Social Tension and Happiness: Evidence from Europe

Master Thesis

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Tensions rise in post-Brexit Britain: Anti-migrant incidents reported

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Abstract

In the wake of large inflows of migrants to Europe, large tensions between groups in European societies occurred. However this effect on subjective well-being is still underreported in previous literature. This paper makes an effort and assesses the impact of social tension on subjective well-being . We use the European Quality of life Survey database (EQLS) and construct an ordered logit model in order to determine the relationship between social tension and subjective well-being. The results show that social tension has a significant negative effect on happiness and life satisfaction. These results were robust throughout different specifications. Weaker or minority groups like foreigners or migrants could be more vulnerable when tension between groups in society are high. However in this paper we find that happiness levels were not significantly different for citizens and foreigners.

Keywords: *Social tension, subjective well-being, happiness, life satisfaction, ordered logit model, migrants*

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Introduction

In recent years the concept of happiness has gained more prominence in literature and by public institutions. Happiness is the state of well-being and contentment that a person experiences in his or her life (Merriam-Webster, n.a.). On 20 March 2017, the United Nations Sustainable Development Solutions Network published the yearly World Happiness Report. The first report was published five years ago in support of the United Nations High Level meeting on happiness and well-being. The report contains happiness rankings per country and identifies possible key determinants driving happiness. The report is very useful for governments as they increasingly use information on happiness indicators when making policy decisions. In June 2016, the OECD vowed to commit its effort in bringing people's well-being at the centre of a government's efforts. Furthermore the head of the UN Development Program (UNDP) called for increased attention to happiness indicators, as the quality of growth matters more than just GDP growth. Hence subjective well-being or happiness indicators are more and more recognized as the appropriate measure for social progress. The maximization of happiness indicators have gained increased attention from governments over the world (Helliwell *et al.*, 2017).

Historically, the study of happiness has been picked up by disciplines other than economics, especially by psychology. This changed with the revolution of the ''New Welfare Economics'' in the 1930s. The desire of these welfare economists was to maximize overall well-being in the economy, also labeled as utility. In classical welfare economics, the well-being level of a country was measured cardinally by adding up all the utilities across individuals in a country. This way of thinking gave rise to the problem of how to compare utilities across individuals. Even more so since individual well-being does not solely depend on economic factors. New ways of measuring individual utility arose and made great progress. The most effective way was to approximate individual well-being through population surveys. These measures of subjective well-being have been proven to be stable and reliable approximates for individual utility (Frey & Stutzer, 2002).

In the wake of large inflows of migrants to Europe, large tensions between groups in European societies occurred. However the way this might affect subjective well-being is still underreported in previous literature. This paper makes an effort and assesses the impact of social tension on subjective well-being . As a result the research conducted in this paper is very innovative in nature and makes a useful contribution to the happiness literature. We use the European Quality of life Survey database (EQLS) and construct an ordered logit model in order to determine the relationship between social tension and subjective well-being. The results show that social tension has a significant negative effect on happiness and life satisfaction. These results were robust throughout different specifications. Weaker or minority groups like foreigners or migrants could be

more vulnerable when tension between groups are high. However in this paper we find that happiness levels were not significantly different for citizens and foreigners. The results found in this paper are very useful for policymakers like governments that want to maximize subjective well-being of their citizens.

2. Literature review

2.1 Happiness

Over the years, more and more attention has been paid to the concept of happiness. Historically, the study of happiness has been picked up by disciplines other than economics, especially by psychology. This changed with the revolution of the ''New Welfare Economics'' in the 1930s. The desire of these welfare economists was to maximize overall well-being in the economy also labeled as utility. In classical welfare economics, the well-being in a country was measured cardinally by adding up all the utilities across individuals in a country. Standard economic theory assumed that individual utility was observable by the choices individuals make. This implied that individual utility only depended on tangible factors like the preference and consumption of goods and services. They assumed that this 'objective' view of happiness contained all information about individual utilities. They argued that measuring happiness or individual utility in a subjective fashion was unscientific in its approach and did not depend on economic theory. Hence this approach was rejected by the supporters of the 'objective' view when measuring happiness/well-being (Frey & Stutzer, 2002).

However this way of thinking gave rise to the problem of how to compare utilities across individuals. Even more so since individual well-being did not solely depend on economic factors as non-financial factors may also play a big role. For example, several countries experienced large increases in real wages since World War 2, but happiness levels stayed constant. New ways of measuring individual utility arose and made great progress. The 'subjective' view of measuring happiness became more prominent. The most effective way was to approximate individual well-being through population surveys by asking questions to respondents about their perceived level of happiness or life satisfaction. These measures of subjective happiness have been proven to be stable and reliable approximates for individual utility (Frey & Stutzer, 2002). However they are not perfect as the extent to which an individual values his or her own happiness is still subjective and may be relative.

Terms like 'happiness', 'well-being' and 'life satisfaction' do not have the same exact meaning and may interpreted differently by individuals. The terms 'life satisfaction' and 'well-being' are

somewhat similar and indicate how individuals rate the quality of their lives as a whole. While the term 'happiness' mainly implies how an individual subjectively evaluates his or her whole life. A good example are individuals who might be very well satisfied with their life in terms of finances, relationships and so on but still feel very unhappy. While at the same time individuals that are considered as poor might be feeling very happy. Generally, there exists a positive relationship between life satisfaction and happiness. Individuals who are more satisfied with their lives tend to feel happier, but the previous mentioned phenomena cannot be explained by making use of economic theory alone (Veenhoven, 2000).

According to the disciplines of psychology and biology, the extent to which an individual feels happy depends on two key factors, namely genes and external/environmental factors. First of all, the evidence that an individual's level of happiness depends largely on genetic factors is growing rapidly. Neuroscientists found two hormones that are responsible for the feeling of happiness in an individual. These so-called happiness hormones are dopamine and serotonin and are made in the brain. Neuroscientists found a strong relationship between these hormones and the perceived happiness level of an individual. Genes play an important role in regulating the levels of dopamine and serotonins in the brain. Previous studies have shown that happiness levels among identical twins stayed fairly similar even when the environment they lived in changed. Hence these results suggest that happiness levels among individuals may be for a large part explained by genetics (Diener & Suh, 2000).

External factors also seem to influence an individual's level of happiness and life satisfaction. Great amount of research has been paid attention to these types of factors. Frey & Stutzer (2002) state that happiness depends on three main external factors: socio-demographic and personality factors, economic factors and political factors. Frey & Stutzer (2002) discuss the main results of these factors on happiness. Socio-demographic and personality factors consist of variables like age, gender, level of education, nationality, family circumstances, health and so on. The effect of age on happiness seems to have an U-shaped form, implying that individuals are the happiest when they are young or old. Moreover females tend to be happier than males while couples are happier than singles. Foreigners tend to be less happier than nationals and people with higher education are happier than those with lower education (Frey & Stutzer, 2002).

Economic factors consist of variables like income levels, inflation and unemployment rates and so on. Individuals with higher incomes are reported to be happier than individuals with lower incomes. Individuals that are employed are also happier than individuals that are unemployed. Furthermore, individuals that live in low-inflation countries seem to be happier than individuals from high inflation countries. Since economic theory predicts a negative relationship between inflation and unemployment (derived from the standard Philips-curve), the latter two results imply that there

exists a trade-off between unemployment and inflation. Governmental policies that are aimed to stimulate employment, which increases happiness, may cause more inflation, which decreases happiness. Previous research has shown that the unemployment effect on happiness dominates the inflation effect (Frey & Stutzer, 2002).

Lastly political factors consist of factors like how democratic a country is and the degree of centralization of the government. Individuals that live in more democratic countries are reported to be happier since these politicians are chosen to serve their interests. Decentralization seems to increase subjective well-being as well. Beside the three main factors mentioned above, rising social tension between groups in a society may be one of the factors that can contribute to lower happiness levels among individuals. In the next section we will go deeper into this phenomenon.

2.2 Social tension and happiness

The objective of governments in advanced economies is to maximize the happiness of its citizens (Helliwell *et al.*, 2017). Why is this goal important? The answer is simple, happier people are more productive and overall happiness creates a positive social and political atmosphere in the respective country. So why is social tension and its effects on society, more specifically on subjective well-being important to investigate? It is because large social tensions in society might impede the goal of maximizing subjective well-being. Previous literature has paid little attention on the effects that social tension in society might have on subjective well-being even though this topic might be very relevant for policymakers, especially in current times.

In recent years Europe has seen the greatest inflows of migrants ever experienced. The arab spring which started in Tunisia in 2010 quickly spread over to other arab countries in the region. Large revolutions occurred that sometimes ended up in a bloody civil war or government overthrown. Bloody conflicts happened in Libya, Egypt, Syria, Iraq and Jemen. Millions of people became homeless and started fleeing to other countries. As a result millions of refugees went to Europe to apply for asylum. At the same time, millions of economic migrants from other Arab, African and Asian countries saw their opportunity to go to Europe as well. This led to the European migrant crisis with millions of migrants entering Europe. This caused huge social tension between the indigenous people and foreign migrants in many European countries which often led to violent incidents (Foy & Buckley, 2015).

However this topic is not only important for the case of Europe, but also for the rest of the world. Social tension between ethnic or racial groups in society is also present in other regions. A

good example is the large tension between arabs and jews in Israel, often leading to severe hatred and many hate crimes and violence. So what is the exact definition of social tension? There is no agreed definition on this. This paper finds the following definition to be the most accurate: "*Social tension is the relationship between groups in society that can easily burst out in violence as a consequence of hatred, resentment and rejection among groups"* (Ensie, n.a.). Literature and empirical research on social tension and its effect on subjective well-being is hard to find. Nevertheless this paper will try to make a useful contribution to the happiness research.

So what exactly causes social tension between groups in society? In the first paragraph mass immigration was mentioned as a source of social tension between groups in society. Another source of social tension might be inequality between income classes (rich and poor). Bechetti *et al.* (2013) Show that income and happiness inequality are drivers of social tension. They recommend governments to pursue policies that enhance education and economic growth for all equally. Bouget (2008) recognizes poverty and inequality to be one of the main drivers of social tension in a society. He states that "*Many of the social tensions are also linked to the weak position of minorities for instance, especially the non-skilled and the immigrants''.* Religious beliefs may also cause social tension between groups in society. A good example is the centuries long religious conflict between protestants and Catholics in Ireland.

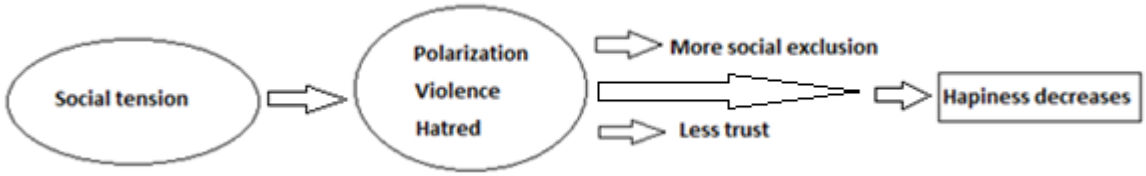
Dodd (1939) shows in his theoretical analysis that social tension tends to increase simultaneously when competition among groups in society increases. When groups compete for rare goods and services, violence might occur and the strongest group will be at an advantage of acquiring those rare goods and services. Bouget (2008) states that violence is at the root of social tension in a society. Higher social tension between groups often lead to hatred, a high degree of polarization and violence. He distinguishes between explicit and implicit violence. Firstly, social tension in society might spur explicit violence. Examples are hate crimes, physical violence and civil wars. Secondly, social tension in society might spur implicit violence, which means that it increases the likelihood of violence or an ethnic conflict occurring. Hence Bouget (2008) argues that large social tension between groups in society increases the probability of violence and conflict and results in more segregation and social exclusion of groups (Bouget, 2008). Estes & Sirgy (2017) show that especially minority groups suffer when social tension in society increases. They are often target of discrimination, prejudice, hatred, hate crimes done by hate groups and violence. This enhances segregation and social exclusion of minority groups like migrants. Previous literature has shown that people who feel more excluded are reported to be less happier. Cuesta & Budria (2014) for example used the German Socio-economic panel dataset and found a significant negative impact of both individual deprivation and social exclusion on reported subjective well-being (SWB).

Estes & Sirgy (2017) argue that it is difficult to evaluate well-being among minorities in Europe. At this point research has shown that in some countries there is great difference while in other countries like Sweden and Denmark ethnic groups feel it is a good place to live for all racial or ethnic groups. The amount of social tension between ethnic groups in a country might be an explanation for this difference. Estes & Sirgy (2017) show that life satisfaction of immigrants in Europe is significantly lower than the resident population, but still higher than in their home country.

As mentioned before, social tension in society might spur hatred and resentment among groups. Continues anger is an important component of hatred and resentment. Several studies have shown that anxiety, depression and anger are detrimental to subjective well-being (Grieger, 2016). Furthermore several studies have found that as societies become more divers and social tension rises, general trust decreases. Happiness research by the Home Office of the British government showed that more diverse communities tend to be less trusting and less happy (Ahmed, 2007). Robert Putnam, Political scientist at the Harvard University showed in his research that immigration and ethnic diversity have a large negative impact on general trust. In a large-scale study of 41 different American communities ranging from very mixed to very homogenous, Robert Putnam found a strong positive correlation between the homogeneity of a community and the level of trust in the community. However he states that this phenomenon is not caused by ethnic conflict in mixed communities but rather by people withdrawing and isolating themselves from the community. Increased social tension in these mixed communities lowers general trust even more (Auster, 2007). These are important findings as the literature on general trust and happiness shows that there exists a positive relationship between these two variables. People that are more trusting are generally more happy. Bjørnskov (2007) did empirical research on the determinants of trust across countries and found that ethnic diversity and social polarization reduces trust.

Figure 1 summarizes the effect of social tension between groups in society on self-reported subjective well-being. As explained before, large social tension between groups in society leads to polarization, violence (i.e. hate crimes), hatred and resentment among groups. As a direct result subjective well-being decreases. Furthermore social tension lowers trust while social exclusion grows. All of which are detrimental to subjective well-being of individuals. Hence increased social tension between groups in society is expected to decrease self-reported subjective well-being. Uchida *et al.* (2004) present empirical evidence and found that societies that are more socially harmonious tend to be more happier. They argue that social harmony is a good predictor of happiness. Bouget (2008) recognizes the reduction of tensions between groups in a society to be a basic factor of overall well-being.

Figure 1: Social tension between groups and its effect on happiness



Based on the literature and theory the following hypothesis is formulated:

Hypothesis 1: *Increased social tension between groups in society is associated with lower levels of self-reported subjective well-being.*

This paper will thus empirically assess the effects of social tension between groups in society on self-reported subjective well-being. To our knowledge this is the first paper to do so. As a result this paper might give policymakers who want to maximize happiness in their countries new and relevant insights.

As social tension in society increases, weaker groups like migrants might become more vulnerable. They might be more subject to the negative effects of these tensions (i.e. hate crimes, exclusion, discrimination etc.). Hence the second hypothesis is formulated:

Hypothesis 2: *Weaker groups in society like migrants or foreigners report lower subjective well-being levels than citizens.*

3. Data and methodology

3.1 European Quality of life Survey database (EQLS)

This section discusses the data that is used for the empirical analysis. Data on social tension and subjective well-being has been collected from the European Quality of life Survey database (EQLS). The European Quality of Life Survey is carried out by the European Foundation for the Improvement of Living and Working Conditions (Eurofound). Eurofound is a European Union agency established in 1975 and funded by the European Commission with the aim to contribute, plan, design and improve the living and working conditions of citizens living in Europe. It cooperates with major players in Europe like the European Union institutions, governments, trade unions and employers. The directors of Eurofound are appointed by the European Commission. The European Quality of life Survey database is a repeated cross-sectional survey that contains important subjective and objective variables that cover the multiple dimensions of the quality of life of European citizens. The survey is carried out every four years, starting from 2003 (Anderson *et al., 2009*). Table 1 of the appendix shows the list of European countries that are included in the survey. As illustrated in the table, the survey is a random probability survey with a minimum limit of 1000 individuals per country. The interview with individuals is done in a face-to-face fashion and includes only individuals that are 18 years or older. The survey consists of three different waves (2003, 2007 and 2011). In total, the database consists of 450 variables and over 105.000 observations. In the next section the dependent, independent and control variables that are used in the empirical analysis are discussed

3.2 Dependent variables: subjective well-being

In this paper two dependent variables are used as a proxy for subjective well-being. The first dependent variable is ***Happy*** and measures how happy an individual is feeling. To measure this variable the following question was asked in the EQLS survey *"Taking all things together on a scale of 1 to 10, how happy would you say you are"*. The scale of 1 denotes that the individual is very unhappy, while the scale of 10 denotes that the individual is very happy. The second dependent variable is ***Lifesat*** and measures how satisfied an individual is with his or her life. To measure this variable the following question was asked *"All things considered, how satisfied would you say you are with your life on a scale of 1 to 10"*. The scale of 1 denotes that the individual is very dissatisfied with his or her life, while the scale of 10 denotes that the individual is very satisfied with his or her life. In this paper the dependent variable ***Lifesat*** is used as a robustness check for results found in chapter 4.

3.3 Core independent variable: social tension

The core independent variable ***Tension*** is a proxy for the amount of social tension between groups in society. This variable was measured by asking the following question in the EQLS survey *"How much tension is there in this country between different racial and ethnic groups?".* The respondents could choose between 3 categories: (1) *a lot of tension,* (2) *some tension and* (3) *no tension.* Hence this variable is also measured subjectively. Social tension leads to hatred, violence and polarization among groups in society and may therefore decrease self-reported subjective well-being. As explained in the theoretical part of this paper, we expect to see a negative relationship between social tension and subjective well-being. Taking control variables into account is important since we want to avoid omitted variable bias (OVB) which can lead to inefficient estimates of the coefficients found. Hence a number of important control variables are included in the final model. In the next section the control variables are discussed.

3.4 Control variables

In this section, the inclusion of the control variables are discussed. This paper controls for socio-demographic, institutional and regional characteristics. As found in earlier studies, socio-demographic factors greatly influence the level of subjective well-being (Fernández-Ballesteros *et al.,* 2001*;* Frey & Stutzer, 2002*)*. Personal income has been found to be an important determinant of subjective well-being. When an individual has more money to spend, he or she can afford more goods and services and this increases utility. Therefore we control for personal income by taking the variable ***Income*** into account. This variable is constructed by using income quartiles based on equivalised income. The variable ***Income*** has 4 categories namely, income quartiles 1 to 4. Income quartile 1 is the lowest income quartile while income quartile 4 is the highest income quartile. When an individual is in income quartile 1 he or she is relatively more poor than someone in income quartile 4. Hence we expect a positive relationship between income and subjective well-being. The employment status of an individual can also influence his or her subjective well-being. Firstly when an individual is unemployed he or she has less money to spend on goods and services which decreases utility. Secondly being unemployed can have some serious psychological drawbacks, like feeling left out of society or feeling like a failure. Thus we take the variable ***Employ*** into account which describes the employment status of the corresponding individual. The variable ***Employ*** contains 2 categories namely, employed or unemployed. We expect a positive relationship between employment and subjective well-being. We also control for the educational attainment of the

individual. Previous studies have found that higher educated individuals are happier than lower educated individuals. Higher educated individuals usually have higher paying jobs and may be more optimistic about the future than lower educated individuals. Hence we control for the variable ***Educ*** which depicts the educational attainment of the individual. This variable has 3 categories namely, primary or less, secondary or tertiary education. We expect a positive relationship between higher educated individuals and subjective well-being (Fernández-Ballesteros *et al.,* 2001*;* Frey & Stutzer, 2002*)*.

The type of relationship an individual has also greatly influences his or her subjective well-being. Previous studies have found that couples were more happy than singles or divorced couples. Hence the variable ***Couple*** which shows the marital status of the individual is included in the model. This dummy variable has 2 categories namely, married or living with a partner and being single or divorced. This variable originally had 4 categories but are now grouped in 2 categories. We expect couples to be happier than singles. Furthermore previous literature has shown that gender plays an important role with respect to subjective well-being. Women were shown to be more happy than men. Hence the variable ***Gender*** is included in the model. This dummy variable has 2 categories namely, the individual is a male or the individual is a female. Age also plays a significant role in shaping subjective well-being. Large amounts of research has been devoted to the effect of age on happiness. Most studies find an U-curve effect of age on happiness. Individuals tend to be more happy when they are young and when they are old. They are the least happy when they are in the middle of their lives. Hence the variable ***Age*** is included in the model which represents the age of the corresponding individual. However because there might exist a non-linear relationship between age and subjective well-being, we also take the squared of the variable ***Age*** to transform it into the variable ***Age2.*** As mentioned earlier, previous have confirmed that people who are more trusting are generally more happy. Hence the variable ***Trust*** has been taken into account. The variable was constructed by asking the following question in the EQLS survey "*Would you say that most people can be trusted ? (on a scale of 1 to 10)"*. We expect a positive relationship between trust and subjective well-being. Moreover people that feel more excluded from society are generally less happy. Hence the variable ***SocEx*** which is the social exclusion index (ranges from 0-5) has been included to the model. Higher values of this index indicate that the individual feels more excluded from society. We expect a negative relationship between social exclusion and subjective well-being.

This paper also controls for institutional and regional factors. Tay & Diener (2014) find that corruption has detrimental effects on subjective well-being. This paper controls for this institutional factor by taking the variable ***Corrupt*** into account. This variable is created by using the Corruption Perceptions Index (CPI index). The CPI index is a composite index that takes several subjective factors of corruption into account (through surveys) within a particular country. The index ranges from 0

(low-scores) to 100 (high scores). Countries that have a high score are less corrupt. When a country has a low score it implies that it has bad and corrupt public institutions like the judiciary, police or political system (Transparency International, 2017). We expect a positive relationship between the Corruption Perceptions Index and subjective well-being. Furthermore research has shown that a higher population density is associated with lower levels of happiness (Winters & Li, 2017). Hence we take the variable ***Urban*** into account. This dummy variable shows whether the individual lives in a rural or urban area. The variable ***Popdens*** which is the total population divided by the total area in km2, is used as a robustness check. Moreover we create a regional dummy variable ***Region*** to control for any unobserved heterogeneity across countries. Time dummies are created (***Wave****)* in order to control for any unobserved heterogeneity across time. Lastly the dummy variable ***Cit*** is created which denotes whether the individual is a citizen (1) or a foreigner (0). Table 1 below shows the list of variables used in the empirical analyses.

Table 1: List of variables

Variable	Description	Range/categories
Happy	*Taking all things together on a scale of 1 to 10, how happy would you say you are*	1 - 10
Lifesat	*All things considered, how satisfied would you say you are with your life on a scale of 1 to 10*	1 - 10
Tension	*How much tension is there in this country between different racial and ethnic groups?*	A lot of tension, some tension, no tension
Income	income quartiles based on equivalised income	1st, 2nd, 3rd, 4th quartiles
Employ	What is your employment status?	Unemployed (1), employed (0)
Educ	Highest completed education	Primary or less, secondary, tertiary education
Age	Age of the respondent	18 years or older
Age2	Age squared	324 - 9025
Gender	Gender of the respondent	Female (1), male (0)
Couple	Marital status	Married or living together with a partner (1), single or divorced (0)

Variable	Description	Range/categories
Urban	Area of living	Urban area (1), rural area (0)
Popdens	Population density	3.2 - 1318.6
Corrupt	Corruption Perceptions Index	0 – 100
Trust	Would you say that most people can be trusted?	1 – 10
SocEx	Social Exclusion Index	1 – 5
Cit	Are you a citizen?	Citizen (1), foreigner (0)
Region	Regional dummy variables	35 regions
Wave	Wave dummy variables	3 waves

3.5 Ordered logit model

The literate on subjective well-being (SWB) has largely made use of ordered logit models. This model is used when working with an ordinal response variable like happiness or life satisfaction. These variables are usually measured on an ordinal scale from 0 to 10. It may be possible to estimate ordinal outcomes with linear regression models, however doing so has several drawbacks well documented in previous literature (Grilli & Rampichini, 2015; Winship, C., & Mare, (1984). Linear regression models do not account for the ceiling and floor restrictions on models that include an dependent ordinal variable. This may lead to less efficient estimates when working with dependent variables that are on ordinal scale. Furthermore since there is an underlying latent variable that guides the choice for a specific category, the assumption of equal distances in linear regression models between ordinal categories may not hold. Hence the ordered logit model would the preferred model. The ordered logit model that is estimated in this paper takes the following form:

$$y^* = \mathbf{x}'\beta + \epsilon, \qquad (1)$$

Where 'y*' is the unobserved latent variable of self-reported subjective well-being, 'x'β' the vector of independent variables and their coefficients and 'ε' the error term. The latent variable y* is

unobservable as we do not know how the person exactly feels when asked the statement. We only observe the 10 categories, this is shown below.

$$y = \begin{cases} 0 \text{ if } y^* \leq 0, \\ 1 \text{ if } 0 < y^* \leq \mu_1, \\ 2 \text{ if } \mu_1 < y^* \leq \mu_2 \\ \vdots \\ N \text{ if } \mu_{N-1} < y^*. \end{cases}$$

Where 'y' represents the observed categories and 'μ' the thresholds which are the cut-off points between the observed categories. Once the latent variable 'y*' crosses a certain threshold we are able to observe the category 'y'. For every individual, the thresholds are unknown and might be different across individuals. We assume a logistic distribution of the error term 'ε'. In an ordered logit model we are able to interpret the signs and significance when observing the probability of being in the highest category but not the magnitude of the coefficients.

In order to test the first hypothesis the ordered logit model of equation (1) is used by including the previous mentioned variables also shown in table 1. In a second specification interaction terms between social tension and trust/social exclusion are created to test whether they both have a combined effect on subjective well-being. In order to test the second hypothesis the dummy variable ***Cit*** is created which denotes whether the individual is a citizen (1) or a foreigner (0). This is to test whether weaker groups in society like migrants or foreigners report lower subjective well-being levels than citizens.

4. Results

In this section the empirical results are discussed. For every model robust standard error are used in order to correct for any heterokedasticy problems. Heterokedasticy causes the coefficients in the model to become inefficient and the standard errors to be incorrect. We also compute the variance inflation factor (VIF) table in order to detect any high correlations between independent variables. A VIF of above 10 is problematic. Table 2 of the appendix shows that two variables have a VIF of above 10, these are age and age squared (***Age*** and ***Age2***). However this makes sense since ***Age2*** was created from ***Age***. Table 3 of the appendix shows this large correlation between ***Age*** and ***Age2***.

Table 2 below shows the estimation results of the ordered logit model. The first column only depicts the core independent variable ***Tension*** (basic model). The second column shows the first final model while excluding the variables for trust (***Trust***) and social exclusion (***SocEx***). The third column shows the same model while also including the variables for trust and social exclusion. All three models in table 2 show that when there is no tension compared to a lot of tension between groups in society, the probability of being very happy increases for an individual, ceteris paribus. In every case this effect is statistically significant at the 1% significance level. Furthermore the models show that when there is some tension compared to a lot of tension between groups in society, the probability of being very happy increases for an individual, ceteris paribus. In the first two columns this effect is statistically significant at the 1% significance level. However in the third column no significant effect was found. We also see that in the third column the magnitude of the coefficient for the dummy variable of 'no tension' decreases significantly in magnitude after adding the variables for social exclusion and trust. This implies that there is some correlation between tension and social exclusion or trust as was explained in chapter 2.2. Hence based on the results *hypothesis 1* cannot be rejected. Large social tension between groups in society seems to have a significant negative effect on subjective well-being.

Table 2: Ordered logit model

VARIABLES	(1) Basic model	(2) Final model 1	(3) Final model 2
Tension (baseline = a lot of tension)			
Some tension	**0.151*** **	**0.117*** **	**0.0361**
	(0.0125)	(0.0230)	(0.0235)
No tension	**0.270*** **	**0.255*** **	**0.144*** **
	(0.0180)	(0.0318)	(0.0328)
Income (baseline = 1st quartile)			
2nd quartile		0.345***	0.229***
		(0.0295)	(0.0303)
3rd quartile		0.568***	0.389***
		(0.0301)	(0.0310)
4th quartile		0.869***	0.616***
		(0.0319)	(0.0329)
Employ (baseline = employed)			
Unemployed		-0.638***	-0.462***
		(0.0418)	(0.0426)
Educ (baseline = primary or less education)			
Secondary education		0.136***	0.0877**
		(0.0375)	(0.0388)
Tertiary education		0.278***	0.112**
		(0.0427)	(0.0442)
Age		-0.0615***	-0.0614***
		(0.00382)	(0.00393)
Age2		0.000581***	0.000575***
		(3.85e-05)	(3.98e-05)
Gender (baseline = male)			
Female		0.0449**	0.0503**
		(0.0212)	(0.0216)
Couple (baseline = single or divorced)			
Married or living with a partner		0.413***	0.375***
		(0.0225)	(0.0230)
Urban (baseline = living in a rural area)			
Living in an urban area		-0.153***	-0.145***
		(0.0210)	(0.0215)
Corrupt		1.170***	1.201***
		(0.193)	(0.194)
Trust			0.0171***
			(0.00196)
SocEx			-0.727***
			(0.0130)
Region dummies	YES	YES	YES
Wave dummies	YES	YES	YES
Observations	99,448	31,081	29,911

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The control variables seem to have the right signs. Individuals that are in the highest income quartile are more likely to be very happy than those in lower quartiles, ceteris paribus. The effects are statistically significant at the 1% significance level. Moreover unemployed compared to employed individuals, are also more likely to be very happy, ceteris paribus. This effect is statistically significant at the 1% significance level. Hence personal income is an important determinant of subjective well-being. From table 1 we can see that higher educated individuals are more likely to be very happy than lower educated ones, ceteris paribus. This effect is statistically significant at the 1% significance level. Furthermore we see that an additional year in age decreases the probability of being very happy, ceteris paribus. However when we look at age squared we see it has a positive and significant effect on happiness. Hence we conclude that there exists a non-linear relationship between age and happiness as was confirmed in previous studies.

As shown in table 2, females are more likely to be very happy than males, ceteris paribus. The effect is statistically significant at the 5% significance level. Previous studies found similar results. We also see that individuals that are married or living together with a partner are more likely to be very happy than individuals that are single or divorced, ceteris paribus. The effect is statistically significant at the 1% significance level. Moreover individuals that live in an urban area are less likely to be happy than individuals who live in a rural area, ceteris paribus. The effect is statistically significant at the 1% significance level. We also see that higher corruption has a negative effect on happiness, ceteris paribus. The effect is statistically significant at the 1% significance level. Furthermore, individuals that have more trust are more likely to be very happy, ceteris paribus. The effect is statistically significant at the 1% significance level. Lastly individuals that feel excluded from society are less likely to be very happy, ceteris paribus. The effect is statistically significant at the 1% significance level.

Table 3 below contains 4 columns. The first column adds an interaction term between social tension and trust to the final model. The second column add an interaction term between social tension and social exclusion to the final model. These interaction terms are added to see if both variables have an combined effect on happiness. The third column adds both interaction terms to the final model. The fourth column adds a dummy variable ***Cit*** to the final model. This dummy variable tells us whether citizens are happier than foreigners and is used to test the second hypothesis. From columns one, two and three of table 3, we observe that both interaction terms are not statistically significant. The dummy variable ***Cit*** is also not statistically significant. Hence the second hypothesis is rejected. There is no evidence found that citizens are happier than foreigners.

Table 3: Ordered logit model

VARIABLES	(1) Interaction 1	(2) Interaction 2	(3) Both interactions	(4) Citizin/foreigner
Tension (baseline = a lot of tension)				
Some tension	**0.0385**	**0.000825**	**0.0109**	**0.0362**
	(0.0267)	(0.0456)	(0.0601)	(0.0235)
No tension	**0.149*** **	**0.0745**	**0.127**	**0.144*** **
	(0.0425)	(0.0838)	(0.116)	(0.0328)
Trust*Tension	**-0.000419**		**0.0127**	
	(0.00250)		(0.00623)	
SocEx*Tension		**0.0149**	**0.0171**	
		(0.0165)	(0.0169)	
Cit				**0.0126**
				(0.0556)
Income (baseline = 1st quartile)				
2nd quartile	0.216***	0.217***	0.216***	0.217***
	(0.0304)	(0.0304)	(0.0304)	(0.0304)
3rd quartile	0.365***	0.365***	0.366***	0.365***
	(0.0311)	(0.0311)	(0.0311)	(0.0311)
4th quartile	0.580***	0.580***	0.580***	0.580***
	(0.0330)	(0.0330)	(0.0330)	(0.0330)
Employ (baseline = employed)				
Unemployed	-0.474***	-0.473***	-0.473***	-0.473***
	(0.0427)	(0.0427)	(0.0427)	(0.0427)
Educ (baseline = primary or less education)				
Secondary education	0.0697**	0.0704**	0.0703**	0.0700**
	(0.0390)	(0.0390)	(0.0390)	(0.0390)
Tertiary education	0.1142***	0.1144***	0.1147***	0.1142***
	(0.0444)	(0.0444)	(0.0444)	(0.0444)
Age	-0.0614***	-0.0614***	-0.0614***	-0.0614***
	(0.00395)	(0.00395)	(0.00395)	(0.00395)
Age2	0.000572***	0.000572***	0.000572***	0.000572***
	(4.00e-05)	(4.00e-05)	(4.00e-05)	(4.00e-05)
Gender (baseline = male)				
Female	0.0586***	0.0584***	0.0584***	0.0585***
	(0.0217)	(0.0217)	(0.0217)	(0.0217)
Couple (baseline = single or divorced)				
Married or living with a partner	0.378***	0.378***	0.378***	0.378***
	(0.0230)	(0.0230)	(0.0230)	(0.0230)
Urban (baseline = living in a rural area)				
Living in an urban area	-0.143***	-0.143***	-0.143***	-0.143***
	(0.0216)	(0.0216)	(0.0216)	(0.0216)
Corrupt	1.092***	1.106***	1.099***	1.101***
	(0.195)	(0.195)	(0.195)	(0.195)
Trust	0.0895***	0.111***	0.0870***	0.111***
	(0.0123)	(0.00473)	(0.0125)	(0.00473)
SocEx	-0.702***	-0.719***	-0.733***	-0.701***
	(0.0131)	(0.0327)	(0.0334)	(0.0131)

Region dummies	YES	YES	YES	YES
Wave dummies	YES	YES	YES	YES
Observations	29,779	29,779	29,779	29,779

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

5. Robustness checks

In this section some robustness checks are performed in order to see whether the results found in the previous chapter are robust to changes in the model. Firstly the dependent variable ***Happy*** is replaced by the dependent variable ***Lifesat***. Hence the level of life satisfaction is now a proxy for subjective well-being. Secondly the independent variable ***Urban*** is replaced by the independent variable ***Popdens***. Hence we now look at the population density of a region. Urban areas are more denser than rural areas. Table 4 below shows the results. The first column depicts the final model while the second column depicts the final model with the variables trust and social exclusion included. From table 4 we see that the coefficients of the independent variables have stayed fairly similar. Hence we conclude that the results found before are robust.

Table 4: Ordered logit model (robustness check)

VARIABLES	(1) Final model 1	(2) Final model 2
Tension (baseline = a lot of tension		
Some tension	**0.100*** **	**0.0141**
	(0.0248)	(0.0253)
No tension	**0.230*** **	**0.126*** **
	(0.0347)	(0.0357)
Income (baseline = 1st quartile)		
2nd quartile	0.339***	0.228***
	(0.0318)	(0.0326)
3rd quartile	0.551***	0.375***
	(0.0325)	(0.0334)
4th quartile	0.845***	0.595***
	(0.0343)	(0.0353)
Employ (baseline = employed)		
Unemployed	-0.651***	-0.468***
	(0.0451)	(0.0459)

Educ (baseline = primary or less education)		
Secondary education	0.139***	0.0723*
	(0.0415)	(0.0430)
Tertiary education	0.262***	0.0764
	(0.0467)	(0.0482)
Age	-0.0616***	-0.0615***
	(0.00412)	(0.00424)
Age2	0.000580***	0.000574***
	(4.14e-05)	(4.28e-05)
Gender (baseline = male)		
Female	0.0493**	0.0542**
	(0.0225)	(0.0230)
Couple (baseline = single or divorced)		
Married or living with a partner	0.430***	0.391***
	(0.0240)	(0.0246)
Popdens	-0.00414***	-0.00478***
	(0.000939)	(0.000947)
Corrupt	0.217***	0.130***
	(0.0216)	(0.0220)
Trust		0.0162***
		(0.00236)
SocEx		-0.748***
		(0.0141)
Region dummies	YES	YES
Wave dummies	YES	YES
Observations	26,805	25,827

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Conclusion

This paper assessed the impact of social tension on subjective well-being . We used the European Quality of life Survey database (EQLS) and constructed an ordered logit model in order to determine the relationship between social tension and subjective well-being. We controlled for several socio-demographic, institutional and regional factors. The results show that social tension has a significant negative effect on happiness and life satisfaction. This indicates that social tension between groups in society can indeed be detrimental to subjective well-being. The results were robust across different specifications. Weaker or minority groups like foreigners or migrants could be more vulnerable when tension between groups in society are high. They might be more subject to the negative effects of these tensions (i.e. hate crimes, exclusion, discrimination etc.). However in this paper we found that happiness levels were not significantly different for citizens and foreigners.

The research conducted in this paper is very innovative in nature and is a useful contribution to the happiness literature. The results found in this paper are in particular useful for policymakers like governments that want to maximize the subjective well-being of their citizens. A possible limitation of this study is that by including control variables the amount of observations decreases by more than a half. Hence a lot of observations are lost which may bias the results. However the amount of observations still lie around thirty thousand observations. Another possible limitation of this study is that the variable of social tension was measured subjectively. So the extent to which a country is perceived as a country that has large social tension may therefore vary across various individuals. Some individuals may perceive low social tension in their country while others might think otherwise. Hence future research on this topic could also take more objective measures of social tension into account. A possible suggestion would be to look at the number of hate crimes committed in a country. The research in this paper was focused on Europe only. Hence the results found in this paper could or could not apply to other regions. Future research on this topic is needed by also take other regions into account.

Appendix:

This appendix consists of:

- **List of countries**
- **Variance inflation Factor table (VIF)**

Table 1: List of countries

Country	Frequency	Percent	Cum.
Austria	3,082	2.92	2.92
Belgium	3,028	2.87	5.79
Bulgaria	3,037	2.88	8.67
Cyprus	2,607	2.47	11.14
Czech Republic	3,234	3.06	14.2
Germany	6,115	5.79	20
Denmark	3,027	2.87	22.87
Estonia	2,616	2.48	25.35
Greece	3,006	2.85	28.19
Spain	3,532	3.35	31.54
Finland	3,019	2.86	34.4
France	4,840	4.59	38.99
Hungary	3,025	2.87	41.85
Ireland	3,041	2.88	44.74
Italy	4,770	4.52	49.26
Lithuania	3,139	2.97	52.23
Luxembourg	2,614	2.48	54.71
Latvia	3,015	2.86	57.57
Malta	2,604	2.47	60.03
Netherlands	3,069	2.91	62.94
Poland	4,762	4.51	67.45
Portugal	3,011	2.85	70.31
Romania	3,572	3.38	73.69
Sweden	3,024	2.87	76.56
Slovenia	2,644	2.51	79.06
Slovakia	3,199	3.03	82.09
UK	4,771	4.52	86.62
Turkey	5,031	4.77	91.38
Croatia	2,001	1.9	93.28
Macedonia (FYROM)	2,014	1.91	95.19
Kosovo	1,076	1.02	96.21
Serbia	1,002	0.95	97.16
Montenegro	1,000	0.95	98.1
Iceland	1,000	0.95	99.05
Norway	1,000	0.95	100
Total	105,527	100	100

Table 2: VIF

Kolom1	Kolom2	Kolom3
Variable	VIF	1/VIF
Tension		
some tension	1.31	0.76492
no tension	1.3	0.772199
Income		
2nd quartile	1.58	0.633553
3rd quartile	1.69	0.592908
4th quartile	1.91	0.524692
Employ		
Unemployed	1.19	0.841168
Educ		
secondary	2.61	0.382952
Tertiary	2.88	0.347612
Age	44.05	0.022703
Age2	47.12	0.021224
female	1.09	0.914083
Couple	1.18	0.844018
Urban	1.04	0.962304
Corrupt	1.14	0.880373
Trust	1.01	0.988566
SocEx	1.14	0.875665
Mean VIF	4.81	

Table 3: Correlation between Age and Age2

Correlation	*Age*	*Age2*
Age	1	
Age2	0.9838	1

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