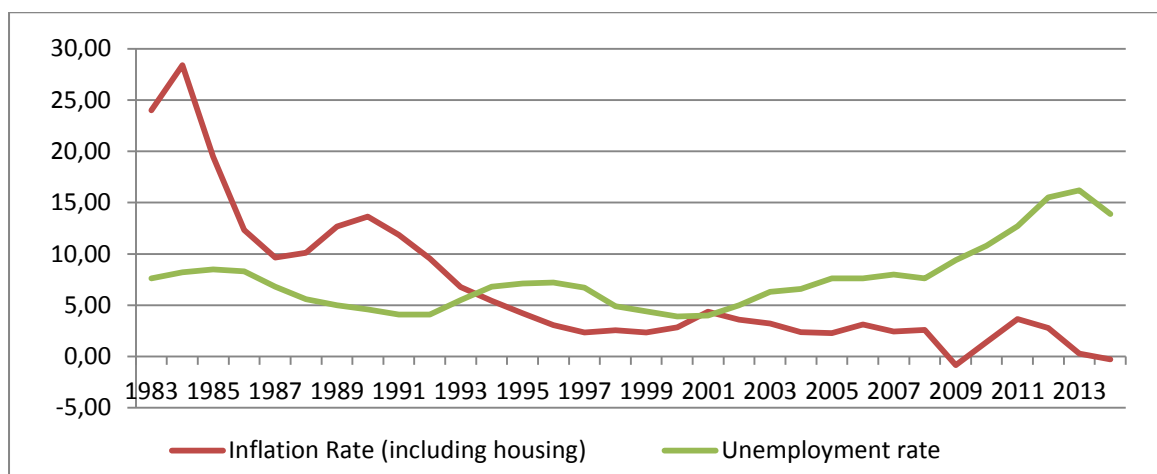
We may conclude from this topic that education has a positive influence on employment. The compulsory schooling is not enough to assure a job in the future, the levels of unemployment of those who only accomplished such a level of education were almost always more than two times higher than the sum of all the other education levels. The only exception was in the last 4 years, when the coefficient of compulsory schooling divided by the other education levels was always higher than 1 but less than 2. As I mentioned before, the low amount of unemployed people in the group composed by those with no education level (none), might be explained by the low amount of people who did not accomplish the compulsory education level. If the data would be in percentages of unemployed compared to the employed in each class of education level, then the chart would look different.

7. Unemployment and Inflation in Portugal

On the theoretical part of the thesis I compared unemployment to inflation (including housing). Inflation is measured by the Consumer Price Index (CPI), it is an “indicator that aims at measuring the price evolution in a set of goods and services considered representative of the consumption structure of the resident population in Portugal. The CPI is not an indicator of price levels but an indicator summarizing the change in consumer prices over time.” (metadata of inflation rates – INE). The Phillip’s curve suggests that unemployment and inflation rates are negatively correlated. Almost 60 percent of the correlation is negative, which means that in all the 32 years analyzed (1983-2014), 19 of them registered an increase (decrease) in the unemployment rates associated with a decreasing (increasing) inflation rates.

The regulation and control of unemployment and inflation are two of the most important goals of macroeconomics, it is important to keep both indicators low and stable. The increasing inflation or decrease in the value of money is usually related with increase in aggregate demand and production costs (e.g. oil). Inflation might be provoked by increasing indirect taxes on goods and services as well (VAT).

Figure 17 - Inflation rate (growth rate – CPI) and unemployment rates in Portugal 1983-2014



Source: INE, Pordata; Own representation

The lowest unemployment rate registered from 1983 was in the year 2000 with 3.9%, the second lowest was in both years 1991 and 1992 with 4.1%. The 21st century has almost always shown a negative correlation of both indicators with increasing unemployment rates and disinflation or deflation. Portugal experienced a deflation of -0.8% in 2009. It simply means that the general price level of goods and services was reduced by 0.8%, in other words money acquired more value. A situation of deflation or even low rates of inflation is mostly affecting debtors, an individual who has a debt fears disinflation or

deflation due to the simple fact that it becomes more difficult to acquire money because of its increased value. In 2014 the Portuguese economy reached deflation again (-0.28%), the inflation rates generally tend to decrease since 1983, it reached the highest point in 1984 (28.38%). The Portuguese economy passed through a recession in the years 1980-1982 when inflation rates did not stop rising, increasing deficit and it was difficult to get external financial support. The increasing inflation and unemployment rates in the beginning of the 1980's might be justified by external and internal factors. The external are the decreasing external demand for Portuguese goods and services and the increasing international interest rates (increasing propensity to save). The internal factors include weak monetary policies with negative real interest rates (adjusted to remove the effects of inflation in order to determine real costs for borrowers and real yields for lenders), loss of ability to compete with international markets, highly indebted public firms to external entities and political instability.

In the years 1993 and 1994 Portugal was forced to require an "emergency" financial support from FMI (International Monetary Fund). The total support during both years reached an equivalent of about 3.5% of the Portuguese GDP. The economic adjustment program included several goals as increase of competition in external markets and its ways how to cope with recession are, for instance, by increasing taxes and decreasing spending in order to correct the budget deficit, or by reducing investment and wages of public firms' labor force to control the quantity of debt.

8. Unemployment and the growth rate of GDP

The relation between the growth rate of an economy's GDP (Gross Domestic Product) and unemployment rates has been studied by economists for several years. The basics of this relation rely on a theory developed by Arthur Okun which was then named Okun's Law. The conclusions were taken from statistical data through a regression. The aim of Okun's Law is to know by how much the GDP varies when the rates of unemployment are changed. Arthur Okun suggested in the early 1960's that for the unemployment to be lowered by 1% it is necessary to increase the GDP in about 2% higher than the potential rate of GDP. It simply means that unemployment rates and growth rate are negatively correlated. The economic development required some changes in the numbers, however the basis of the Okun's Law is still used nowadays.

Figure 18 – Growth rate (%) of GDP at constant prices (base year: 2011) and Unemployment rate (%) 1986-2014



Source: INE, Pordata; Own representation

The figure 18 represents the relation between growth and unemployment rates registered in Portugal from the year 1986 until 2014. The beginning of the 1990's can be characterized as a period of worldwide recession. The recession of 1990-91 provoked mostly by the German reunification from 1989, had impact in the Portuguese economy. Portugal reached a growth rate of 7.86 in the year 1990, the highest since the beginning of the 1970's. From the year 1991, the Portuguese GDP registered a decreasing growth until 1993 when the GDP was reduced by a negative growth rate of -0.69. The negative growth rate provoked a decreasing employment of the labor force from the year 1993 until 1996. The relation between both indicators from the year 2000 was mostly negatively correlated (two thirds of all the variations in both indicators moved in opposite directions) with increasing unemployment rates and decreasing growth rate of the GDP. The period from 2011 until 2013 was the one with the highest unemployment rates (reaching 16.2% in 2013) and the lowest growth rate (-3.32% in 2012).

9. Employment per activity sector

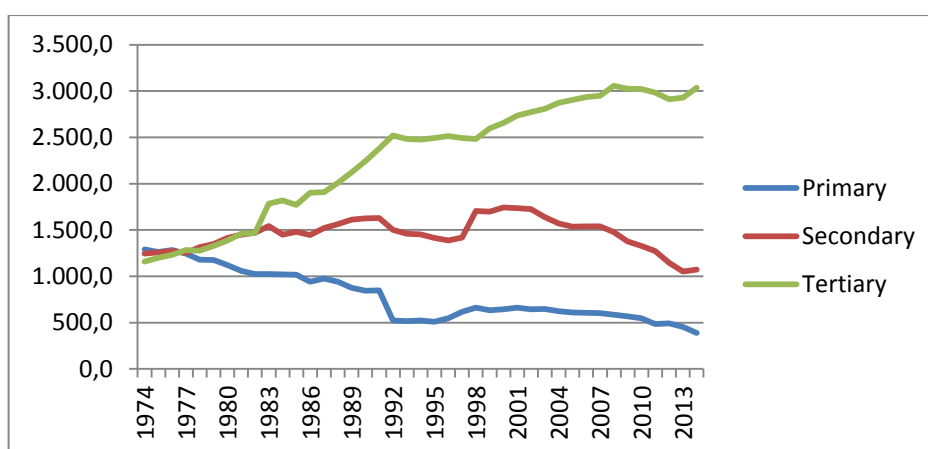
The levels of unemployment differ according to the activity sector as well as it differs due to the schooling degree achieved. Usually the most developed country is mostly employing people in the area of services while the least developed focuses on the direct use of natural resources.

The chart in figure 19 explains the development of employment per activity sector in Portugal from the year 1974 until the last year of 2014. It is clear that the entrance in the EU changed mainly the primary and tertiary activity sectors. While before the entrance in

the EU the primary sector was the one which registered higher employment, it changed in the end of the 1970's. From the 1980's the tertiary sector (services) acquired a higher share in total employment in Portugal. The tertiary sector nowadays tends to increase its share while the secondary and primary tend to decrease.

The recent crisis affected mainly the manufacturing industries and construction industry (secondary sector) with a decreasing number of employed individuals of about 465 thousand between 2007 and 2014. The services sector has generally shown increasing employment.

Figure 19 - Employment by sector of economic activity 1974-2014



Source: INE- labor force survey. Own representation

Conclusion

We may now have a better view of the Portuguese situation and also be able to understand most of the causes and consequences of unemployment. The analysis of the Portuguese unemployment allowed me to understand the structure of the Portuguese labor market and its development through the previous decades.

A certain economy is always experiencing either a period of recession or expansion. The globalized world in which we live nowadays provokes a higher interdependency among countries in the whole world. Both the recession of 1993 and the actual crisis are influenced by external markets.

The Portuguese geographical distribution of the population is a matter of increasing concern due to the unpopulated areas in the interior of the country, young people often decide to move to bigger cities in order to find better job opportunities and the ones who stay are mainly those who don't belong to the workforce anymore. In terms of seasonal mobility within Portugal it is much higher in summer. The seasonal changes in unemployment are mostly felt in the southern part of Portugal. A higher mobility within the country might be achieved with investments in education and transports.

In terms of migration to/from other countries, the correlation between unemployment and net migration was mostly negative in the period of time analyzed. The consequences of low net migration and high unemployment rates are the investment which is lost in education, population ageing and brain drain.

One of the most interesting topics for me was the one which related unemployment to level of schooling achieved by the Portuguese population. Portugal has been investing in education over the last decades in order to improve its workforce. I concluded before that Portugal reduced the quantity of early leavers from education/training in more than half since 2000 until now. This reduction tends to achieve the EU's goal for 2020 (10% of early leavers from education/training). It was also found that those who achieved only the compulsory schooling accounted with the highest unemployment rates.

The unemployment rates were related to other two macroeconomic indicators. Over the last 15 years, the indicators unemployment and inflation showed a negative correlation with increasing unemployment rates and disinflation, deflation was registered in the years 2009 (-0.8%) and 2014 (-0.28%). The data presented from the 21st century confirms the Phillip's curve in the short run. The other macroeconomic indicator which I related to unemployment was the growth rate of GDP. High levels of unemployment represent a loss for an economy in terms of GDP per capita since production decreases when less people are employed. The Portuguese GDP was affected by the German reunification in the beginning of the 1990's. A low growth rate of GDP was registered in this period with a negative growth rate of -0.69% in 1993. Recently the highest rates of unemployment and

lowest of the growth rates were achieved due to the economic recession. The unemployment rates reached 16.2% in 2013 while the growth rate of GDP was of -3.32% in 2012.

Since Portugal became an EU member state, the sector of services became the one with higher levels of employment. That is considered to be a normal behavior since in the developed and richest countries most people work in the tertiary sector. Part of the increasing employment in the sector of services is explained by the increasing tourism demand since the entrance in the EU.

The weaknesses of the Portuguese labor market became clearer with my bachelor thesis. I analyzed the unemployment in different perspectives. It allowed a better understanding of the macroeconomic indicator studied. As I mentioned in the unemployment rate's definition, it is not enough to analyze only the rates, it hides several evidences which I then analyzed with more detail.

I may conclude that Portugal has a challenging future ahead due to the recession by which the country is passing through. One of the ways how to cope with the levels of unemployment is through investing in human capital.

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