



**“Does joining the European Union increase the happiness  
level in nations?”**

**TESIS PARA OPTAR AL GRADO DE  
MAGÍSTER EN ANÁLISIS ECONÓMICO**

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**Santiago, Junio 2018.**

# Does joining the European Union increase the happiness level in nations?

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Master Thesis MSc. Economics

University of Groningen, 6 June 2018

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**Abstract:** This paper aims to empirically test whether joining the European Union has increased the happiness level in nations. 12 European countries are analyzed over the time-period 1998-2017, and data is obtained from the World Database of Happiness, and the World Bank Group. The effect is measured by estimating a direct effect of joining the EU on the happiness in nations, and by estimating an indirect effect through the macroeconomic variables income, unemployment, and inflation. The main results are that over the period before the global financial crisis (1998-2007) a statistically significant positive direct relation is found between joining the EU and happiness, while the coefficient becomes insignificant when looking at the entire sample period (1998-2017). Moreover, over the period before the crisis, joining the EU had a significant indirect effect on happiness, through its significant direct positive effects on GDP per capita, and on the inflation rate, while these effects became insignificant when looking at the entire sample period. Finally, this paper empirically confirms the positive direct relation between income and happiness, and the negative direct relation between unemployment and happiness, and inflation and happiness.

**Keywords:** Happiness economics, European Union

**Course code:** EBM877A20

**JEL codes:** E100, F020, F530, I310

## **Introduction**

### *Happiness*

Since the 1950s, there has been an increase in the field of happiness research. The term 'happiness' is often used interchangeably with the term 'subjective well-being', and it is therefore no surprise that a measure of happiness is often compounded by putting together an enormous amount of survey questionnaires (Easterlin, 2001). The broad definition of happiness, that will also be used in this study, is provided by Wolfram Alpha (2009), that defines happiness as 'a mental or emotional state of well-being which can be defined by, among others, positive or pleasant emotions ranging from contentment to intense joy'. The relevance of the field of happiness research can already be traced back to the year 350 Before Christ, when Greek philosopher and scientist Aristotle wrote one of his most famous works, the Nicomachean Ethics. The key question in this work, is about the ultimate purpose of human existence. Aristotle answers this question by stating that happiness is the ultimate goal in life, and that all other aspects are merely a means to achieve the ultimate end of happiness itself (Aristotle, trans. 2004). Oswald (1997) builds on this theory, by stating that economic performance is not intrinsically interesting, and that economic performance should only be considered relevant to the extent to which it makes people happier. For the reasons mentioned above, this research aims to zoom in on the fundamentally most important aspect of life, namely happiness, and categorizes economic activity merely as a means to achieve this end.

### *European Union*

Collaboration in Europe, as we know it today, already started to arise shortly after the Second World War. The original members, Belgium, France, Italy, Luxembourg, the Netherlands, and West-Germany, formed the European Coal and Steel Community (ECSC) in 1951, and a basis for future collaboration was put in place. About 40 years later, in 1993, the Maastricht Treaty came into existence, formally establishing the European Union (EU) (Craig & De Burca, 2011). In present days, the EU has become a major world trading partner and its importance becomes evident when looking at the numbers published on the official website of the EU. It there states that the EU's economy, measured in terms of the goods and services it produced (GDP), was €14,600 billion in 2015 (which was more than that of the

United States). Moreover, with just 6.9% of the world's population, the EU accounts for 20% of global imports and exports, with more than 62% of the EU's total trade that is done with other EU countries. It is clear that over the last decades the EU has become one of the most important organizations in the world, and its influence is being felt by many people in multiple continents.

### *European Union goals*

The purpose of the EU is well described in an action and development plan that was adopted in 2000, called the Lisbon Strategy. Objectives that were named in this plan were for Europe to become the most competitive and dynamic knowledge-based economy, capable of sustainable economic growth with more and better jobs and greater social cohesion. Simultaneously, the strengthening of greater social cohesion was seen as a way of improving living conditions, and thereby improving the quality of life of the European citizens (Shucksmith et al., 2009). Additionally, on its official website, the EU lists their main goals and values, and starts off by stating that a main goal of the EU is to promote the well-being of its citizens. In order to achieve this goal, the EU aims to improve its citizens' welfare, as well as to adjust living and working conditions, and to reduce the living disparities in levels of development (Delhey, 2001). The European Commission (1997) added to this that cohesion among the member states is seen as one of the core pillars of integration, together with the Economic and Monetary Union, and the Single Market, which are all seen as vitally important ways of improving living conditions. The EU's Social Policy, therefore, aims to promote social cohesion, to empower people and to enable them to take advantage of social change, and to improve the quality of their lives (Shucksmith et. al., 2009).

### *European Union critique*

Already since the start of the EU there has been a lot of Euroscepticism. This is most pronounced in the radical right-wing parties that are present in Europe. The core ideology of these right-wing parties is that Europe consists of unique nations with differences that have to be preserved, and political and cultural European integration does not fit in with this ideology (Rydgren, 2007). Moreover, a study from Taggart and Szczerbiak (2002) shows that all countries, except Bulgaria, that were EU-candidates in 2002, had parties with euro-sceptical programs. Additionally, nearly all radical right-wing parties agree that the EU is a

bad entity and claim that the EU should either be reformed fundamentally, or even be abolished in total (Muddle, 2007). The main critique on the EU can be divided into three categories, being economic, cultural, and institutional factors (McLaren, 2002). Moreover, Hooghe and Marks (2007) state that Euroscepticism is not only a right-wing issue, but that the political right claims that European integration undermines national identity and independence, while the political left is concerned that European integration has a bad effect on social protection. A last line of reasoning is that the EU is conceived as a threat to the current status quo (Hooghe and Marks, 2009; Kriesi, 2007).

Another interesting fact, published in the 2017 World Happiness Report, is about the happiness score per country averaged over the years 2014-2016. The data indicates that the top 5 happiest countries in the world are respectively Norway, Denmark, Iceland, Switzerland, and finally Finland. What stands out, is that Norway (1), Iceland (3), and Switzerland (4) are European countries that are not a member of the EU, but do belong to the happiest countries in the world. Also, Bulgaria (105), Portugal (89), Greece (87), Croatia (77), and Hungary (75) are poor performing countries on the happiness index that are members of the EU. This data raises the question as to what extent joining the EU actually contributes to the subjective well-being of its citizens, and whether the countries that have decided not to become a member might have made the right choice.

### *Research question*

To summarize the previous sections, the field of happiness research has become increasingly important over the past decades, and it is argued that happiness can be seen as the most fundamentally important goal in life. This also comes forward in the strategy of the EU, which states that a main goal of the EU is to promote well-being among its citizens, and that the EU's Social Policy, therefore, aims to promote social cohesion, to empower people, and to enable them to take advantage of social change, in order to improve the quality of their lives (Shucksmith et. al., 2009). There has been, however, serious criticism about the EU obtaining too much power and that there is too much focus on integration. Finally, an interesting fact is that there are quite some EU members with a low score on the happiness index, and that the nations with the highest happiness scores are European nations that are not a member of the EU. In order to answer the question on whether joining the EU has indeed improved the well-being of citizens, or to conclude that the critics of the EU do

have a point, this paper is going to empirically test whether joining the EU increases the happiness level in nations. The research question that will therefore be answered is the following:

*Does joining the European Union increase happiness in nations?*

To my knowledge, there has been only one previous study that aimed to estimate the effect of joining the EU on happiness levels in countries. This was done by Nikolova and Nikolaev (2017), when they examined the effect of joining the EU on individual life satisfaction in Bulgaria and Romania in the context of the 2007 enlargement. This paper specifically adds to this literature by widening the scope to 12 countries that became a member after 2003. In order to answer the research question, happiness data per country is obtained from the World Database of Happiness, other indicators are obtained from the World Bank Group, and consequently, several regression have been carried out.

The remainder of this paper will be organized as follows. The next section will begin with describing a theoretical framework, where a definition of all the concepts will be given, and their theoretical link to happiness will be described. Then, all the data that is used will be summarized, and the method used will be explained. Consequently, the results will be presented, and some specification tests will be performed. The next chapter will then answer the research question, and provide an elaborate discussion about the additional macroeconomic variables and their theoretical expectations. Finally, a concluding chapter will provide a short summary, discuss implications, and will pose some limitations and suggestions for future research.

### **Theoretical Framework**

This section will discuss the relevant literature already available concerning the main variables that will be analyzed in this paper. The dependent variable, and thereby the most important one, is happiness. The most important independent variable is membership of the EU, and the other independent macroeconomic variables that will be included in this study are income, unemployment, and inflation.

## *Happiness*

As already mentioned in the introduction, the field of happiness research has become increasingly important over the past few decades. The definition of happiness that will be used in this research, is provided by Wolfram Alpha (2009), that defines happiness as ‘a mental or emotional state of well-being which can be defined by, among others, positive or pleasant emotions ranging from contentment to intense joy.’ The determinants of happiness, however, have not yet been discussed. In their paper, Frey and Stutzer (2000) claim that happiness (or individual well-being) is determined by three different sources. They differentiate between personality and demographic factors, micro- and macroeconomic factors, and institutional (or constitutional) conditions. When discussing personality and demographic factors, one can think of quantifiable characteristics of an individual, like age, gender, education, nationality, religion, culture, race, etc. About the effect of micro- and macroeconomic variables on happiness there has been performed a lot of research already (Mingtao, 2010). The most commonly named factors are income (Easterlin, 1974; Diener & Oishi, 2000), unemployment (Clark & Oswald, 1994; Winkelmann & Winkelmann, 1998), and inflation (Di Tella et al., 1997). Finally, institutional conditions should be linked to democracy and federalism, and include the effect federal institutions have on the subjective well-being of individuals (Frey & Stutzer, 2000). This research will take the most commonly named macroeconomic factors income, unemployment, and inflation into consideration, and will control for the personality and demographic factors. Furthermore, this research will also include whether a country is a member of the EU, which is relatively new in academic research. The institutional condition will be captured by including membership of the EU, since it is expected that joining the EU will have a positive effect on the institutions of a country. This can be explained by the fact that countries are only allowed to join the EU when they adhere to the ‘Copenhagen criteria’, that include all sorts of institutional improvements which will be further elaborated on in the following section.

## *European Union membership*

The main independent variable that will be analyzed in relation to happiness is membership of the EU. As already mentioned in the introduction, one of the main goals of the EU, as stated on their official website, is to promote the well-being of its citizens. However, before the actual analysis of how the EU policies influence the well-being of its citizens can begin, it

is beneficial to start with further defining the dimensions that together form welfare. To do this, this paper will make use of the framework of Delhey (2001), where he distinguishes between three different aspects of welfare, namely, material living conditions, measures of quality of society, and subjective evaluations of well-being. Material living conditions can be defined as the life circumstances that depend on economic factors, such as income, standard of living, housing, working conditions, and infrastructure. In contrast to the material living conditions, the quality of society refers to the 'liveability' of a society (Veenhoven, 1997). This term describes the characteristics and institutions of a society, and these characteristics cannot simply be measured by aggregating individual conditions. Examples of this kind are the guaranteeing of civil liberties, and social protection. The final dimension that is named by Delhey (2001), is subjective well-being, which includes the general as well as the specific evaluations of living conditions.

Consequently, Delhey (2001) describes the three main channels of EU policy through which these dimensions of welfare are influenced. The first being regional policy, that directly influences the material living conditions dimension, the second being economic integration, which also directly influences material living conditions, and the third being institutional adjustments, which directly influences the quality of society dimension. In a later stage, both the material living conditions and the quality of society dimensions influence the subjective well-being, and the quality of society also influences the material living conditions dimension. Taking all of this together, it can be concluded that EU policies directly (and indirectly) influence the different dimensions that together form welfare, and subjective well-being.

Building on Delhey's (2001) work, Nikolova and Nikolaev (2017) propose four different channels through which EU integration can directly influence the subjective well-being of its citizens. The first channel they describe is the adoption of shared economic and political institutions (modernization), the second is economic development, the third is the freedom of choice and life control perception, and the last channel is the social identity channel.

To start with, the first channel, the modernization channel, is about the benefits of the adoption of the EU rules and standards. In 1993, at the European Council in Copenhagen, the main accession criteria were defined, which were later referred to as the 'Copenhagen criteria.' These criteria stated that countries wishing to join the EU needed to have stable



institutions guaranteeing democracy, the rule of law, human rights, respect for and protection of minorities, a functioning market economy, the capacity to cope with competition and market forces in the EU, and the ability to take on and implement effectively the obligations of membership, including adherence to the aims of political, economic and monetary union (European Commission, 2016). When this is linked to the concept of 'procedural utility', introduced by Frey et al. (2004), who argue that individuals not only care about outcomes but also about processes, it can be assumed that countries derive utility from belonging to a system in which outcomes are determined by fair processes, which is inherent to EU (Nikolova & Nikolaev, 2017). This paper, therefore, makes the assumption that joining the EU will positively contribute to the happiness of the citizens, due to the additional procedural utility.

Secondly, the economic development channel rests on the assumption that the adoption of a common legal and economic framework stabilizes the economic environment, thereby making it more attractive for new businesses and investors (Nikolova & Nikolaev, 2017). Resting on this assumption, the expectation here is that joining the EU will create more growth opportunities, boost economic development, increase GDP, decrease inflation, decrease unemployment, and raise the standard of living of citizens. A more elaborate explanation of the relationship between the economic variables and happiness will be provided in next sections, but it should be clear that this paper expects positive results.

Next, the freedom of choice and life control perception channel is about the freedom of EU citizens to freely travel, work, study, invest, or retire abroad. There is already a lot of existing literature in psychology that shows that perceptions of freedom of choice and life control are a powerful motivator with implications for health, wealth, and happiness (Nikolova & Nikolaev, 2017). In addition, there have been a couple of empirical studies that confirmed the hypothesis of a sense of control and freedom being one of the most important subjective well-being determinants (Doyle & Youn, 2000; Inglehart, et. al., 2008; Verme, 2009). The hypothesis this research thus, again, makes, is that membership of the EU will contribute to the feeling of freedom of choice and life control, and will therefore positively influence the happiness in member states.

Finally, the social identity channel can influence the subjective well-being of people both in a positive and a negative manner. On the plus side, countries that joined the EU became a

member of the largest economy in the world, which could bring along a sense of pride, accomplishment, and belonging, that would raise the subjective well-being of people (Nikolova & Nikolaev, 2017). On the down side, however, some literature suggests that the level of satisfaction people experience about their lives, depends on how this level compares to people around them (Frank, 1999; Scitovsky, 1976). What this could mean for EU countries, is that countries compare themselves with other, very wealthy, members of the EU, which could cause them to experience negative self-images, and this lower socio-economic status could negatively affect the subjective well-being of people (Nikolova & Nikolaev, 2017).

To sum up, becoming a member of the EU could influence the level of happiness in nations in quite a number of ways. The most important ways in which the happiness level is influenced by the EU, are summarized in the work of Nikolova and Nikolaev (2017), where they describe four channels that could directly influence the subjective well-being of the citizens of the EU. These channels are the adoption of shared economic and political institutions (modernization), economic development, the freedom of choice and life control perception, and the social identity channel. Based on this already available research, this study has chosen to include, as main independent variable, membership of the EU, and aims to empirically test whether the theoretical predictions about the effects on the happiness level of the member states turn out to be true.

### *Income*

Another variable that will be included in this research is income. A couple of decades ago, Easterlin (1974) already found a noticeable positive association between income and happiness, and he showed that in every survey of his study, those individuals in the highest status group were happier than those in the lowest status group. On the other hand, Easterlin (1974) found a much weaker association when comparing at the country level, which he explains by the Duesenberry (1952) model, that emphasized the importance of relative income, and not absolute income. About twenty years later, Easterlin (1995) confirms this, by stating again that within a country, those with higher incomes are happier, but that raising the income of all does not increase the happiness of all. Additionally, Blanchflower and Oswald (2004) build on this theory, and their main findings contain that a higher income is associated with higher happiness, and that relative income matters per se.

Also, some studies have shown that, although GDP per capita has risen over time, the happiness levels of those countries remained constant (Frey & Stutzer, 2002; Di Tella et al, 2001). On the contrary, several studies have provided additional evidence that links income to happiness, like the link between higher income and more democracy, more respect for human rights, and more gender equality, which consequently all lead to a higher level of subjective well-being (Frey & Stutzer, 2002; Veenhoven, 2000; Easterly, 1999). All in all, when taking this wide variety of existing literature into account, this research has decided to hypothesize that a higher income will lead to a higher happiness level in countries, and therefore a positive coefficient is to be expected.

### *Unemployment*

The next variable that will be discussed in its relationship with happiness is unemployment. On this matter the literature has reached much more consensus than on the previous one, which was income. It is quite clear that there exists a positive correlation between unemployment and unhappiness, and this is due to a couple of reasons. First of all, Clark and Oswald (1994) state that the effect of being jobless is, at any conventional level, statistically significant and is negatively correlated with well-being. They even go a step further, by indicating that the negative effect of joblessness is larger than that of any other characteristic, including divorce and separation. The explanation they provide, is that the jobless people in their sample approximately had twice as high mental distress levels as those with jobs. Oswald (1997) adds to this that the worst thing about losing one's job is not the drop in income, but the stress that is not money related, and he claims that an enormous amount of extra income would be required to compensate people for having no work. The second reason why unemployment is linked to high levels of unhappiness, is due to the negative externalities unemployment has on society as a whole. This is the case since unemployment causes the employed to become more fearful of unemployment, and it lowers the amount of tax payers, while at the same time it increases the burden of the unemployment benefits that have to be carried by the smaller amount of tax payers (Blanchflower, 1991; Luechinger et al., 2010). Taken all of these arguments together, this research expects that unemployment will be negatively related to the happiness level in nations.

## *Inflation*

The last independent macroeconomic variable that will be analyzed in this research is inflation. Just like with unemployment, there isn't a lot of discussion about the sign of the effect inflation has on the happiness of people. Virtually everyone agrees that people's subjective well-being is a decreasing function of both the inflation rate and the unemployment rate (Di Tella et al., 2003). The main reasons why people dislike inflation are summarized in the work of Shiller (1997), where he begins by stating that people are concerned that inflation hurts their standard of living through price increases that are not met with wage increases. Secondly, Shiller (1997) states that inflation harms the standard of living by inhibiting economic growth. Other reasons named by Shiller are that inflation deceives people, or allows for people to deceive others, that inflation harms national morale, that inflation causes political chaos, and that inflation leads to a decline of currency value which is bad for national prestige. The theory is backed up by data from Di Tella et al. (2001), who state that a 1% increase in the inflation rate decreases the life satisfaction by 0.012 units. It is thus clear that a higher inflation rate, as well as a higher unemployment rate, has a negative association with the subjective well-being of people. However, this poses difficulties for the EU, since it is widely known that there exists an unemployment inflation tradeoff. This stems from the Phillips curve, which states that a wage rise, and thus a rise in the inflation rate, correlates with a decrease in unemployment (Phillips, 1958). It is therefore difficult for the EU to decide on the optimal level of inflation or unemployment, in order to maximize the happiness level of its citizens.

## **Data**

In order to analyze the effect of joining the EU on the happiness in nations, different European countries have been followed over the time-period of 1998-2017. From the literature, it is obtained that happiness is influenced by the macroeconomic variables income, unemployment, and inflation, and this research extends this list by adding membership of the EU as the main independent variable of interest.

Since the main variables of interest of this study are membership of the EU, and happiness in nations, it is of vital importance that there is a sufficient amount of data available on these matters. The data that is used in this research, concerning happiness, comes from the 'World

Database of Happiness', which is a dataset that starts in 1973 and provides yearly ratings of countries on the aspect of happiness, which are measured two times a year. Data on when (and which) countries joined the EU can be found on the official website of the EU, and data on the other variables (income, unemployment, and inflation) is obtained from the 'World Bank Group'. All the descriptive statistics on the different variables can be found in the appendix in table 1.

### *Happiness in the European Union*

To start with, the 'World Database of Happiness' is a collection of findings on happiness in nations, defined as the aggregation of subjective enjoyment of individual's life as-a-whole, assessed on a ten point scale. The data on the subjective happiness feeling, that is available for Europe, begins in the year 1973. For this reason, member states that entered the EU before 1973 (Belgium, France, Germany, Italy, Luxembourg, Netherlands, Denmark, Ireland, and the United Kingdom) are excluded from this research, since no data is available for this countries over the period before they became a member. Moreover, the dataset only provides data on Greece, Portugal, Spain, Austria, Finland, and Sweden from the moment that these countries joined the EU onwards, so that it is again not possible to include these countries in the research.

On the remaining countries, however, the dataset does provide numbers from before, and after, the moment of joining the EU. This is most profound in Romania, which joined the EU in 2007, and where the data provides happiness numbers from 1998-2015. Furthermore, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Slovakia, and Slovenia, have yearly data starting from the year 2001, while these countries have joined the EU in 2004. The only exception in this group is Poland (which entered in 2004), that has one measure in 2002, and then yearly measures from 2005 onwards. Finally, Croatia joined the EU in 2013, and has data available that ranges from 2006-2016 (with one missing value in 2008), and Bulgaria joined the EU in 2007, and has data available from 2001 onwards. For a summarizing table of the different European countries that are included in this study, and their year of entry in the EU, I refer to the appendix table 2.

To conclude, of the 28 countries that form the EU, the countries that have joined the EU before the end of 1995, with the addition of Poland (in total 16), cannot be included in this

research due to a lack of data. The countries that have joined the EU in, or after 2004, with again the exception of Poland (in total 12), can be included in this research, and can be used to estimate the relation between joining the EU and the happiness in nations. The actual data on the happiness scores per country is summarized in a graph in the appendix, and can be found in figure 1. What stands out, is that the lines within the graph are relatively flat, which indicates that the average happiness level in countries is a relatively slow changing process. Also, it can be seen that the absolute differences between countries are much larger at the beginning of the sample period, than they are at the end, which indicates that there is some kind of convergence in the average level of happiness between the countries.

### *Income*

The next variable that will be included in this study is income. In order to measure income, this study will use gross domestic product (GDP) per capita adjusted with the purchasing power parity (PPP). GDP with PPP represents the total collective purchasing power of a country in the US, when the currency is converted into dollars. GDP with PPP also takes into account the relative cost of living and the inflation rates, which makes it easier to compare different countries (compared to using nominal GDP per capita) on economic productivity and living standards, where a higher GDP per capita relates to a higher income level. The data is obtained from the World Bank Group, which provides data on every country in the study for every year over the period 1998-2016. The graphical representation of the data can be found in the appendix in figure 2. From this figure, it becomes quite clear that for every country in the sample, approximately the same upward sloping trend can be observed. Also, for every country in the sample, a peak can be found in 2008, which can be explained due to the start of the global financial crisis. It is obvious, that the crisis influenced all countries in this sample in a negative way, which causes the peak in the graph.

### *Unemployment*

The unemployment variable that will be included in this research, will be measured as the total percentage of the labor force that is without work but available and seeking for employment. As was explained in the theoretical framework, a high unemployment rate is expected to lead to a higher level of unhappiness. The data is, again, obtained from the World Bank Group, and data is available for the entire sample period (1998-2017), and for

every country, without missing values. For a summarizing graph, I refer to the appendix figure 3. In this figure, there are quite some things going on. It can be seen that in the first half of the graph, the general trend is downward sloping, up until the year 2008. In 2008, the unemployment rate started to rise in all countries in the sample, which can again be explained by the global financial crisis. Over the last years of the sample period, a downward sloping trend can, again, be observed.

### *Inflation*

The last independent macroeconomic variable that is included in this research, is inflation. Inflation here reflects the annual percentage change in the price level of goods and services in the economy. An increase in the inflation rate, thus means that the purchasing power of people drops, the real value of money drops, and the expectation therefore is that a high inflation rate has a negative effect on the happiness of nations. The data is obtained from the World Bank Group over the period 1998-2016, without any missing values. The data is again summarized in a graph, which can be found in the appendix in figure 4. It is seen here that, except for Bulgaria, the general trend is quite flat, again indicating that the inflation rate is a slow changing process. The only exception here is, once again, a peak in 2008, where the crisis rose the inflation rates quite significantly. It can thus be concluded that in all the macroeconomic variables, the global financial crisis caused quite a disturbance in the general trends, and divided the data into two parts (a before 2008, and an after 2008).

### **Method**

This chapter will provide an explanation as to how the research question on how joining the EU affects the happiness in nations will be answered. First, the different regressions that will be carried out will be described. Second, an extra regression from before the global financial crisis will be posed. Third, an indirect effect will be measured, and at last, the ways in which this research will deal with certain problems concerning the error term will be explained.

### *Model*

As already mentioned in the introduction, the main research question that this research aims to answer is: *Does joining the European Union increase happiness in nations?* A logical first step in answering this question, is therefore to estimate a standard OLS regression with HAPPINESS as the dependent variable and membership of the EU (EUMEM) as the

independent variable, to see whether there exists a connection between the two. The first regression this research will estimate, can therefore be specified as:

$$(1) \text{HAPPINESS}_{it} = \beta_0 + \beta_1 \text{EUMEM}_{it} + \mu_{it}$$

Where  $\beta_0$  represents the constant, HAPPINESS is the average happiness level of country  $i$  in year  $t$ , EUMEM is a dummy variable that has the value 1 if country  $i$  in year  $t$  was a member of the EU, and a 0 if country  $i$  in year  $t$  was not a member of the EU, and  $\mu_{it}$  is an error term.

Next, the standard OLS regression is broadened by the inclusion of the independent macroeconomic variables that were obtained from the literature, and were defined in the theoretical framework. This is expected to enhance the explanatory strength of the model, and will probably lead to a higher coefficient of determination (R-squared). The second regression that will be specified in this research therefore is:

$$(2) \text{HAPPINESS}_{it} = \beta_0 + \beta_1 \text{EUMEM}_{it} + \beta_2 \text{GDP}_{it} + \beta_3 \text{UNEMPLOYMENT}_{it} + \beta_4 \text{INFLATION}_{it} + \mu_{it}$$

Where  $\beta_0$  represents the constant, HAPPINESS is the average happiness level of country  $i$  in year  $t$ , EUMEM is a dummy variable that has the value 1 if country  $i$  in year  $t$  was a member of the EU, and a 0 if country  $i$  in year  $t$  was not a member of the EU, GDP is the gross domestic product per capita of country  $i$  in year  $t$  (measured in US dollars x1000), UNEMPLOYMENT is the unemployment rate in % of country  $i$  in year  $t$ , INFLATION is the rate of change of consumer prices in % of country  $i$  in year  $t$ , and  $\mu_{it}$  is an error term.

The final main regression that will be analyzed in this research complements the previous one by adding year fixed effects and country fixed effects. The year fixed effects capture global shocks that are common to all countries, and the country fixed effects capture all possible country specific influences that could have an effect on the happiness level in nations. By controlling for year and country fixed effects, it is made sure that the relation between the dependent and the independent variable is not caused by some unobserved heterogeneity. Also, as was made clear in the theoretical framework, demographic factors like culture and nationality could have an influence on the happiness levels, and by including country and year fixed effects this research controls for these unobserved influences. To sum up, the final main regression that will be used in this research can be specified as:



$$(3) \text{HAPPINESS}_{it} = \beta_0 + \beta_1 \text{EUMEM}_{it} + \beta_2 \text{GDP}_{it} + \beta_3 \text{UNEMPLOYMENT}_{it} + \beta_4 \text{INFLATION}_{it} + \varepsilon_i + \delta_t + \mu_{it}$$

Where  $\beta_0$  represents the constant, HAPPINESS is the average happiness level of country  $i$  in year  $t$ , EUMEM is a dummy variable that has the value 1 if country  $i$  in year  $t$  was a member of the EU, and a 0 if country  $i$  in year  $t$  was not a member of the EU, GDP is the gross domestic product per capita of country  $i$  in year  $t$  (measured in US dollars x1000), UNEMPLOYMENT is the unemployment rate in % of country  $i$  in year  $t$ , INFLATION is the rate of change of consumer prices in % of country  $i$  in year  $t$ ,  $\varepsilon_i$  is a country fixed effect,  $\delta_t$  is a year fixed effect, and  $\mu_{it}$  is an error term.

#### *Before crisis*

In addition to the previous regressions, this research will also run the third model (which included the independent macroeconomic variables and controlled for year and country fixed effects) over the period before the global financial crisis in 2008. This will be done because it stands out, when looking at the descriptive graphs of the data, that there is a peak in the data of all the independent macroeconomic variables in the year 2008 (the start of the global financial crisis). This peak could very likely distort some of the actual relations, and in order to be able to truly isolate the effect of the independent variables on the happiness in nations this research has chosen to also analyze regression 3 over the period 1998-2007. The only problem in the dataset is that in this period Croatia cannot be included. Croatia namely joined the EU in 2013, so they were not a member during the period 1998-2007, and can therefore not be included in this regression. The other 11 countries were already a member in 2007, so it is no problem to include them in the regression.

Summarizing, regression 4 will be done exactly the same as regression 3, only with 11 countries (without Croatia), and over the time-period 1998-2007, to see whether the results are different when ignoring the disturbance of the global financial crisis.

#### *Indirect effect*

Besides the direct effect of joining the EU on the happiness in nations that this research aims to investigate, this research also aims to indicate whether an indirect effect is present. This is done, since it is quite plausible to assume that joining the EU also has an effect on the three different macroeconomic variables, which in turn might have a direct effect on the

happiness in nations. In order to analyze this indirect effect, 12 additional standard OLS regressions will be run with EUMEM as only independent explanatory variable. The dependent variables will then in turn be GDP, UNEMPLOYMENT, and INFLATION. First, all of the regressions will be run over the entire sample period, starting with the inclusion of year and country dummies, then with only year dummies, and finally with only country dummies. Second, the indirect effect will also be measured over the period before the global financial crisis only (1998-2007), including both year and country fixed effects. This is again done to see whether the disturbance of the crisis has altered the results. If an indirect is discovered, it can be stated that, besides the direct effect, joining the EU also has an indirect effect on the happiness in nations via its direct effect on the different macroeconomic variables.

### *Specification tests*

In order to solve some of the potential problems concerning the error term of the regressions, and to make sure that the results are as precise as possible, this research has undertaken a couple of steps. First of all, to see whether year and country fixed effects were needed to be included, this research has performed a joint test to see if the dummies for all years and all countries were equal to 0. The results turned out to be highly significant so it could be concluded that the inclusion of year and country fixed effects would improve the model. Secondly, in order to address the problem of heteroskedasticity this research ran all of the regressions by using White standard errors, which are heteroskedasticity robust. Third, simultaneity is ignored in this research, since it is perceived highly unlikely that happiness has an influence on the exogenously given independent variables in this research, and finally, autocorrelation is not perceived as much of a problem since there is no lag in the dependent variable.

### **Results**

In the current section the outcomes of the regressions described in the method section will be provided and briefly summarized. First, the results concerning the direct effect of EUMEM and the macroeconomic variables on the happiness level in nations will be summarized in a table. Second, a table will be presented in which the direct effect of EUMEM on the macroeconomic variables will be provided, indicating a possible indirect effect of EUMEM on

the happiness level in nations, and additionally, all numbers and their meaning will be further explained.

*Direct effect*

Table 3: *The effects of the independent variables on the happiness level in nations.*

	(1)	(2)	(3)	(4) Pre 2008
EUMEM	0.61*** (0.15)	-0.48*** (0.10)	0.09 (0.11)	0.26*** (0.09)
GDP		0.10*** (0.01)	0.08*** (0.01)	0.12*** (0.03)
UNEMPLOYMENT		-0.03*** (0.01)	-0.02*** (0.01)	-0.04*** (0.01)
INFLATION		-0.01** (0.01)	-0.02*** (0.00)	-0.02*** (0.01)
Year Dummy	No	No	Yes	Yes
Country Dummy	No	No	Yes	Yes
No. of Obs.	186	182	182	80
R <sup>2</sup>	0.10	0.70	0.96	0.97

**Notes:** (1) Robust standard errors are in parentheses. (2) Significance: \*\*\* = 1%, \*\* = 5%, \* = 10%. (3) Dependent variable is the average happiness in nations. (4) The constant is not reported since it is uninformative.

To start with, regression (1) in Table 3 describes the standard OLS specification with one independent variable (EUMEM), and one dependent variable (HAPPINESS). The macroeconomic variables have not been included and there is no control for year or country fixed effects. As the table shows, the variable EUMEM has a coefficient of approximately 0.61, and is significant at the 1% level. This would mean that becoming a member of the EU would rise the average level of happiness in that country by 0.61 (on a ten-point scale). However, the R-squared is only about 0.10, which means that the explanatory power of the model is relatively low.

The second regression (2) describes the OLS specification that does include the three macroeconomic variables, but still does not include year or country fixed effects. It can

immediately be seen that the R-squared rises to 0.70, which means that the addition of the macroeconomic variables has led to a huge increase in the explanatory power of the model. Moreover, it stands out that the coefficient EUMEM became negative at -0.48, and the variables GDP, UNEMPLOYMENT, and INFLATION, respectively have values of 0.10, -0.03, and -0.01. In this model, the variables EUMEM, GDP, and UNEMPLOYMENT are all significant at the 1% level, and INFLATION is significant at the 5% level. For the variable GDP, this number means that for every 1000 dollar increase in the level of GDP per capita, the average happiness in that country rises by 0.1. For UNEMPLOYMENT it means that if unemployment rises with 1%, the average happiness declines with 0.03, and for every percentage point price rise of the level of goods and services (INFLATION), the average happiness declines with 0.01.

In regression (3), the final model, all the macroeconomic variables, including the year and country fixed effects, are included. The R-squared again increases a lot, to 0.96, so this model again has more explanatory power than the previous one. Surprisingly, in this model it is the first time that the main variable of interest, EUMEM, is not significant at all. The other three variables are, however, significant at the 1% level with a GDP coefficient of 0.08, an UNEMPLOYMENT coefficient of -0.02, and an INFLATION coefficient of also -0.02.

The last regression (4) that was run, had the same specification as the third regression, only the dataset was analyzed up until the year 2007 (one year before the global financial crisis). When comparing to the results of regression 3, it turns out that the R-squared virtually does not change. What is interesting, however, is that the main variable of interest (EUMEM) now becomes significant at the 1% level, with a coefficient of 0.26. This means that according to the final model, over the period before the global financial crisis, happiness in countries rose by 0.26 when they became a member of the EU. Also, the other macroeconomic variables are still significant at the 1% level with the same sign as in regression 3, but all with a greater magnitude. GDP now has a coefficient of 0.12, UNEMPLOYMENT of -0.04, and INFLATION of -0.02.

*Indirect effect*

Table 4: *The effect of joining the EU on the macroeconomic variables.*

	(1)	(2)	(3)	(4) Pre 2008
GDP	0.22 (0.41)	5.75 <sup>***</sup> (0.91)	10.25 <sup>***</sup> (0.40)	1.27 <sup>***</sup> (0.37)
UNEMPLOYMENT	0.72 (0.69)	-2.09 <sup>***</sup> (0.68)	-1.04 <sup>***</sup> (0.37)	0.64 (1.13)
INFLATION	1.04 (1.40)	-0.82 (0.74)	-4.35 <sup>***</sup> (0.87)	11.55 <sup>**</sup> (4.94)
Year Dummy	Yes	Yes	No	Yes
Country Dummy	Yes	No	Yes	Yes

**Notes:** (1) Robust standard errors are in parentheses. (2) Significance: \*\*\* = 1%, \*\* = 5%, \* = 10%. (3) Dependent variables are the macroeconomic variables. (4) independent variable is EUMEM. (5) The constant is not reported since it is uninformative.

To start with, column (1) in table 4 shows the effects of joining the EU on the GDP per capita, unemployment, and inflation levels in nations, while controlling for year and country fixed effects. As the table shows, the coefficient of EUMEM is statistically insignificant for all the macroeconomic variables, so it is impossible to conclude that an indirect effect is present based on these three regressions. A possible explanation for the insignificance could be that the year and country fixed effects capture too much of the variation, so the next 2 regressions will be run with only one of the two controls, in order to check whether a significant result can be found.

Column (2) describes the outcomes of the regressions when only controlled for year fixed effects, and ignoring the country fixed effects. As immediately can be seen, the variable EUMEM now has a highly significant positive effect on GDP, and a highly significant negative effect on UNEMPLOYMENT. More specifically, this means that joining the EU increases the level of GDP per capita by 5,750 dollar, and decreases the level of unemployment by 2.09%. The variable INFLATION is insignificant, which means that no real effect of joining the EU on the level of inflation can be found here.

The third column (3) describes the outcomes of the regressions when controlling for country fixed effects, and ignoring the year fixed effects. In these regressions, it turns out that joining the EU has a highly significant effect on all three macroeconomic variables. In detail, joining the EU increases the level of GDP per capita by 10,250 dollar, decreases the level of unemployment by 1.04%, and decreases the inflation rate by 4.35%.

The last column (4) describes the effects of joining the EU on the macroeconomic variables, while controlling for year and country fixed effects (just like the first column), but now only over the period before the global financial crisis. This is done in order to see whether, besides a direct effect, an indirect effect was present in the period up until the year 2007. If this is the case, the already significant positive coefficient described in table 3, concerning the direct effect of joining the EU on the happiness in nations, should in reality be different, since an additional effect via the macroeconomic variables is also present. The results show that EUMEM has a significant positive effect on GDP, an insignificant effect on UNEMPLOYMENT, and also a significant positive effect on INFLATION. More specifically, joining the EU increases the level of GDP per capita by 1,270 dollar, and also increases the inflation rate by 11.55%, in the period before the crisis.

## **Discussion**

In this section, a final answer on the research question: *Does joining the European Union increase happiness in nations?* will be provided based on the previously described results, summarized in table 3 and table 4. Moreover, the relation between the macroeconomic variables GDP, UNEMPLOYMENT, INFLATION, and HAPPINESS will be discussed, and a link with the theoretical expectations described in the theoretical framework chapter will be made.

### *Direct effect of joining the European Union on the happiness in nations*

First of all, when looking at the results in table 3 in the results section, it is not a priori clear what the direct effect of joining the EU is on the happiness in nations. It can be seen that in regressions 1, 3, and 4 there is a positive coefficient, while in regression 2 there is a negative coefficient. Also, what stands out is that the only coefficient, concerning membership of the EU, that is not statistically significant at the 1% level can be found in the final model, in regression 3. From the fact that the R-squared is so much higher in model 2 than in model 1,

and higher in model 3 and 4 than in model 2, it is concluded that model 3 and 4 are the models that explain most of the variation in the happiness levels, followed by model 2. The reason that the R-squared is so extremely high, probably has to do with the inclusion of year and country fixed dummies, that capture a lot of the variance. From the fact that the macroeconomic variables are highly significant in model 2 (and change the sign of the coefficient), and the year and country fixed effects are significantly different from 0 in model 3 and 4, it can be concluded that models 1 and 2 suffer from an omitted variable bias, and that models 3 and 4 should therefore be preferred. Also, since model 1 does not at all include other variables besides EUMEM, the coefficient in model 1 should only be seen as a sort of correlation coefficient, and not per se as anything explanatory.

Since it is concluded that model 3 and 4 are the preferred models to look at, it now makes sense to take a closer look at the implications that come along with these two models. First of all, it can be seen that both coefficients are positive, implying that there is by no means a negative direct relation between joining the EU and the happiness in nations, based on the dataset used in this study. When looking at the entire sample period however (model 3), it turns out that the EUMEM variable is not statistically significant. This does not per se mean that there is no relation whatsoever, but it just means that on the basis of this dataset it cannot definitively be concluded that a causal relation exists. When taking a look at the sample period before the crisis (model 4), it can be seen that there is a strongly significant relation with a positive coefficient of 0.26. This means that, in the period before the crisis, according to regression 4, when a country became a member of the EU the average happiness level in that country rose by 0.26 points on a ten-point scale.

All things considered, it is not particularly straightforward to be able to define the direct effect of joining the EU on the happiness in nations. When looking at the theoretical expectations, it becomes clear that a main goal of the EU is to improve the subjective well-being (happiness) of its citizens, but it can be concluded that during the entire sample period (1998-2017), there is no statistical evidence found that joining the EU has actually directly increased the happiness in nations. On the other hand, when analyzing the period from before the global financial crisis only (1998-2007), a statistically significant positive relation is found, and it can be concluded that becoming a member of the EU, as described in their goals, has indeed directly increased the happiness levels in these nations. When taking these

two contradictory results into consideration, it can be stated that the EU was very effective in increasing the happiness levels of nations up until the crisis, but that the crisis has distorted so much, that it cannot be concluded any more for the entire sample period. Possible explanations for the distortion due to the crisis can be found when looking at the descriptive graphs of the data in the appendix. It can be seen that in 2008 (the year of the crisis) there was a huge drop in the level of GDP, an enormous rise in unemployment levels, and an increase in the inflation rate. Since the results in table 3 show a significant positive effect of GDP on happiness, and a significant negative effect of unemployment and inflation, it is quite likely that the crisis has distorted the happiness levels in countries so much, that it is impossible to find a significant positive result for joining the EU over the entire sample period. This might also explain why, when looking only at the period pre-crisis, the coefficient concerning membership of the EU is significant, since the impact of the crisis has not yet taken place.

#### *Indirect effect of joining the European Union on the happiness in nations*

In order to be able to say whether joining the EU also has an indirect effect on the happiness level in nations, through the effect on the macroeconomic variables, the results in table 4 have to be interpreted. What immediately can be seen from column (1), is that joining the EU does not significantly affect any of the macroeconomic variables, when including year and country fixed effects. This can be interpreted as evidence against a possible indirect effect. When including only one of the two controls (either year or country fixed effects), it can be seen that most of the coefficients are highly significant. Joining the EU then has a positive effect on the GDP per capita, and a negative effect on the unemployment level and the inflation rate. It could be that too much variance is captured by the year and country fixed effects when including them both, so that the coefficient becomes insignificant, but the results from table 4 provide at most weak evidence in favor of an indirect effect over the entire sample period.

When looking at column 4, however, it can be seen that over the period before the global financial crisis, there are some significant results. As it turns out, joining the EU has a significant positive effect on both the GDP per capita and the inflation rate. This means, that over the period before 2008, joining the EU increased the GDP per capita by 1,270 dollar, increased the inflation rate by 11.55%, while leaving the level of unemployment unaffected.



It can thus be concluded that in the pre-crisis period, besides the direct effect, joining the EU also had an indirect effect on the level of happiness in nations, through its effect on the GDP per capita and the inflation rate. The coefficients in column 1 and 4 should be taken most seriously, since a joint test showed that the year and country dummies are statistically different from 0, and therefore should be included. Everything considered, it can thus be stated that over the entire sample period there is, at most, weak evidence for an indirect effect of joining the EU on the happiness in nations through the macroeconomic variables, but this evidence is far from conclusive. However, over the sample period before the crisis, significant results indicate that an indirect effect is present through the effect of joining the EU on the GDP per capita and the inflation rate.

#### *Channels through which joining the European Union influences happiness*

To sum up the two previous sections, a direct significant positive effect of joining the EU on the happiness in nations is found when looking at the sample period before the crisis, while this direct effect is absent when analyzing the entire sample period. Moreover, an indirect effect of joining the EU on the happiness in nations, through the effect on the macroeconomic variables, is also discovered over the period before the crisis, but only weak evidence for an indirect over the entire sample period is found. This research therefore assumes that the coefficient over the entire sample period is correct, since the evidence in favor of an indirect effect was far from conclusive, but that the coefficient over the sample period before the crisis is in reality different. This because joining the EU has a significantly positive effect on the GDP per capita, as well as a significantly positive effect on the inflation rate. Since GDP per capita has a significantly positive effect on the happiness in nations, and inflation a significantly negative effect, the total indirect effect is ambiguous, and it is therefore hard to conclude whether the total indirect effect is positive or negative, and thus if the coefficient is under- or overestimated. What is clear though, is that the total effect that joining the EU has on the happiness in nations should also include the indirect effect, in the period before the crisis.

When these findings are linked to the theory, in which the four channels were described through which the EU could influence the happiness in nations, some conclusions can be drawn. To recall, the four channels were the adoption of shared economic and political institutions (modernization), the economic development channel, the freedom of choice and

life control perception channel, and at last the social identity channel. It is quite obvious that the second channel, the economic development channel, is linked to the macroeconomic variables in this research, and this research assumes that the other three channels are captured by the variable EUMEM. Since the results showed no significant direct or indirect effect over the entire sample period, this research finds it impossible to draw conclusions with respect to the different channels over the entire sample period. Over the period before the crisis, however, some conclusions can be drawn from the results. It can be seen that the indirect effect of joining the EU through the macroeconomic variables is ambiguous, so it is quite likely that the economic development channel is not causing the results. What remains, is that the other three channels, the modernization channel, the freedom of choice and life control perception channel, and the social identity channel, most likely cause the significant positive coefficient that joining the EU has on the happiness in nations over the period before the crisis.

#### *Macroeconomic variables*

The relation that the macroeconomic variables have with the happiness levels in nations is much more obvious, compared to joining the EU, when looking at table 3 in the results section. It can namely be seen that all the macroeconomic variables have the same sign in all regressions that they were included in, and that they all were highly significant in all regressions.

To start with, the variable GDP has a positive coefficient and is statistically significant at the 1% level in all 3 regressions. This means that an increase in the level of GDP per capita in a country, also increases the average happiness level of that country. More specifically, a one thousand dollar increase in the level of GDP per capita in a particular country, increases the average level of happiness in that country by about 0.10, on a ten-point scale. The results confirm some of the already existing literature concerning income. As was mentioned in the theoretical framework, a strong link between income and happiness was already discovered, but some studies also found that, in some countries, although GDP per capita has risen over time, the happiness level of those countries remained constant. The results in this paper, however, show that an increase in income raises the average happiness level in nations. It is important to note that the measure that was used here was the average happiness level in nations, so that the existing literature could still be correct, if it would mean that only the

happiness levels of the groups with the highest rise in income would have been higher, thereby increasing the total average. It could therefore be important to find out what groups in society benefit most from membership of the EU, and whether this is beneficial for the country as a whole.

The next macroeconomic variable of interest in this study, UNEMPLOYMENT, also shows clear results. Again, in all 3 regressions in which UNEMPLOYMENT was included, the same (negative) sign was found, and all coefficients were statistically significant at the 1% level. The coefficient approximately has a value of -0.03, which means that if the level of unemployment in a particular country rises with 1%, the average level of happiness in that country drops by 0.03. When looking at the theory, this results exactly confirm what was already expected. The theory namely predicts that unemployment declines the happiness level of the unemployed individual, but also the happiness level of the entire country. The results of this study can therefore also be seen as a conformation of the existing literature concerning the link between unemployment and happiness.

The last macroeconomic variable that was included in this study, is INFLATION. INFLATION, just like GDP and UNEMPLOYMENT, also has the same (negative) sign in all 3 regressions, and it is therefore quite obvious what the effect of an increase in the inflation rate on the average level of happiness is. The only thing to note here, is that in the second regression, INFLATION is not significant at the 1%, but at the 5% level. To be more specific, an increase in the inflation rate of 1%, leads to an average drop in happiness levels of 0.02. The negative relation between the inflation rate and the happiness level was already predicted in the theoretical framework, and this outcome can therefore, again, be seen as a confirmation of the already existing literature. For policy considerations, this result could be useful when taking into account the negative relation between inflation and happiness, but also the negative relation between unemployment and happiness, which makes policy makers face a tradeoff.

## **Conclusion**

Finally, in the last section of this paper, a brief summary of the research will be provided, implications will be discussed, and some limitations and suggestions for further research will be posed.

## Summary

The main research question that this research aimed to answer was: *Does joining the European Union increase happiness in nations?* In order to do so, various regression were run to estimate both a direct and an indirect effect of joining the EU on the happiness in nations. Based on the existing literature, three macroeconomic variables, being income, unemployment, and inflation, were included, and dummies were used to control for year and country fixed effects. Moreover, since the descriptive data showed peaks in the year 2008 (the start of the global financial crisis), the regressions were also run over the period 1998-2007, to see whether the crisis distorted some of the actual relations.

The main results are that over the period before the global financial crisis (1998-2007) a statistically significant positive direct relation is found between joining the EU and happiness, while the coefficient becomes insignificant when looking at the entire sample period (1998-2017). Also, when looking at the period before the crisis, an indirect effect of joining the EU on the happiness in nations is found, through the significant effect that joining the EU had on the GDP per capita, and on the inflation rate. Over the entire sample period, however, it could not be concluded that an indirect effect was present. All in all, it can thus be concluded that, before the global financial crisis, joining the EU indeed increased the happiness level in nations, both through a direct and an indirect effect, but that this could not be proven for the entire sample period. Reasons for the positive effect from before the crisis can be found in the modernization channel, the freedom of choice and life control perception channel, and the social identity channel. The effect of the economic development channel is ambiguous, since a rise in the GDP per capita positively influences this, while the increase in the inflation rate negatively influences this.

The results concerning the macroeconomic variables were all in line with the already existing literature, and this study can therefore be seen as an empirical confirmation. In the most relevant regressions (3 and 4), all the variables GDP, UNEMPLOYMENT, and INFLATION had highly significant results, which leaves little room for discussion. It can be confirmed that the GDP per capita has a positive effect on the average happiness in nations, while the unemployment rate and the inflation rate have a negative effect.

### *Implications*

The results of this paper could mean quite a bit for policy makers within countries. First of all, as the results show, especially before the crisis, becoming a member of the EU has had a positive effect on the happiness level in the new member states. This could be interesting for countries that have not yet decided whether to join the EU, since it is likely that joining the EU will increase their average happiness level. Furthermore, the Euroscepticism, as discussed in the introduction, might not be justified based on this research. Critics state that the EU is a bad entity, and that it should be abolished, or that their country should leave. When looking at the data, however, this statement is not supported. In regression 3 and 4, in table 3, it can namely be seen that joining the EU only has positive coefficients (even though the coefficient is not significant in regression 3). Also, no clear negative indirect effect is discovered, and joining the EU does therefore by no means decrease the happiness level in nations. This is something that supporters of the EU could bear in mind, when convincing others that staying in, or joining, the EU might be a good idea.

### *Limitations and suggestions for further research*

Like in every study, this research also isn't free of some limitations. One limitation that comes along with this research, is that the data of the dependent variable (HAPPINESS) is taken at the country level. This means that the effects of the explanatory variables are aggregated and averaged, and that it is not possible to look at within country variation. For future research it could be interesting to look at differences within countries, to be able to see which groups benefit from joining the EU, and which groups are worse off. For example for policy making this could potentially be relevant if it turns out that there are a few groups who gain a lot, at the expense of others in a particular country.

Moreover, due to the fact that the dataset on happiness levels was only available from the year 1973 onwards, and for most countries only contained numbers from the moment of joining onwards, a lot of countries had to be excluded in this research. The result was that especially the richer European countries were not included, so this could potentially make the results not generalizable, and could mean that the results only hold for relatively poor countries. For future research, it could therefore be interesting to try and estimate

happiness levels of the richer countries from before the moment joining the EU, and see if the results are different for this group.

Another interesting idea for future research that also has to do with the fact that many countries had to be excluded, is the idea of a so-called flipside analysis. It could be interesting to see what the effect of the expansion of the EU is on the countries that were already a member. The assumption might be, that the joining of the EU of the countries in the sample has had a negative effect on the happiness levels of countries that were already a member. This could be because the new countries are on average poorer, so that the existing members relatively had to contribute more to the EU, or because countries could lose some of their autonomy. It could also be that the happiness level is positively influenced, due to a greater social cohesion with new states, leading to more freedom and more opportunities.

Finally, the last limitation comes from the fact that only the period pre-crisis has been separately investigated. This is because all the countries in the study were already a member of the EU before 2008, and so it was not possible to perform a regression over the period after the global financial crisis. It could have been interesting to see whether the pre-crisis findings still hold in the period from 2010 onwards, or that the results are more an explanation of the past, rather than a prediction of the future. The only way in which I see it possible for future research to tackle this problem, is to wait and see what happens when more countries join the EU. A similar approach could then be used, for the new members, and the results could be compared.

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## Appendix

Table 1: *Descriptive statistics of all variables used in the econometric models. Min. and Max. provide the minimum and maximum value of each variable respectively.*

<b>Variable</b>	<b>No. of obs.</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min.</b>	<b>Max.</b>
HAPPINESS	186	5.67	0.85	3.45	7.4
EUMEM	240	0.64	0.48	0	1
GDP	228	19.86	7.67	5.58	37.93
UNEMPLOYMENT	240	9.51	3.93	3.3	19.9
INFLATION	228	4.38	6.75	-2.1	59.1

Table 2: *EU member states used in this research and their year of entry.*

<b>Country</b>	<b>Year of entry</b>
Cyprus	2004
Czech Republic	2004
Estonia	2004
Hungary	2004
Latvia	2004
Lithuania	2004
Malta	2004
Slovakia	2004
Slovenia	2004
Bulgaria	2007
Romania	2007
Croatia	2013

Table 3: *The effects of the independent variables on the happiness in nations.*

	(1)	(2)	(3)	(4) Pre 2008
EUMEM	0.61*** (0.15)	-0.48*** (0.10)	0.09 (0.11)	0.26*** (0.09)
GDP		0.10*** (0.01)	0.08*** (0.01)	0.12*** (0.03)
UNEMPLOYMENT		-0.03*** (0.01)	-0.02*** (0.01)	-0.04*** (0.01)
INFLATION		-0.01** (0.01)	-0.02*** (0.00)	-0.02*** (0.01)
Year Dummy	No	No	Yes	Yes
Country Dummy	No	No	Yes	Yes
No. of Obs.	186	182	182	80
R <sup>2</sup>	0.10	0.70	0.96	0.97

Table 4: *The effect of joining the EU on the macroeconomic variables.*

	(1)	(2)	(3)	(4) Pre 2008
GDP	0.22 (0.41)	5.75*** (0.91)	10.25*** (0.40)	1.27*** (0.37)
UNEMPLOYMENT	0.72 (0.69)	-2.09*** (0.68)	-1.04*** (0.37)	0.64 (1.13)
INFLATION	1.04 (1.40)	-0.82 (0.74)	-4.35*** (0.87)	11.55** (4.94)
Year Dummy	Yes	Yes	No	Yes
Country Dummy	Yes	No	Yes	Yes

Figure 1: Average happiness level per country per year.

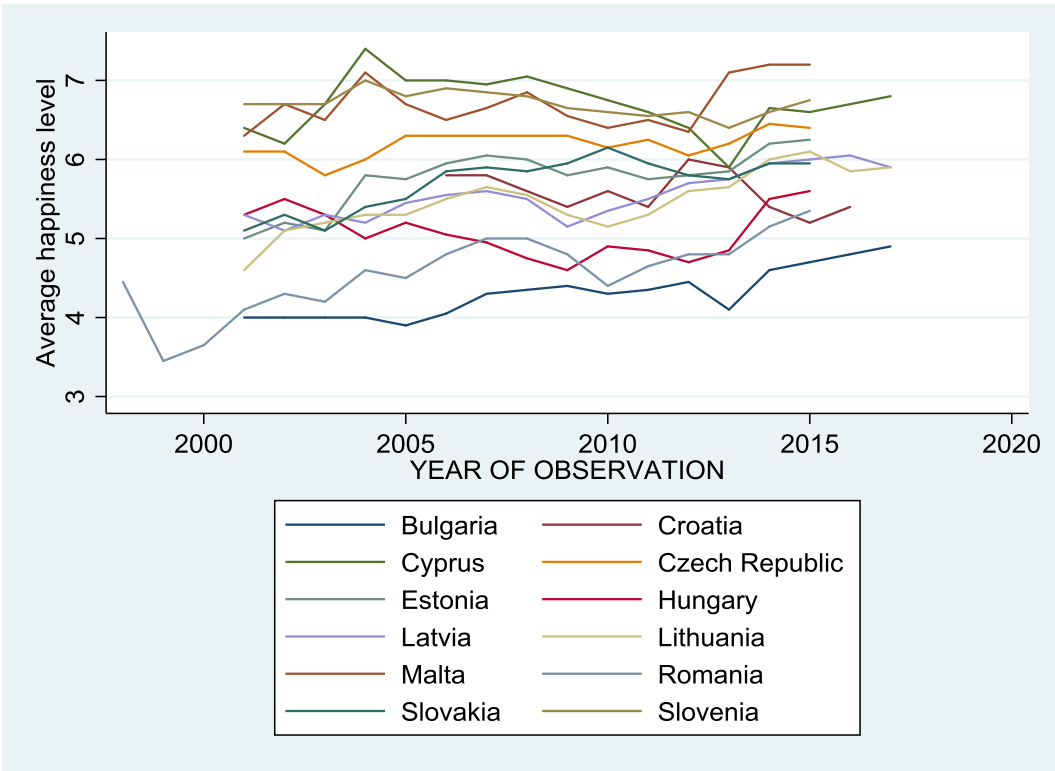


Figure 2: GDP per capita per country per year.

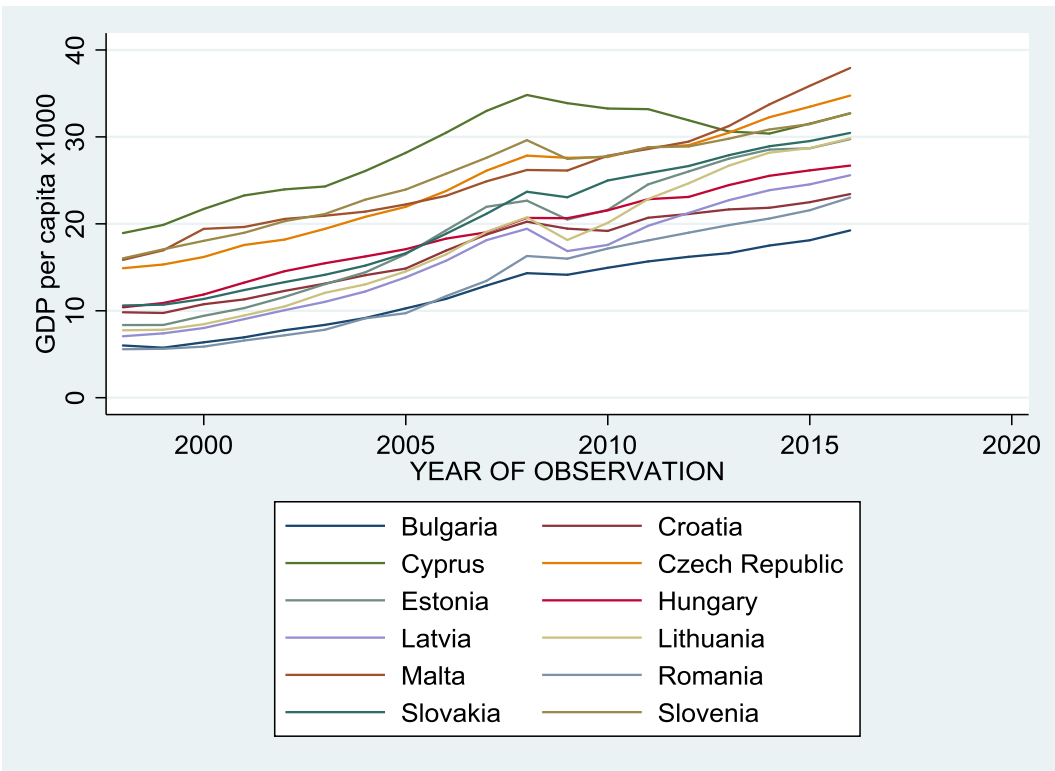


Figure 3: Unemployment rate in % per country per year.

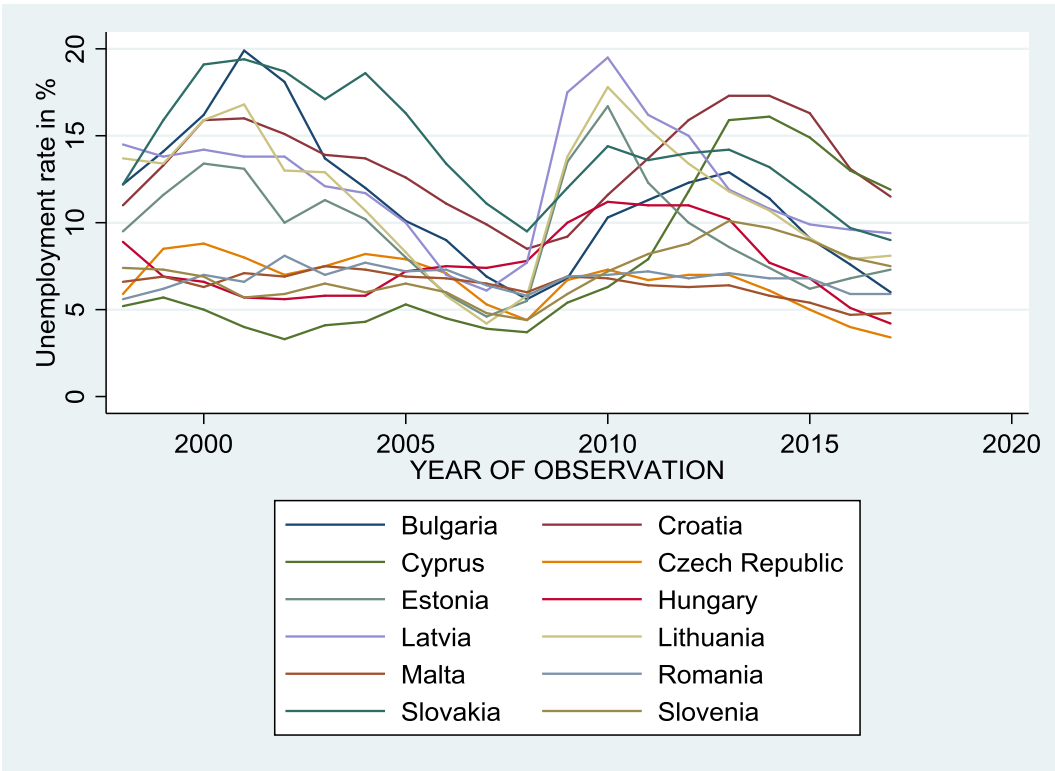


Figure 4: Inflation rate in % per country per year.

