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## **TOWARDS OPTIMUM:**

### **CAN EUROPE BECOME AN OPTIMUM CURRENCY AREA**

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## **Abstract**

The purpose of this thesis is to study the Eurozone and give an answer to the question: Can Europe become an optimum currency area? Our analysis is based on theory structured in the form of several criteria for an optimum currency area, which we compare with our findings from the Eurozone. Our result shows that the Eurozone does not satisfy the criteria of high-factor mobility or wage flexibility. This is due to low-labour mobility and wage rigidity (wage rigidity is especially a concern for the northern countries). Another challenge faced by the Eurozone is the control of member government spending and economic stability through the Stability and Growth Pact. Our result further shows an increase in intra-trade in Europe, since the implementation of the Euro, which can be an important trend for the development of an optimum currency area.

## **Keywords**

Optimum Currency Area, EMU, Europe, EU, GG-LL model

## Acronyms

In this paper the acronyms EMU, EU and Europe are often used interchangeably. The reason for this is the interconnected and evolving nature of their relationship to one another. The EMU exist within the EU which exists within Europe, and even though it is not sure that these three *will* consist of the same countries, we believe this is where the future of Europe's currency union is headed.

ECU	European Currency Unit
OCA	Optimum Currency Area
EMU	Economic Monetary Union
EU15	Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom
EU27	Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, United Kingdom
NMS12	Bulgarien, Cypern, Estland, Lettland, Litauen, Malta, Polen, Rumänien, Slowakien, Slovenien, Tjeckien, Ungern
SGP	Stability and Growth Pact
ESFS	European Financial Stability Facility
ESM	European Stability Mechanism
ETUC	European Trade Union Confederation
DNWR	Downward Nominal Wage Rigidity
DRWR	Downward Real Wage Rigidity
PIIGS	Spain, Ireland, Italy, Portugal, Greece.

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# **1. Introduction**

## **1.1 Outline**

In the first chapter we present our introduction, which consists of the background, problem discussion and purpose. The second chapter contains our methodology and limitations. In the third chapter we present theory, where the main focus being on the OCA criteria, which are the foundation for the analysis in chapter four: result and analysis. In chapter four we bring together theory and our empirical findings. Lastly, we summarize our research, draw conclusions about its results, and present suggestions for further research.

## **1.2 Background**

After World War II European countries came to the understanding that countries deeply connected by trade are not likely to go to war with each other. To increase trade European countries set out to dismantle trade barriers and open the European countries to one another. First out was the European Coal and Steel Community for free trade with coal and steel within the signing parties Italy, France, Federal Republic of Germany and the Benelux countries in 1951 (European Commission 2010).

These countries then went on to sign the Treaties of Rome in 1957 which included the European Economic Community (EEC) and the European Atomic Energy Community (Euratom), where the EEC was a customs union, though only for goods. With the EEC the signatory States expressed that they were "determined to lay the foundations of an ever closer union among the peoples of Europe" (Ocaña 2003).

During the following two decades six more members joined the Treaties of Rome. Its members now sought to combat the currency instability that followed in the wake of the collapse of the Bretton Woods System and the general decline in economic stability in the early 1970s (Institute for the Study of Civil Society 2012). The response was the European Monetary System (EMS) and the Exchange Rate Mechanism where the European Currency Unit (ECU) was introduced and member's national currencies were not allowed to fluctuate outside a 2.25% band from this central point. With the creation of ECU the predecessor of the Euro was born.

Although the European Community (now European Union) had removed trade barriers, bureaucracy still took its toll on trade. The Single European Act of 1987 came into being, with the main purpose of harmonizing regulation between the different areas of the Community, letting trade flow freely and without the need for multiple quality controls (Krugman et.al. 2012).

The Maastricht Treaty of 1991 prepared for the Economic and Monetary Union (EMU) and set convergence criteria for the members to ensure economic stability in the Union (Krugman et.al. 2012). The road was now paved and ready for the introduction of a physical form of a common currency for Europe, and the Euro was launched in 1999.

### **1.3 Problem discussion**

The main goal of a fixed exchange rate system is to avoid short-term volatility in exchange rates, which can occur due to overshooting when a country, or an area, has a floating exchange rate system. In Europe, economists speculated that intra-trade within Europe could be damaged by exchange rate fluctuations; this problem was one of the main reasons the EMU was created (Burda & Wyplosz 2009). However, switching to a fixed exchange rate system from a floating one had consequences.

The floating exchange rate system is an adjustment mechanism that responds to shocks by raising competitiveness through fluctuations in the exchange rate; a fixed exchange rate system lacks this ability. Areas that switch to the fixed exchange rate system must therefore rely on other efforts to respond to shocks. We want to find out what other adjustment mechanisms the EMU uses? If the EMU can function without the loss of welfare, then it would be considered to be in accordance with the theory of an OCA. Since the implementation of the Euro, it has been debated among economists whether or not the Eurozone is an OCA.

It is not possible, within the scope of this paper, to delve into political factors that also could affect a monetary union. Our focus will be limited to the main economic characteristics that are imperfect in the Eurozone and how they can be improved. According to Blanchard (2009), Europe does not experience symmetric shocks. Therefore, we will only look at alternative adjustment mechanisms that the theory

presents: factor mobility and price and wage flexibility, in the Eurozone. Other factors that will be studied are trade and fiscal transfers. We will discuss symmetric shocks and “endogenous OCA” in theory, but not in our result, since these subjects are too difficult and complex for our study.

## **1.4 Purpose of the study**

The purpose of this thesis is to study theory of OCA and compare this with the Eurozone, whereby we assume “optimum” is well-functioning in reality. This will be accomplished through a comparison of theoretical criteria for an OCA, and our empirical findings of the Eurozone.

Our main question is:

How will Europe become an optimum currency area?

## **2. Methodology**

### **2.1 Choice of method**

This paper has a macroeconomic view, where our method is to study secondary data as background for our result and theory. We rely heavily upon statistical data in the process of answering our purpose. Tables and diagrams in our study risk not being reliable data, since they come from different sources and can be time sensitive. But since the OCA criteria do not require exact figures, we do not believe this will be of great issue when analyzing our empirical data.

### **2.2 Limitation**

We base our theory on Robert Mundell’s original concepts of an OCA, developed in 1961, alongside developments of this concept by other economists. While a long list of criteria for determining an OCA has now been developed, we focus on specific factors we find relevant and of particular interest to our topic.

The list of criteria we will apply in order to set a guide for determining if it is appropriate for an area to enter into a monetary union are as follows: High factor mobility, Wage flexibility, Fiscal centralization and Symmetric shocks.

Blanchard (2009) argues that Europe does not have symmetric shocks and that this criterion is difficult to fulfil for an area; therefore, while we discuss symmetric shocks in theory we do not focus on it in our result and analysis.

All the OCA criteria are jointly endogenous. The effects of this have been long debated by economists, resulting in two paradigms. Akida & Iida (2009) refer to these as the “pro-synchronization and anti-synchronization hypotheses”. We bring up this issue in section 3.4, because we believe it could be of great importance to monetary unions when deciding if the union should continue or be liberated. It also shows what effects a monetary union automatically can create. Our discussion of these hypotheses is limited to the theory section of this paper due to the difficult nature of determining what developments are true effects of the implementation of the Euro.

We apply the theoretical GG-LL model, developed by Paul Krugman in 1991, to depict the costs and benefits of a country’s entrance into a monetary union. This will not be analyzed in our result because we believe this model is too abstract to compare with reality. The reason we want to present this in our theory section is to give the reader an idea of how a country can develop to benefit from a monetary union after joining.

### **3. Theory**

The theory of OCA is a valuable tool in determining whether or not countries should form a monetary union by looking at costs and benefits for a country or an area. In the following section, we will bring up the greatest debates and ideas surrounding the theory of OCA.

#### **3.1 Optimum currency area**

The area of an OCA is determined by independent countries electing to adopt a single currency or to peg their exchange rates, where optimal denotes certain criteria of factor mobility, price and wage flexibility, economic openness and political integration (Mongelli 2002). Specific focus is placed on factor mobility, stating that a high level of cross-boundary factor mobility removes the necessity of flexible exchange rates (Mundell, 1961). Mundell takes it as far as setting an optimal zone, within which labour is willing and able to move freely.

As optimal is a visionary goal, Copeland (2008) presents a definition of a single currency zone or monetary union to be one “where the accepted means of payment consists either of a single, homogeneous currency or of two or more currencies linked by an exchange rate that is fixed (at one for one) irrevocably” (Copeland 2008, p. 286). In this Copeland places weight on *irrevocably*, so if there is any doubt that the participants are fully devoted, or there is a way for participants to escape if the pressure becomes too great, the market will automatically assume this will occur.

Mongelli (2002) believes that the anticipated economic benefits of joining a monetary union must outweigh the potential costs to entice countries to participate. Benefits can be, for example, lower transactions costs in trade of goods and services between countries with the same currency (Frankel & Rose 1996), or an improved reputation for member countries that have had high inflation in the past. Costs can be, for example, conversion costs from switching currency or loss of the exchange rate adjustment.

### 3.2 The GG-LL model

The transfer of a national currency to an international single currency gives both costs and benefits to a country, as mentioned before.

In *International Economics* Krugman et.al. (2012) analyze a country's costs and benefits of joining a fixed exchange rate area via the GG-LL model. It was developed by Krugman in 1991 to help visualize when it is beneficial for a country to enter a monetary union.

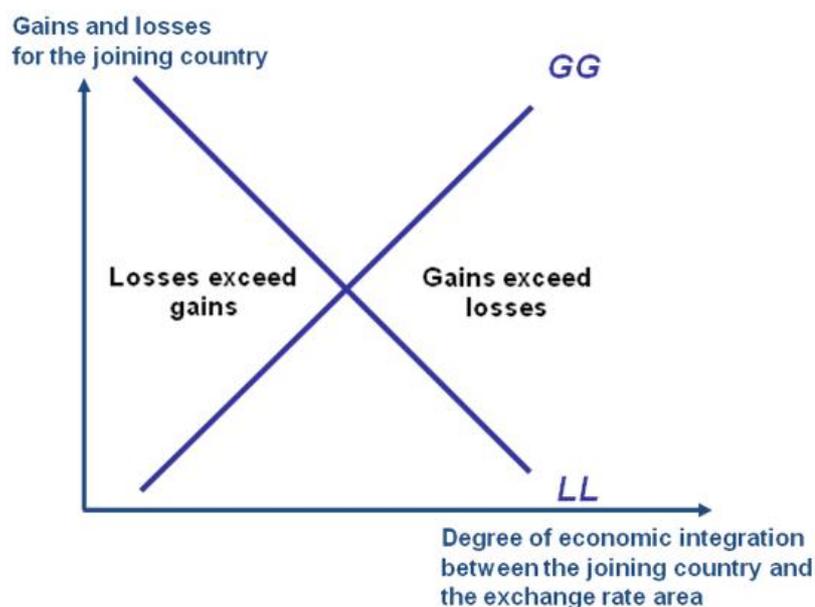
Benefits of a fixed exchange rate area are shown in the GG schedule; it is an upward-sloping curve that shows how a country's monetary efficiency increases as the degree of economic integration increases between the joining country and the monetary union. Benefits of monetary efficiency could be, for instance, lower transaction costs and simpler calculation when making international transaction decisions.

The LL-schedule is a downward-sloping curve that shows costs of joining a monetary union. The economic stability falls as the degree of economic integration with the union increases. Economic stability loss is referred to as the loss of monetary policy that stabilizes the economy by the exchange rate when a shock occurs.

An example of this is if there is an increase in domestic spending, the national price of goods will rise, which will lead to pressure for the domestic currency to depreciate due to decreased demand in export. This is possible with a floating exchange rate where the currency can depreciate, restoring the country's competitiveness without resulting in a recession. Here, the floating exchange rate works as a "shock absorber". However, since the country now has a fixed exchange rate, the currency is unable to depreciate. This will result in deviating responses to the disturbance, e.g. flexible wages and prices (Hitiris 2003).

Economic gains and benefits are difficult to measure with numbers in reality, we therefore emphasize that this model presents an illustration that helps to clarify a country's choice when deciding to join a fixed exchange rate area.

The intersection of the GG and LL curves tells us the critical level of economic integration between the exchange rate area and a country. To the left of the intersection losses exceed gains and to the right of the intersection gains exceed losses.



Graph 1: GG-LL model describing how a country moves in the model due to endogenous OCA Source: Krugman et.al. *International Economic* (2012). s. P 571.

The country should join the currency area if the degree of economic integration is at least where the point GG and LL intersect. It is hard to specifically determine where a country is positioned on a GG-LL graph. However, since we have derived the GG- and the LL-curve based on situations of economic integration and output market sensitivity, we can deduce how changes in economic integration affect the critical point. For instance, if a country's dependence on exports increases, due perhaps to an increased variability in the product market, the country will be more sensitive to shifts in the demand for its products. Therefore, the flexible currency as a shock absorber becomes more valuable.

### 3.3 OCA Criteria

According to Blanchard (2009), Mundell brings up two main criteria, symmetric shocks and factor mobility, where at least one of these two must be satisfied for countries to benefit from creating a monetary union. Mundell does not seem to share much thought on fiscal transfers in his former work. Fiscal transfers between countries is not a long lasting solution to respond to structural shocks and is not considered a true criteria compared to the other criteria (lecture notes "Tore Browaldh Lecture with Clas Wihlborg", 15/5 2012).

### **3.3.1 Symmetric and asymmetric shocks**

When switching to a common currency costs occur, for instance, the loss of a nation's monetary policy and its ability to exchange rate adjustment when disturbances occur. In *Macroeconomics (2009)*, Blanchard discusses Mundell's criteria. These two criteria are:

- Countries must experience symmetric shocks. If they do, they probably would have similar monetary policy before the creation, and thus uniting the countries in a monetary union and converging monetary policy should not count as a heavy cost. In this case it is more beneficial for countries to leave their national currency and create a monetary union.
- Factor mobility must be high in the monetary union. This criterion is relevant if members experience asymmetric shocks. Without the exchange rate mechanism as adjustment tool to raise competitiveness in response to a shock, factors need to be mobile and able to enter and exit markets with shortages or excess supply.

If the criterion "symmetric shocks" is met, a floating exchange rate system is not needed. The more homogeneous the member countries are, the easier it will be for them to benefit from having a common currency because they experience symmetric shocks (Hitiris 2003).

### **3.3.2 Mobility of production factors:**

If member countries experience asymmetric shocks, high factor mobility is an alternative way to respond to shocks so that the consequences will be less severe. An example of high factor mobility is if a country within the monetary union suffers from a recession and the unemployment rate has increased, workers can easily move and find work in another country within the monetary union. In this way, workers do not need to suffer from high unemployment rates (Werapana, 2005).

Through harmonization of regulations on goods and the dismantling of trade and capital mobility barriers, the EU has solved a part of the factor mobility problem. Labour mobility, according to Mundell, is the most important adjustment mechanism in an OCA when asymmetric shocks occur. Therefore, our focus will be on issues of factor mobility that have yet to be solved. Characteristics like culture and language can create barriers for labour to move (Blanchard 2009). Since this is a criterion for an OCA, many monetary unions experiences difficulties with labour mobility.

USA is an example of a country with high labour mobility, primarily due to their having a common language and roughly the same culture throughout in the country. For these reasons, USA is arguably the closest area in the world to being an OCA.

### **3.3.3 Flexibility in wages and prices:**

According to Hitiris (2003), there is one case where factor mobility can be low and countries can still benefit from having a common currency, the necessary assumption is that prices are flexible. Hitiris (2003) claims that if prices are flexible, countries can still use a fixed exchange rate and benefit from it.

Wage rigidity is a phenomenon that can lead to a rise in unemployment (Babecký et.al 2009). Wage generally reacts little when demand for products and labour is hit by a shift in the demand. Wages have the tendency to be rigid, especially in relation to wage reduction. A cut in labored hours and layoffs is much more likely to be the response to lower demand than a cut in wage. A distinction needs to be made between nominal wage rigidity and real wage rigidity. Since rigidities are mostly linked with downward movements of wages, downward nominal wage rigidity (DNWR) and downward real wage rigidity (DRWR) are more appropriate to discuss even though upward rigidities also deserve a comment. High DNWR infers workers are reluctant to accept a nominal cut in wage, a freeze or a low wage development with little regards to the general development of prices. High DRWR infers inflation is taken into account and the downward movement of real wage is rigid. Babecký et.al (2009) show in their study, that the presence of DNWR and DRWR is dependent on the institutional environment of the labour market (2009). DRWR is positively related to the presence of a collective bargaining power and strong unions where indexation with wage setting is prevalent. DNWR is positively related to the extent of permanent

contracts between employer and employee. It is the DRWR that is mostly related to unemployment since this rigidity holds the real wage above a wage rate closer to the clearing levels for the labour market.

### **3.3.4 Fiscal centralization**

When a country suffers from a demand shock, the country is alone in supplying the necessary funding to boost demand back up again (Copeland 2008). With more centralized fiscal transfers, countries could smooth the effects of temporary shocks without having to resort to excessive budget deficits. These fiscal transfers cannot be relied upon to solve more permanent local problems such as structural unemployment. Centralized fiscal policies can set standards and monitor development but do not absolve sovereign local governments from the task of solving structural problems that contribute to the country running a deficit (lecture notes “Tore Browaldh Lecture with Clas Wihlborg”, 15/5 2012).

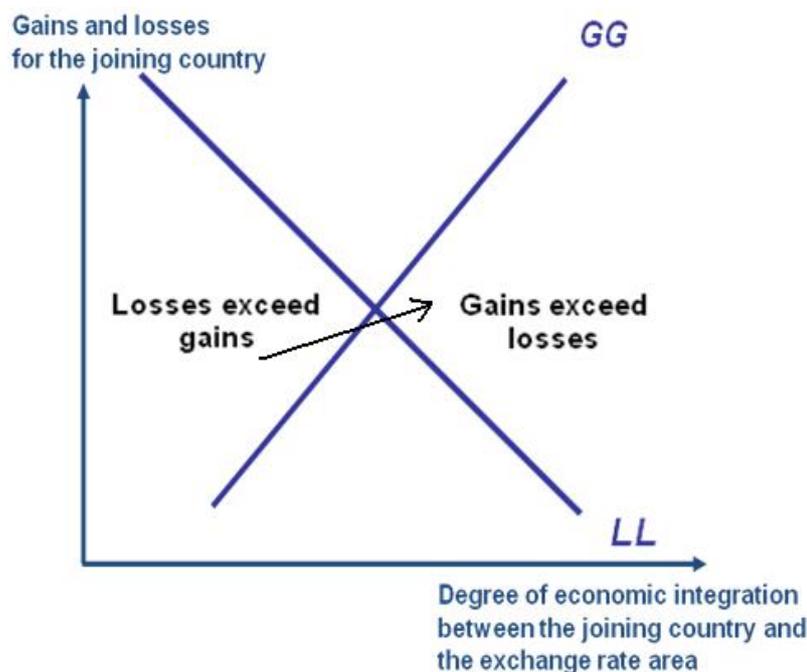
## **3.4 Endogenous OCA**

As mentioned in limitations earlier, we have found two hypotheses that are investigated by economists when we have studied the phenomenon “endogenous OCA” in theory. We will now describe these.

The pro-synchronization hypothesis states that countries do not need to worry that they do not fulfill the OCA criteria before creating a monetary union, because they will be fulfilled after its creation. Frankel & Rose investigated this in their paper (1996), where they use Europe as an example of creating a monetary union. When a monetary union is created, for instance the Eurozone, intra-trade between members increases as a result. This will in turn lead to higher correlation in business cycles. In this way members fulfill the criterion “symmetric shocks” and can benefit from having a common currency. According to Hitiris (2003) this kind of process can be developed faster by establishing measures to ease economic convergence, e.g. higher capital and labor market flexibility. But at the same time he warns that higher correlation in business cycles between countries can lead to asymmetries due to different replies of symmetric shocks by the policymakers of each country. Countries that join a monetary union fulfill the criteria *ex ante* or *ex post*. Since the economic

structure in the member countries will adjust in the monetary union, judging the appropriateness of countries that desire to create a monetary union on the foundation of historical facts are invalid (Frankel & Rose 1996).

The anti-synchronization hypothesis says that with a higher degree of intra-trade, there will be a corresponding increase in countries' industrial specialization. This will instead weaken the correlation in business cycles between members, which will in turn result in increased vulnerability to asymmetric shocks within the monetary union. The later argument is supported in more recent studies (Akiba & Iida 2009).



Graph 2: GG-LL model describing how a country moves in the model due to endogenous OCA Source: Krugman et.al. *International Economic* (2012). s. P 571. Modified for this paper.

To illustrate the pro-synchronization hypothesis, this GG-LL model shows the expected progression of a country from *losses exceeding gains* to *gains exceeding losses*, after joining a monetary union. According to the pro-synchronization hypothesis, trade will automatically rise when a country has joined a monetary union. Through endogenous OCA, a country that has greater cost than benefits within a monetary union will, due to the increased trade resulting from said union, move towards the gains-exceed-losses side of the critical point (Krugman et al. 2012).

## 4. Analysis and Results

### 4.1 Labour mobility

Factor mobility and especially labour mobility has been brought up as a crucial part of an OCA. Mundell accentuates the importance of labour mobility to the point of setting an optimal zone, as within which labour is willing and able to move freely. To function as an important adjustment mechanism to asymmetric shocks within an area, labour needs to be mobile enough to seek and meet demand, helping to avoid local excess. The European Union has been expanding and increasing its integration by allowing people to move and seek employment in other countries. But does the willingness of the population match the aspirations of the European Union?

**QC10 Do you envisage to work in a country outside (OUR COUNTRY) at some time in the future?**  
(asked to all respondents except retired people, base = 19793 respondents)

	Yes	No	DK
EU27	17%	73%	10%
<b>Chances to find a job outside (OUR COUNTRY)</b>			
Better	27%	62%	11%
The same	13%	79%	8%
Worse	13%	80%	7%

Table 1 : “Do you envisage to work in a country outside(our country) at some time in the future?”

Source: European Commission Special Eurobarometer 337 (2010), “Geographical and labour market mobility”. P. 14.

An average of 17% of the population of EU27 envisages working abroad. However the dispersion between different countries in this category is very wide, as can be seen in graph 3 in the appendix.

Denmark takes the top with 51% of the respondents in the survey picturing themselves working abroad, and Italy at the bottom with 4%. Differences can also be seen in groups of countries in EU. Among the newest members of EU, the NMS12, 21% envisage working in another country, while EU15 had a comparatively low percentage of 17% (graph 4, Appendix). These numbers show that working abroad is something that a significant portion of the population in EU considers and pursues.

Further differences between EU15 and NMS12 can be seen in their reasons for wanting to seek employment abroad (graph 5, appendix). Among the EU15 better

business opportunities and discovering new experiences rank higher as a primary reason for working abroad than it does with the NMS12. Comparatively, better quality of life and better working conditions are the two major reasons for considering working abroad in the NMS12 countries. These reasons rate high among the EU15 countries as well but a significant difference can clearly be observed between the two.

**QC23 In general, how do you currently rate the chances of one finding a job outside (OUR COUNTRY), compared to the chances of finding a job in (OUR COUNTRY)?**

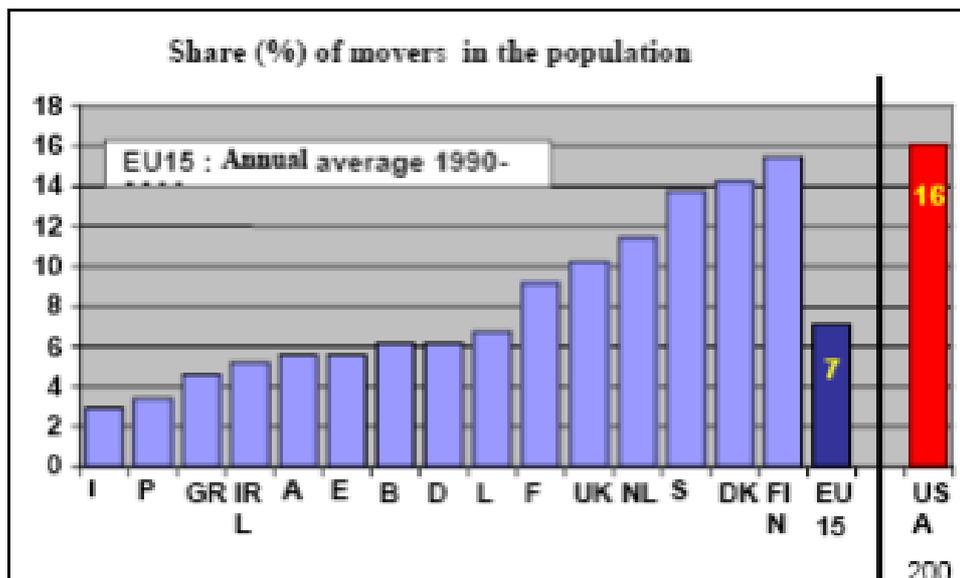
	Better	Worse	No difference, about the same (SPONTANEOUS)	DK
EU27	34%	21%	29%	16%
<b>Lived/live - Worked/work abroad</b>				
Yes	38%	23%	28%	11%
No	33%	21%	29%	17%
<b>Educational experience abroad</b>				
Yes	37%	20%	30%	13%
No	33%	22%	29%	16%
<b>A relative lives/works abroad</b>				
Yes	39%	22%	26%	13%
No	30%	21%	31%	18%
<b>Envisage to work abroad</b>				
Yes	56%	16%	21%	7%
No	31%	24%	31%	14%

Table 2: “In general, how do you currently rate the chances of one finding a job outside (our country), compared to the chances of finding a job in our country?” Source: European Commission Special Eurobarometer 337 (2010), “Geographical and labour market mobility”. P. 14

An influential factor when considering employment in another country is perception of that country’s labour market. Simply stated, if someone believes they have a better chance of finding a job in their home country, even if required to switch region within that country, they are less likely to perceive a foreign employer as a highly viable option.

In EU27, 34% of the population rate their chances of finding a job better abroad than in their home country, and 21% rate their chances as worse. However, table 2 shows a positive correlation between individuals who are more connected to other countries and their subsequent rating of foreign labour markets. In other words, experiences in other countries increase the opinion of finding a job. An interesting note, as viewed earlier, is that only 17% envisage working abroad even though 34% consider their chances of finding a job better abroad. And of those who envisage working abroad 56% think the labour market will provide them with better opportunities. From this we make two observations. First, those who see themselves working abroad in the

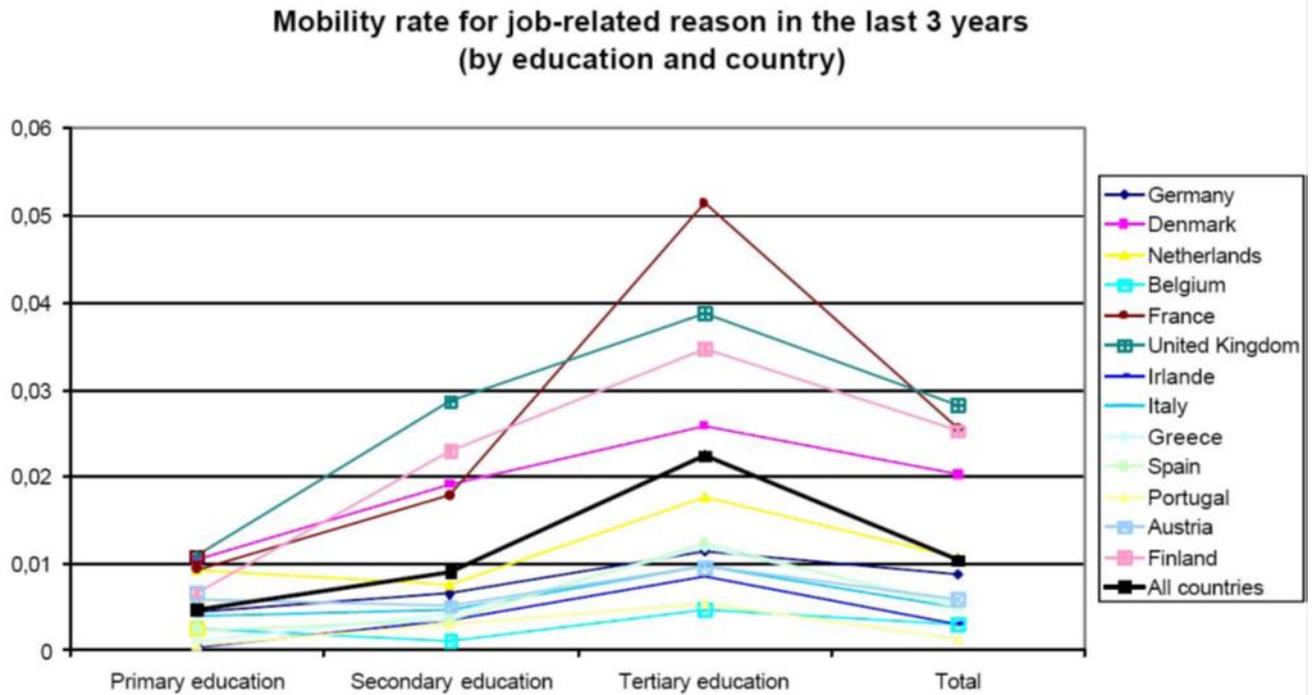
future have other motives to do so than a better labour market. As seen earlier, this group is probably composed mainly of people from EU15, who are looking for new experiences with people and career options beyond what the local market can provide. The second observation is that half of those who rate the chance of finding a job abroad better don't envisage working abroad in the future. They have something that ties them to the local market. The reason for this may be family, language barriers, or simply a preference for where they live. Regardless the reason, this group is unwilling to relocate despite the advantages of a better labour market. Cultural differences, and to an even higher degree the language barrier, seem to be of great importance when choosing a potential country for employment. According to the European Commission Special barometer, the top three most popular countries to work in are English speaking, followed by Spanish and German (graph 6, appendix). This data brings forth an interesting note; even if Europeans envisage working abroad it does not mean that they intend to do so within the Eurozone. It is more likely that they will choose English-speaking countries, like America or Australia, over another European nation. These results occur despite USA and Australian immigration laws that limit labour mobility, laws that the EU has worked to dismantle within its own borders.



Graph 7: Share of population moving by country. Source: Janiak & Wasmer “*Mobility in Europe*” (2008), fig. B-6 p.22

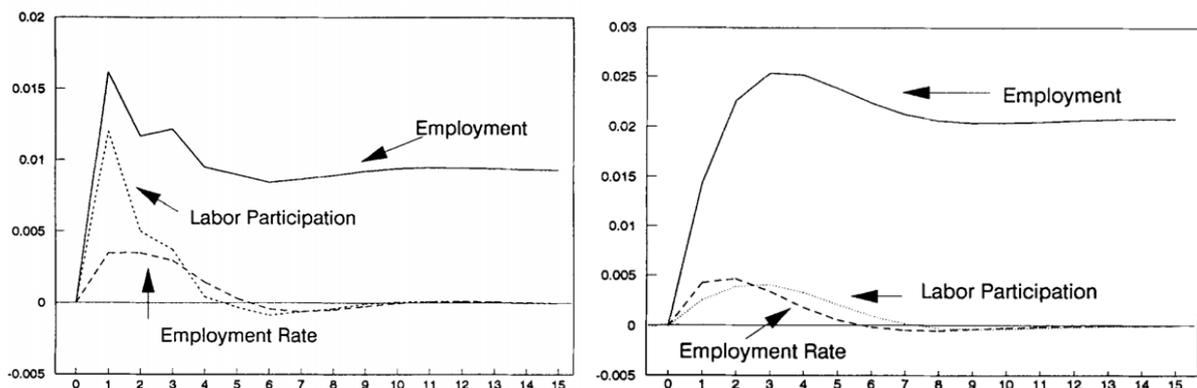
Notwithstanding data showing that Europeans consider moving and that they have a positive opinion about foreign labour markets, actual mobility is quite low. Unfortunately, real data on actual labour mobility of NMS12 is hard to come by, possibly due to its fairly recent entry into the EU. However, data on EU15 illustrates mobility patterns. EU15 has an average of 7% population mobility; however, this percentage is unevenly dispersed with the most recent data we have showing Italy with around 3% and Finland commanding closer to 16%. This deviation between the Nordic countries and the three most southern countries of Italy, Portugal and Greece, continues to be present in the data, with the later representing the lowest mobility rates. Even when considering the highest mobility rate in EU15, it is important to note they still fail to reach the US rate of 16%. The spread of movers over the countries follows the spread of the population envisaging a life abroad. We saw earlier that in the Nordic countries over 35% envisaged working abroad. When viewing data from *Mobility in Europe* Fig B-10 (2008) showing the reasons people actually move we see that the main reason for moving to another country within EU is a new job with almost 35%.

Among the discouraging factors the top one is missing family and friends (graph 8, appendix). A factor that increases the labour mobility rate is education. As education increases mobility rate follows, especially with tertiary education (graph 9).



Graph 9. Relationship between education and mobility of labour: Source: Janiak & Wasmer “*Mobility in Europe*” (2008), fig. B-11 p.27

Although Europe has weak labour mobility, their labour-market participation responds fully to labour demand shocks compared with USA. Shifts in the demand for labour translate into very different responses between Europe and the United States. In Europe a shift in demand would cause a correspondingly greater shift in the rapidity and magnitude with which people enter and exit the labour force than in the United States. When the demand for labour increases in Europe students and homemakers enter the market swiftly. The filling of this labour demand, by less traditional labour, is possibly a result of weak labour mobility since these positions are not being filled by available labour from external markets (Janiak & Wasmer, 2008).



Graph 10. Response of employment, employment rate and participation to a labour demand shock in both Europe (left graph) and the US (right graph). Source: Janiak & Wasmer “*Mobility in Europe*”, fig. B-1 p.11

In reference to our question concerning the level of labour mobility in the European Union our results have shown that while a significant percentage, though unevenly dispersed, of the European population envisage working abroad only a small percentage actually do.

Among those who do work abroad the most encouraging factor is finding a better job. However, few work abroad, even among those who view their chances of finding a job better in foreign labour markets. The most prominent reason for not working abroad is connection to friends and family.

The results show that labour mobility has a positive correlation with the variables of: high education levels, experience with other countries and English being the primary language of the country.

Another correlation is presented through Janiak & Wasmer's comparison of responses to labour-demand shocks, suggesting that a quick response in labour-participation rate is a sign of Europe's low labour mobility.

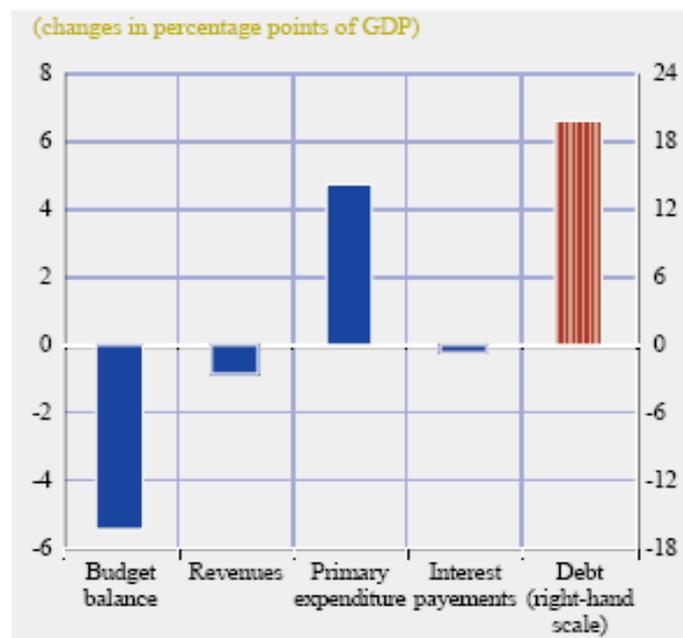
## **4.2 Convergence criteria & SGP**

A problem for the EMU (and the EU) is that little faith now resides with the Stability and Growth Pact (Posen Adam S. 2011). The SGP was adopted in 1997 and is supposed to ensure that members who have entered the EMU follow restraints set to ensure stability in the Eurozone. It states two restrictions presented by Hitiris (2003):

- Budget restraint: Government budget deficit should not exceed 3% of GDP, with temporary exceptions in extreme situations.
- Debt convergence: Sovereign debt should not be above 60% of GDP, or due to special conditions approach 60% at an acceptable rate.

The SGP binds its participants to these restrictions by threat of financial punishment. However, these stipulations were apparently harder to adhere to than was predicted. For example, by 2003 Germany, France, Italy, Portugal and Greece had all failed to live up to these standards by violating the 3% budget deficit threshold (Schuknecht et.al 2011). At this point the distribution of power in the EMU became evident. The EMU found itself unable to subjugate such large economies as Germany, France, and Italy to sanctions. Ironically, Germany and France were among the countries that vigorously pushed for the creation of the SGP (Schuknecht et.al 2011). Neither Greece nor Portugal were subjugated to fines; however, they did go through punitive proceedings. As a result of these control violations, the SGP was suspended without anyone being punished, and in 2005 a revised SGP was introduced. It now had a more relaxed form of the budget deficit restraint. The stipulation of a 3% threshold was kept, but excessive spending was tolerated over short periods of time, contingent upon being followed by a period of lower spending. The revised SGP placed more focus on the medium run and the cyclic nature of economies (Schuknecht et.al. 2011). In 2011 another revision with stricter preventive and corrective control was developed. Under the revised version, the budget deficit threshold of 3% is allowed to be breached but requires a deposit of 0,2% of GDP, as a fine, if the deficit is continued for a period

greater than one year. Further fines are imposed as violations continue. (Schuknecht et.al 2011)



Graph 11. Fiscal developments during the crisis 2007-2010. Source: “The Stability and Growth Pact, Crisis and Reform”, p.12

Before fines and punishments can start to be handed out, a restoration of the European economy is necessary. The average budget deficit increased severely as the financial crisis swept over Europe, reaching 6% in 2010 (graph 11). To aid countries with emergency funding the European Financial Stability Facility (EFSF) was set up and will be in operation till 2013 when the European Stability Mechanism (ESM) takes over (Schuknecht et.al 2011).

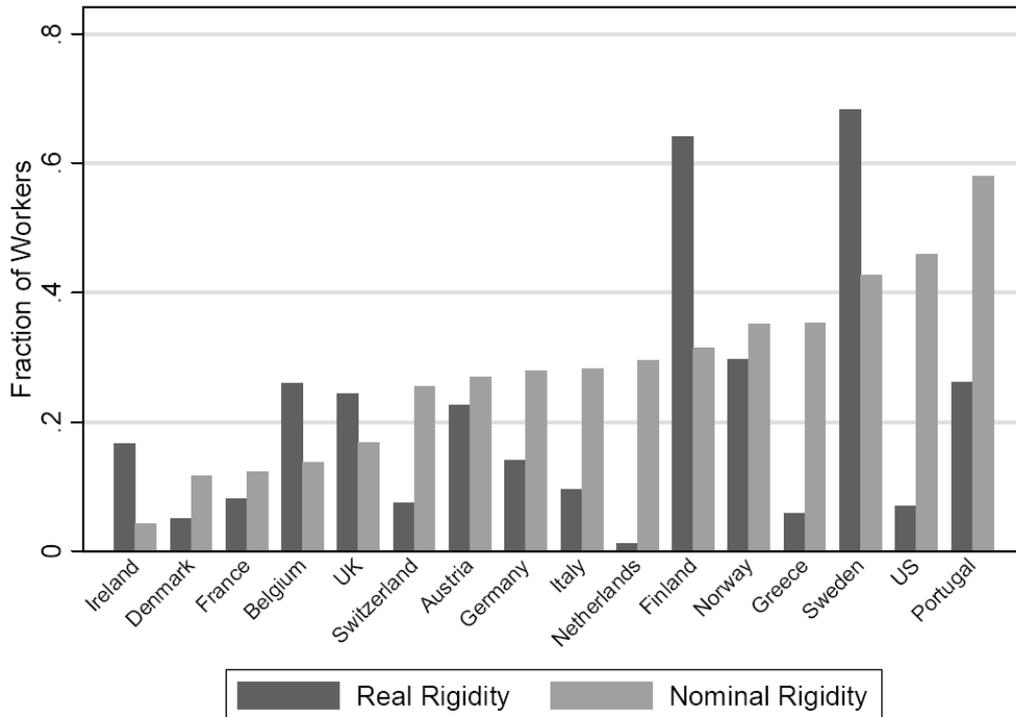
The restraint on government spending, imposed on members of the SGP, is part of a fiscal centralization. Each country has stabilizers like unemployment, welfare, and pensions to lessen the effect of downward demand and keep it from spiraling. As mentioned in 3.3.4, centralized fiscal transfers help keep countries from having to resort to excessive budget deficits. But according to Copeland (2008), the Eurozone lacks the necessary level of such transfers. This concept is also discussed by Krugman et.al. in the book *International Economics* (2012), where they assert that the crisis revealed economic and political failures of the Euro, and the lack of a central fiscal institution, which brings difficulties when the Eurozone responds to financial shocks.

### **4.3 Wage and price rigidity**

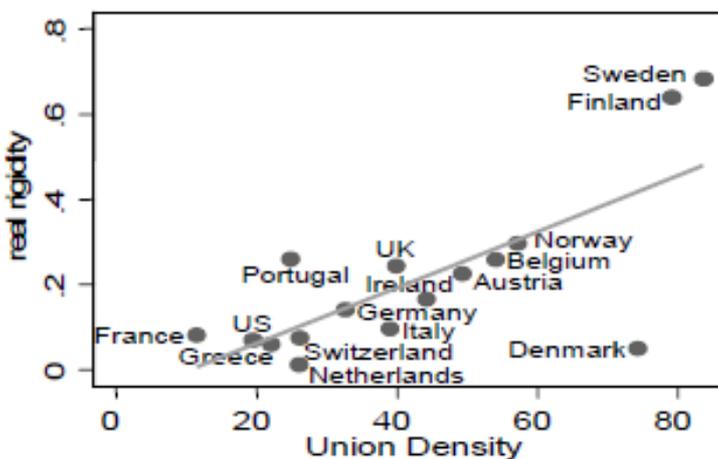
As mentioned in section 3.3.4, price stability and low inflation are goals for the European Central Bank (ECB) and EU. These goals make real prices on commodities less flexible. An additional concern, that of wage rigidity (especially real wage rigidity), is common among the members of the EU (Dickens et.al 2007). Downward Real Wage Rigidity (DRWR) can be a contributing factor to unemployment and is linked with collective bargaining power.

Several members of the EU, especially in the north, have a history of strong unions. In 1973, the European Trade Union Confederation (ETUC) was created and today it consists of 83 National Trade Union Confederations from 36 European countries, as well as 12 European industry federations. The scene in which the unions operate has been changing and “to defend and bargain for their members effectively at national level, the unions must coordinate activities and policies across Europe” (ETUC 2011).

Wage rigidity varies among countries in the EMU and in the EU. Countries in the EMU tend to have more indexation mechanism in wage setting than the rest of the EU. More significant is the difference between northern countries and the rest. Both nominal and real wage rigidity is high in countries like Sweden and Finland, and these countries have a high density of unions (Babecký et.al 2009).



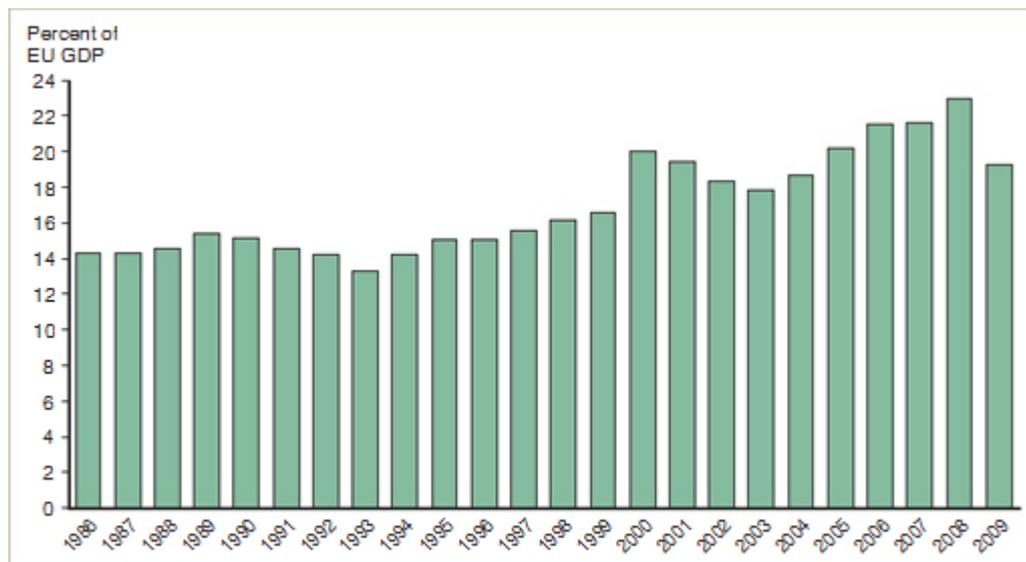
Graph 12. Real and Nominal Rigidity by Country. Fraction of Workers Potentially Affected: Source: Dickens et.al *How Wages Change*, figure 3



Graph 13. Correlation between real wage rigidity and union density by country: Source: Dickens et.al *How Wages Change*, figure 4

## 4.4 Trade

As described in the theory section, 3.4, increased economic integration from higher trade, between member countries of a monetary union, can be an important trend for the development of an OCA. In the following research we analyze the development of intra-trade from 1986 to 2009. The reason we extend our research so far back is to compare trade patterns from 1986-1998 with those created after the implementation of the Euro in 1999.



Graph 14: Intra-EU trade as percent of GDP, Source: Krugman et al. *International Economics*. p 574

From 1986 to 1999, intra-trade was relatively low, compared to percentage rates recorded for 2000 to 2009. From 2000 to 2009 results show an irregular rate of increase with a large dip occurring during 2009, not surprising due to the corresponding financial crisis. This data reflects intra-trade in the EU and not specifically the Eurozone; however, the introduction of the EMU spurred trade in the entire union, as showed in the graph, and therefore reflects a greater area. It is difficult to establish if an increase in trade is due to the EMU or from for instance technological development and general increase in economic integration.

As we mentioned in the theory-section 3.4, increased trade will either lead to the pro-synchronization hypothesis, increased correlation in business cycles or the anti-synchronization hypothesis, lower correlation in business cycles.

## 5. Summary and Conclusions

The aim of this paper is to investigate how the Eurozone could become an OCA. We have looked at OCA theory, which helped us analyze the Eurozone's use of alternative adjustment mechanisms as shock absorbers, and how it could become a well-functioning monetary union.

Our findings show that the EU's alternative mechanisms for adjustments to shocks are not developed to the extent necessary to be used as a reliable shock absorber. We have found that the EU has low labour mobility, price and wage rigidity, and imperfect centralized fiscal transfers, but increased intra-trade in the EMU since the implementation of the Euro. Based on our findings we assert that with further development of the shock absorbers mentioned, or the development of symmetric shocks, the EU can become a well-functioning monetary union in the future.

Based on the criteria presented, the EMU and the EU would not be defined as an OCA. However, intra trade in the EU is fairly high and with an increasing trend, as presented in graph nr 14. Customs between members have been removed, and the adoption of harmonized regulation of goods has simplified and further lowered the cost of intra-EU trade.

The almost immediate failure of the SGP, as discussed in the result, showed how fragile the bonds between the EMU participants were. The SGP didn't stand a chance when faced with real economic situations and cycles. The members first constructed a utopia pact with little awareness as to what would happen when stability trembled. The new revised SGP takes more fully into account the nature of economic cycles. With this in mind, it is crucial that members do not continue to violate their pact, especially without any repercussions. Budget deficits over 3% should be tolerated but not without a cause, and should be subject to approval by the other members.

As we mentioned earlier in section 3.3.3, wage and price flexibility can work as an adjustment mechanism in place of the floating exchange rate system. But our results show that the Eurozone suffers from wage rigidity, especially in the northern countries, as seen in graph 12. Since the main goal for the ECB is to maintain low price stability, changing the prices of goods and services is not considered a viable option. Our results in graph 13, show that union density is high in the EU and

positively correlated with real wage rigidity. With wage flexibility as an adjustment mechanism to shocks, we conclude that short and flexible wage contracts will make this mechanism more effective.

The European population has a fairly positive view on moving and seeking employment abroad. However, it seems that there are barriers within Europe, as the most popular countries are those with English as the native language. The EU and the EMU is comprised of 27 and 16 countries, respectively. The differences in culture as well as language are significant and hard to overcome. For instance, the USA has been a single currency area for almost 250 years (with a short intermission during the civil war) and there are still cultural differences between regions. The common language in the USA, English, makes interaction and integration so much easier so the mobility of people is a lot less inhibited than in Europe. How to overcome this problem is something that is one of the important challenges for Europe. Labour mobility can work as an important shock absorber when the advantage of a flexible exchange rate has been removed. To increase labour mobility, governments as well as companies should support intra-EU migration. With language being a significant barrier, help with housing and introduction to labour markets should be promoted. As we showed in graph 9, an increasing factor to higher labour mobility rate is increased education. This implies that encouraging education will increase the labour mobility.

Further research in this field could be to study underlying factors of the Eurozone's imperfections that create barriers for labour mobility, for instance: culture, politics and education. Another interesting idea is an investigation of how it would be if there was a central institution, managing the fiscal policy for all members of the union, similar to ECB's control of the monetary policy. Maybe, we will experience this in the future, since we consider the EMU not being fully developed.

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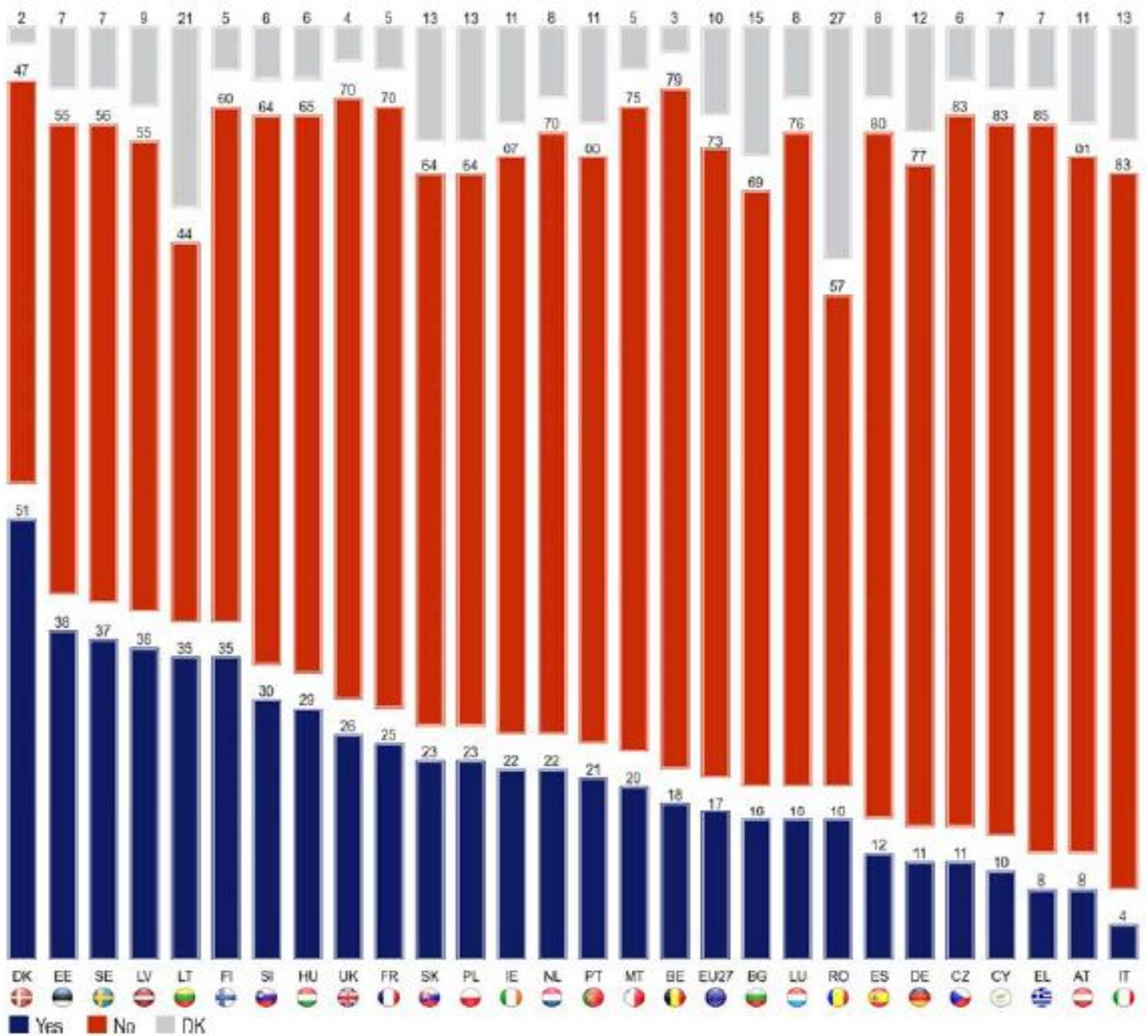
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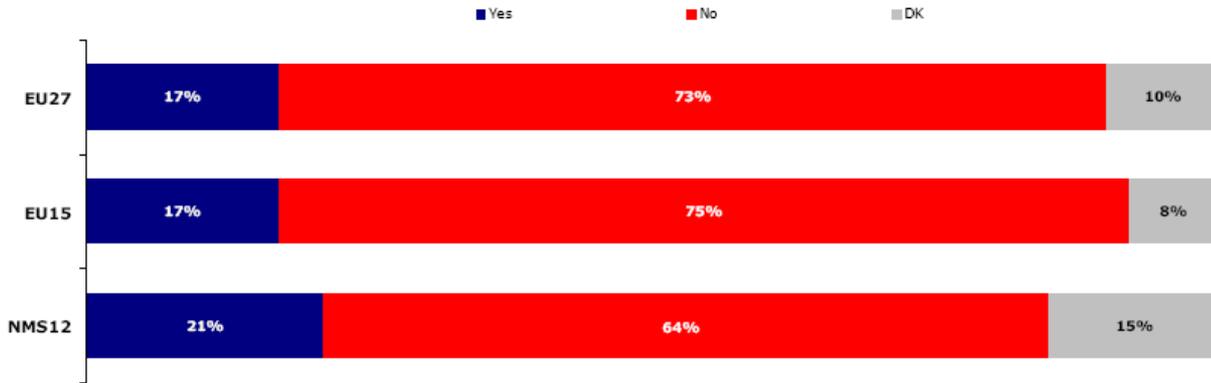
## Appendix

QC10. Do you envisage to work in a country outside (OUR COUNTRY) at some time in the future?



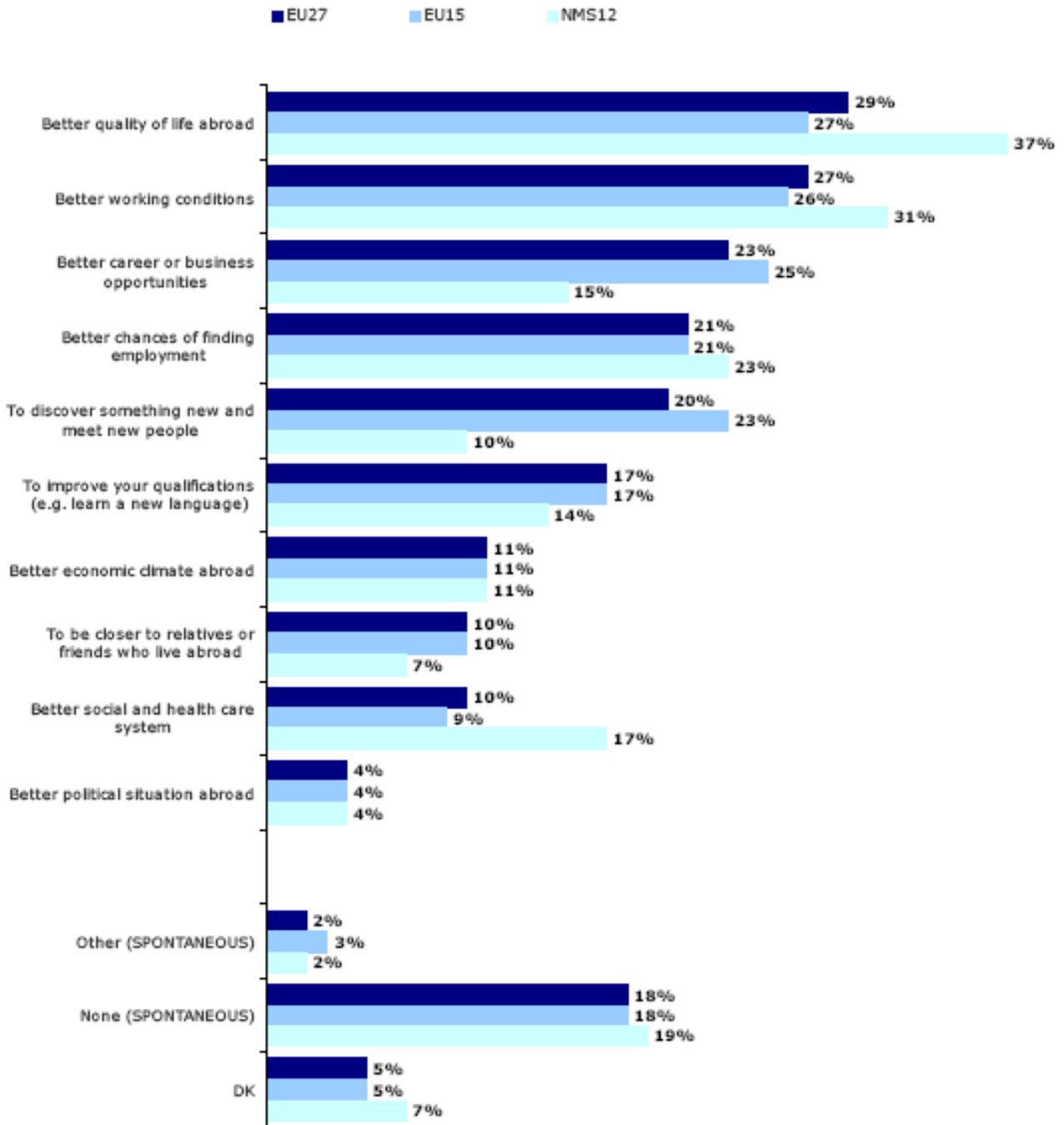
Graph 3. Per cent of population by country envisaging working abroad.  
 Source: European Commission Special Eurobarometer 337. "Geographical and labour market mobility", p.10

QC10 Do you envisage to work in a country outside (OUR COUNTRY) at some time in the future?  
(asked to all respondents except retired people, base = 19793 respondents) - % EU



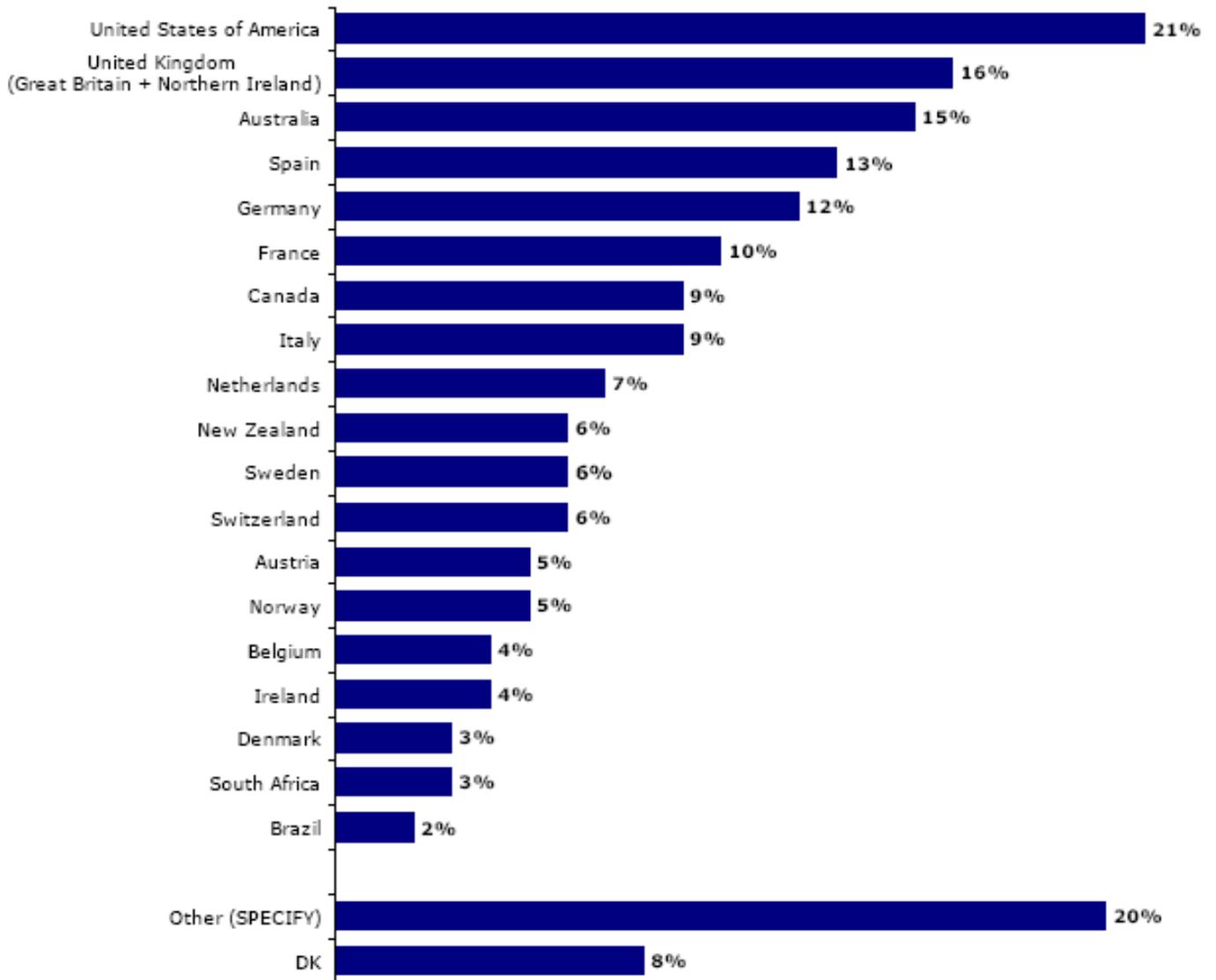
Graph 4. Per cent of population envisaging working abroad. Source: European Commission Special Eurobarometer 337. "Geographical and labour market mobility", p.9

QC26 Regardless of whether you have worked in another country or might do or not so in the future, what reasons might encourage you to work in another country? (ROTATE – MAX .3 ANSWERS)



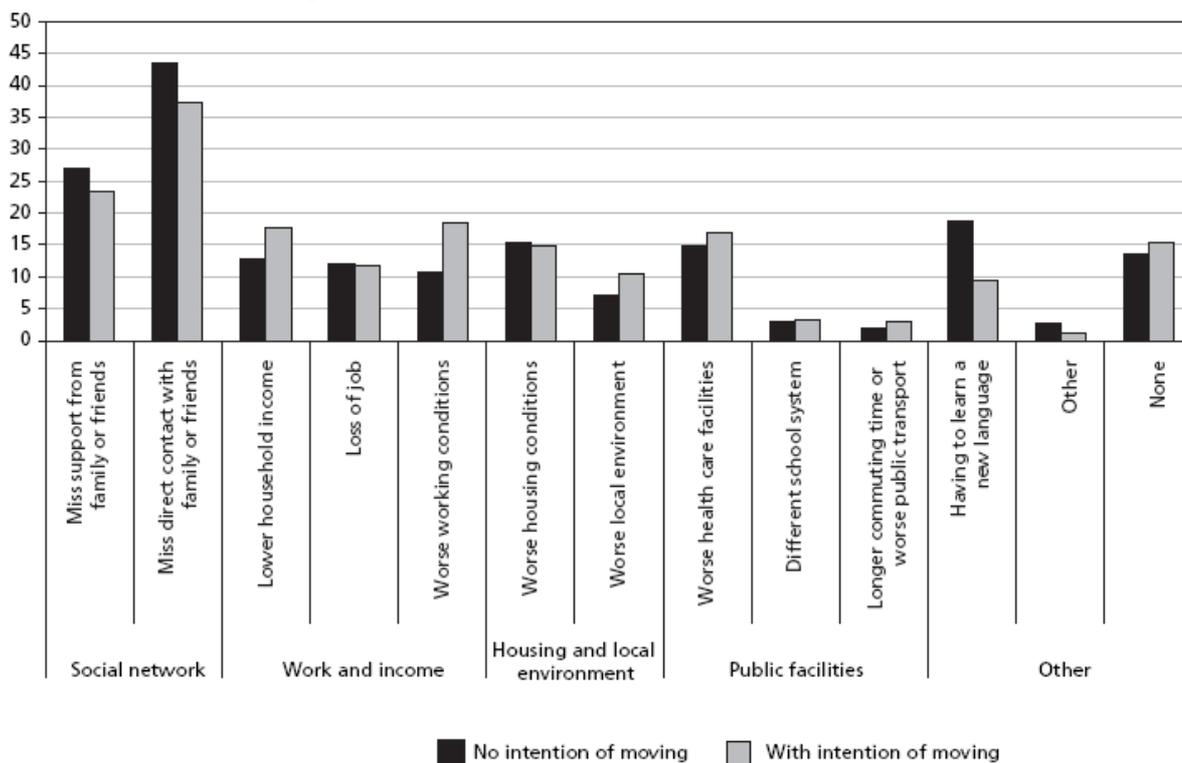
Graph 5. Reasons for wanting to work abroad. Source: European Commission Special Eurobarometer 337. “Geographical and labour market mobility”. p.106

**QC13 In which country(ies) would you prefer to work? (DO NOT READ OUT - MULTIPLE ANSWERS POSSIBLE)**  
 - % EU  
 (to those who indicated they envisage to work abroad, base = 3486 respondents)



Graph 6, Source: European Commission Special Eurobarometer 337. "Geographical and labour market mobility", p.32

### Factors that would discourage a move to another country, by intention to move in the next five years (%)



Graph 8. Factors that discourage moving to another country. Source: Janiak & Wasmer “*Mobility in Europe*”, p.25