The Effect of Crime on Life Satisfaction: European Evidence

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Abstract

In this paper, the effect of several crime-related variables on individual subjective well-being is explored by using European Social Survey data including 32 European countries over the years 2002-2016. The results show a negative and significant effect of crime victimization on satisfaction with life and a negative and significant effect of fear of crime on satisfaction with life as well. In contrast, no significant effect is found between homicide rates and life satisfaction. When zooming in on institutional trust, the results implicate that trust in institutions, measured by the rule of law, mediates the relationship between fear of crime and life satisfaction. As the level of institutional trust increases, the negative effect of fear of crime on life satisfaction declines. In addition, the results show that the negative effect of both crime victimization and fear of crime on life satisfaction is less strong for women as compared to men. Overall, this paper emphasizes the importance of the fight against crime by governments to pursue the goal of a happy population. Moreover, it is recommended to invest in good quality institutions and try to increase citizens' trust in these institutions.

Keywords: Happiness, life satisfaction, crime victimization, fear of crime, crime rates, institutional trust, and gender differences

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1. Introduction

When one asks what the purpose of any human being is, it is often 'to be happy'. Happiness is a concept that is comprehensive, has a different meaning for everyone and is influenced by a plethora of factors. It is a complex subject that is being researched more and more. Not only the factors that lead to happiness, but also the consequences of a happy population. Every year, on March 20, the United Nations organises a special day dedicated to happiness. Each year, this International Happiness Day has a different theme, which was 'happy together' in 2019, referring to the common goal of being happy (Day of Happiness, 2019).

International Happiness Day was first organised in 2013 at the request of the country Bhutan, which recognised the importance of a happy population much earlier. In 1971, Bhutan made it clear that they not only focus on income as a measure of prosperity but also on happiness. With the concept of Gross National Happiness, Bhutan tries to pursue the ultimate goal of a happy population, which is even set above the Gross National Product (Kelly, 2012). Following in the footsteps of Bhutan, an increasing amount of countries recognise the importance of subjective well-being. There is even a country, the United Arab Emirates, which has appointed a minister of Happiness in 2016, whose main task is to seek a happy population (The UAE Government, 2019).

Every year, the United Nations publishes a report on the self-reported happiness of individuals around the world. According to the World Happiness Report 2019, The Netherlands is currently number 5 of the happiest countries in the world. The general trend of recent years shows that in 2008, during the economic crisis, the global level of happiness declined sharply. In 2011 this level recovered, whereupon the global happiness level started to decline until 2018, in which it reached the same level as just after the crisis. According to the authors of the report, public policy plays a major role in the well-being of inhabitants. Since the current approach of most governments goes beyond the mere economic well-being of the population, it is crucial for governments to understand what factors determine happiness. In this context, control of corruption and the reduction of conflicts are key elements to pursue (Helliwell, Layard, & Sachs, 2019). This is in line with the livability theory, stating that the happiness of a population is mainly based on the quality of living conditions (Veenhoven & Ehrhardt, 1995).

Prior literature shows that individual happiness is influenced by, among other things, income, marital status, employment status, gender, religiosity and age (Easterlin, 2003). At the country level, both the unemployment and inflation rate and the Gross domestic product (GDP) are recurring determinants of happiness emerging from the existing literature (Blanchflower, Bell, Montagnoli, & Moro, 2014). However, it is conceivable that there are many other factors influencing the happiness of individuals. One of these factors is crime, more specifically crime

victimization. The few studies focussing on the relationship between crime and happiness generally find a negative impact of various crime variables on happiness (e.g. Powdthavee, 2005). In this context, it is important to distinguish between victims of crime and criminals themselves. Possibly, being a criminal and the associated money that is earned can have a positive influence on a criminal's subjective well-being.

However, the effect of being a criminal on happiness falls outside the scope of this study, since this study focuses on the victim side of crime, fear of crime and its effects on satisfaction with life, which is a relatively unexplored topic within the literature. By analysing happiness data from America, the World Happiness Report 2019 shows that despite the low crime and unemployment rate and the growth in GDP per capita, the overall happiness level has not risen over the past years, referring to the Easterlin paradox (Helliwell, Layard, & Sachs, 2019). In this paper, the impact of crime on subjective well-being will be examined in detail across a sample of European countries by using data from the European Social Survey (ESS). Accordingly, the following research question will be answered:

"What is the effect of crime on subjective well-being?"

As an extension, this study examines whether institutional trust is a mediating factor in the effect of fear of crime on happiness, which to my best knowledge, has not been investigated yet. In addition, by also zooming in on gender differences in the effect of both crime victimization and fear of crime on life satisfaction, this study contributes to the prior literature in this context.

By estimating a baseline OLS regression model and a multi-level model when the country-level variables are added to the analysis, the results show a negative and significant effect of both crime victimization and fear of crime on life satisfaction. This implicates that governments should continue to combat crime to achieve a happier population. However, no statistically significant results are found between the crime rate and life satisfaction. Moreover, the interaction term between institutional trust, measured by the rule of law which is one of the Worldwide Governance Indicators (WGI), and fear of crime is positive and significant. This indicates that the negative effect of fear of crime on life satisfaction declines as institutional trust increases. Furthermore, this underlines the importance of good quality institutions and the confidence of citizens in these institutions. Lastly, gender differences are visible in the effect of both crime victimization and fear of crime on subjective well-being in the sense that this negative effect appears to be stronger for males as compared to females.

The structure of this paper is the following. First of all, the literary framework is presented in the next section, consisting of the rise of happiness economics as well as existing research on the relationship between crime and happiness, followed by the mediating role of institutional trust. This section also introduces the hypotheses. Subsequently, the data and methodology are described, after which the results are reported. The paper ends with a discussion and conclusion, followed by the limitations and recommendations for further research.

2. Literature Review

2.1 Well-being in general

In recent years, happiness economics or economics of well-being has emerged alongside 'traditional' economics. Besides objective measures of welfare, subjective measures of welfare are increasingly being considered. With the help of insights from psychology and behavioural economics, a broader view of measuring utility has arisen. Whereas traditional economists assume that utility depends primarily on income, happiness economists assume that utility also depends on non-material components, such as health and personal reward (Graham, 2005). Not only the outcome of a decision influences the utility of an individual, but also the path to this decision is important. Therefore, procedural utility should be viewed in conjunction with outcome utility (Frey & Stutzer, 2005). In addition, the concept of experienced utility is important to consider in the sense that both negative and positive experiences of a decision can influence the well-being of an individual (Kahneman & Tversky, 2003).

With these new insights into measuring utility, many happiness economists believe that governments must also take into account subjective standards of welfare. In their opinion, the classical view that money is the only indicator of welfare should be replaced by a broader view of measuring welfare. In this context, Greve (2008, p. 58) defines welfare as follows:

> "Welfare is the highest possible access to economic resources, a high level of well-being, including happiness, of the citizens, a guaranteed minimum income to avoid living in poverty, and, finally, having the capabilities to ensure the individual a good life."

Nonetheless, it should be noted that subjective standards of welfare should be seen as a complement to objective standards of welfare, since these two different standards are not mutually exclusive (Graham, 2005). As stated before, governments and policymakers increasingly try to seek the happiness of the population instead of only considering objective standards of welfare such as

GDP per capita (Fleurbaey, 2009). However, it is challenging to measure happiness as it is a subjective feeling that is different for each individual.

For a long time, attention has gone out to find a correct measure of subjective well-being. First of all, prior literature indicates that happiness is determined internally and explicitly not externally. Everyone compares their state of well-being with an internally determined standard (Diener et al., 1985). Nowadays, happiness is usually measured based on population surveys in which the participants answer questions related to, among other things, life satisfaction and happiness, often on an ordinal scale (Greve, 2008). These surveys are conducted in countries all over the world and are increasingly used in public policy. As happiness is affected by, for example, the mood of participants, the interpretation of answers to such general questions remains a challenge for social scientists. However, if these surveys consist of representative samples, these 'mood effects' will be eliminated (Kahneman & Krueger, 2006). For political purposes, a major concern is whether people are able to realistically express their subjective feelings through these surveys. Although this subject is still under development, prior literature assumes that this is indeed the case. Research in multiple countries indicates that happiness is repeatedly influenced by the same individual factors. Moreover, self-reported happiness corresponds to activation in specific regions of the brain, which supports the statement that the subjective feeling of happiness objectively represents reality (Layard, 2010).

Despite the fact that the terms life satisfaction and happiness are frequently used interchangeably, prior literature is inconclusive as to whether these concepts have the same meaning. While some scholars state that these terms can be considered synonyms (Veenhoven, 2012), other scholars suggest that these are not identical. For example, although happiness and life satisfaction appear to be highly correlated, Gundelach & Kreiner (2004) find that they are not influenced by the same variables. Where happiness is general and refers to emotions, life satisfaction has a cognitive character and is more specific in the sense that it refers to various aspects of life (Gundelach & Kreiner, 2004).[1]

Different standards of well-being have emerged in the literature. In practice, the 'satisfaction with life as a whole' measure is frequently used in population surveys, for example in the Euro-barometer surveys (Veenhoven, 2012). In addition, the question of whether someone is feeling happy on a certain scale is often included in surveys. However, other measures of subjective well-being are also being considered. According to Diener et al., (1985), the Satisfaction With Life Scale (SWLS) is suitable to display subjective well-being correctly. This multi-item scale is about satisfaction with life as a whole and explicitly not an enumeration of satisfaction with various

[1] The terms subjective well-being, happiness and life satisfaction will be used interchangeably in this study.

domains in life, because individuals have different perceptions about the value of all aspects contributing to their well-being. Nonetheless, as this scale consists of five questions, it is time-consuming and costly to implement in surveys. Therefore, many surveys regarding subjective well-being consist of questions such as satisfaction with life as a whole or the feeling of happiness in general in order to measure individual subjective well-being. Another way to measure well-being is using the so-called Cantril Ladder, where the highest step stands for the best life and the lowest step stands for the worst life. With this measure, the step on which individuals indicate their location determines the level of subjective well-being (Helliwell & Barrington-Leigh, 2010).

Still, a remaining question is what actually makes people happy. In other words: what are the determinants of happiness? A plethora of papers have studied the determining factors of happiness, both at the macro and micro level. As stated before, although happiness is subjective and depends on different conditions for everyone, there are several relevant and recurring factors determining happiness emerging from the existing literature. In this respect, a distinction can be made between internal and external factors. Where internal factors are not changeable, external factors refer to environmental factors that can change during life (Schimmack, 2006). Concerning internal factors, prior literature shows that both genes and personality affect the happiness of individuals. For example, Furnham & Brewin (1990) find a positive correlation between extraversion and subjective well-being and a negative correlation between neuroticism and subjective well-being.

In addition to internal factors, literature has paid attention to external factors contributing to happiness. By focusing on national happiness figures, Di Tella, MacCulloch & Oswald (2003) find that GDP per capita is positively related to life satisfaction across the United States and multiple European countries. Not only GDP per capita itself, but also the change in GDP per capita is an important determinant of happiness according to their research. Furthermore, they state that people get used to a higher national income and therefore the positive effect of an increase in the national income on life satisfaction diminishes to a certain extent in the long term. Moreover, prior literature shows that both unemployment and inflation lead to a less happy population, where the effect of unemployment is larger as compared to the effect of inflation (Di Tella, MacCulloch, & Oswald, 2001; Blanchflower, Bell, Montagnoli, & Moro, 2014).

Besides macro-economic variables, individual-level external factors affect happiness as well. Examples include demographic factors and factors such as health status and education. With respect to demographic factors, prior literature generally shows a U-shaped effect of age on life satisfaction. In addition, married individuals are generally happier compared to unmarried individuals (Frey & Stutzer, 2000). By zooming in on gender differences, literature shows that

women are more satisfied with their lives as compared to men. For example, Zweig (2015) finds that in 10 out of the 73 countries she studied, women significantly report themselves happier as compared to men. In contrast, men seem to be happier in 2 out of the 73 countries and for the remaining countries, no significant gender effects are found. Moreover, as one could imagine, having a better health status increases happiness (Mahon, Yarcheski, & Yarcheski, 2005). Finally, prior literature shows that having a higher education is positively associated with subjective well-being (Cuñado & de Gracia, 2012).

2.2 Crime and well-being

Based on section 2.1, it can be concluded that many studies have examined happiness and its determinants. As stated before, relatively few attention has gone out to the relationship between crime and well-being, which remains a largely unexplored topic in the existing literature. As mentioned in the introduction, livability theory states that the quality of living conditions plays an important role when it comes to happiness (Veenhoven & Ehrhardt, 1995). For example, this theory predicts that being a crime victim or living in an area with a high crime rate will not contribute to the happiness level in a positive way. Since crime has negative consequences for society, but especially for victims of crime and their relatives, the prevention of crime by lowering the crime rates is a priority for public authorities (Welsh & Farrington, 2012).

The mental consequences of crime have been frequently discussed in the psychological field. For example, prior studies show that crime victims are more likely to be stressed, anxious, and have an increased risk of depression or post-traumatic stress disorder. In addition, crime victims are more likely to have sleep problems and suffer from nightmares as compared to non-victims (Frieze, Hymer, & Greenberg, 1987). Norris & Kaniasty (1994) find that these negative consequences are stronger for victims of violent crimes in comparison with victims of property crimes, but for victims of property crimes there is still a higher chance of being stressed, anxious or depressed as compared to non-victims. Up to fifteen months after the incident, these effects are still present.

One can imagine that crime has a detrimental influence on subjective well-being. Various measures of crime emerge from prior studies examining the relationship between crime and well-being. The most common indicators are crime rates, crime victimization, and fear of crime. The first two indicators can be described as objective measures of crime, whereas the last indicator represents a subjective measure of crime, which is mostly represented by the feeling of safety in the existing literature (Davies & Hinks, 2010).

Most of the studies examining the relationship between crime and well-being are targeted at a specific country or region. For example, Powdthavee (2005) finds a negative relationship between household crime victimization and happiness in South Africa, by examining this effect for both property crimes and violent crimes. Moreover, by zooming in on neighbourhoods, non-victimized households report themselves unhappier if the regional crime rate is higher, which could be caused by the fear of becoming a crime victim. Similar results emerge from a study by Davies and Hinks (2010). Generally, they find a negative relationship between crime victimization, more specifically being attacked, neighbourhood crime rates, the feeling of safety and well-being in Malawi. However, when comparing the effects by gender, it seems that the well-being of men is negatively affected by both objective and subjective measures of crime, whereas the well-being of women is only negatively affected by subjective measures of crime. The authors suggest that this gender difference may be caused by the social stigma that rests on men becoming crime victims in comparison with women becoming crime victims. According to Moore & Shepherd (2007), fear of crime is too general. They make a distinction between fear of personal loss and fear of personal harm and find that women are more affected by the fear of personal harm while men are more affected by the fear of personal loss.

With respect to gender differences related to crime in general, prior literature shows that men are more likely to become victims of crime than women, whereas women are more afraid of crime in comparison with men. In addition, it appears that women take more precautions as compared to men, in the sense that they do not go on the streets alone in the evening, which restricts their freedom and which can have a stronger effect on the satisfaction with life (Gordon, Riger, LeBailly, & Heath, 1980). Furthermore, emotional reactions to crime victimization vary according to gender. While hate and anger are the prevailing emotions in men, fear and shame are the prevailing emotions in women (Wrede & Ask, 2015).

Not only in Africa, but also in other continents, the relationship between crime and happiness has been studied. While prior studies considering Africa mainly consist of household level data, the study by Cheng & Smyth (2015) uses data at the micro-level from the Chinese General Social Survey. Firstly, they find a negative relationship between crime victimization and happiness. Furthermore, having an acquaintance who is a crime victim affects happiness in a negative way. Another interesting finding is that the relationship between crime victimization and well-being appears to be relative for women. When victimized women have an acquaintance who has also become a crime victim, the effect of feeling victimized is softened. A different study investigating the relationship between crime and happiness in Asia is the study by Kuroki (2013). Using data from the Japanese General Social Survey, Kuroki finds a negative relationship between

victims of burglary and well-being. According to this study, this negative effect is equivalent to a loss of USD 35,000 to USD 52,500. Moreover, the negative effect of burglary on happiness is not visible to wealthy households: households in the highest income group, earning more than 7,5 million Yen, are not affected by burglary. As a possible explanation for this phenomenon, Kuroki mentions that richer households generally have more money available to invest in safety as compared to poorer households and thus feel less hurt when something is stolen from them, due to the buffer they often have.

In contrast with the findings of Kuroki, Cohen (2008) concludes that the negative effect of burglary on happiness is equivalent to a loss of almost USD 85,000 in the United States. Besides, Cohen finds no significant effect of the feeling of unsafety and county crime rates on happiness. According to Cohen, it is possible that people living in unsafe neighbourhoods are compensated with lower house prices, thus neglecting the negative effect of the feeling of unsafety on happiness. In line with the results of Cohen, Michalos & Zumbo (2000) also find little influence of crime-related variables on life satisfaction in Prince George, Canada.

Finally, there are a few studies investigating the relation between crime and well-being in European countries. Staubli, Killias & Frey (2014) find a negative effect of crime victimization on happiness in Switzerland and Hanslmaier (2013) also finds a negative effect in Germany, although the effect of county crime rates on happiness is not significant. Furthermore, Hanslmaier (2013) stresses the importance of controlling for fear of crime when estimating the effect of crime victimization on subjective well-being, since crime victims are generally more afraid of becoming victims again which in turn mediates the relationship between crime victimization and subjective well-being.

In addition to the studies described above, which focus on a specific country or region, a couple of cross-country studies examining the relationship between crime and happiness have been carried out. For example, Di Tella & MacCulloch (2008) discover a negative effect of crime rates on happiness across several OECD countries. Besides, Moore (2006) finds a negative relationship between fear of crime, measured by the feeling of safety, and happiness using data from the ESS including 20 European countries. According to this study, the transition from fearless to fear is equivalent to a drop in income of more than 13,000 euros. Brenig & Proeger (2018) have studied the relationship between crime and happiness by utilizing data from the ESS as well. On the individual level, they find that being a crime victim and being afraid of crime negatively impact subjective well-being. Furthermore, becoming a crime victim corresponds to a loss of income of nearly 25,000 euros. However, at the regional level, no significant relationship emerges between the homicide rate and subjective well-being.

In summary, the general trend emerging from prior literature is a negative effect of crime-related indicators on subjective well-being. Based on the existing literature examining these effects, the following hypotheses will be tested for in this paper:

Hypothesis 1: *Crime victimization reduces individual subjective well-being.*

In the context of Hypothesis 1, gender differences will also be explored. As stated before, men generally have a higher chance of becoming crime victims in comparison with women. As suggested by Davies & Hinks (2010), the social stigma which rests on men becoming crime victims possibly leads to a stronger effect of crime victimization on happiness for men as compared to women. Therefore, it is expected that the negative effect of crime victimization on individual subjective well-being is stronger for males in comparison with females. Accordingly, Hypothesis 1a is stated as follows:

Hypothesis 1a: *The negative effect of crime victimization on individual subjective well-being is stronger for males than for females.*

The second hypothesis focuses on the effect of fear of crime on subjective well-being, which is the following:

Hypothesis 2: *Fear of crime reduces individual subjective well-being.*

As with Hypothesis 1, gender differences will be explored with respect to the second hypothesis as well. In contrast to Hypothesis 1a, a stronger negative effect of fear of crime on happiness is expected for women as compared to men. Namely, it follows from the literature that women are generally more afraid of becoming victims of crimes in comparison with men. Moreover, women take more precautions, affecting their freedom and quality of life, which could negatively influence subjective well-being as well (Gordon, Riger, LeBailly, & Heath, 1980). Therefore, Hypothesis 2a is the following:

Hypothesis 2a: *The negative effect of fear of crime on individual subjective well-being is stronger for females than for males.*

In relation to fear of crime and subjective well-being, it is conceivable that trust, more specifically trust in national institutions such as the legal system and the police, plays a role in the fear of crime. For example, lack of trust in the police can lead people to think that crime cannot be prevented which increases the perceived risk of becoming a crime victim and eventually raises fear of crime (Wu & Sun, 2009).

Generally, trust is a broad concept and different definitions of trust coexist in the existing literature. It can be related to trust in other people, but also in institutions, the government, or even in yourself, which refers to self-confidence or self-esteem. Although prior literature agrees that it has to do something with vulnerability, literature is inconclusive about the specific definition of trust. Moreover, definitions of trust differ across various disciplines. Rousseau, Sitkin, Burt & Camerer reviewed the different aspects of trust according to several disciplines (e.g. psychology and economics) and come up with the following definition of trust, where risk and interdependence are essential conditions (1998, p. 395):

> "Trust is a psychological state compromising the intention to accept vulnerability based upon positive expectations of the intentions or behaviour of another."

Institutional trust relates to the general definition of trust as aforementioned but is a specific domain of trust, where there exists a certain hierarchy between individuals and institutions. According to Hudson (2006), trust in institutions is mainly determined by both direct and indirect knowledge, where socioeconomic variables affect these two aspects of knowledge. In addition, the quality of the institution plays a major role in the perceptions of these institutions. With respect to the two types of knowledge, direct knowledge refers to personal experiences with institutions. In relation to crime, victims of crime are more likely to have direct experiences with the police and they will probably have different perceptions of trust than perpetrators, who often come into direct contact with the police in a completely different, mostly negative, way. In contrast to direct knowledge, indirect knowledge refers to what is said about a particular institution, for example by people in the vicinity or by the media. Concerning fear of crime, the role of the media is also decisive in the sense that people are made aware of crime in their region by what is presented in the media. In this context, Hanslmaier (2013) finds that the consumption of local media, more specific reading regional newspapers, is a mediating factor in the relationship between crime rates and fear of crime.

Regarding subjective well-being, prior literature shows that trust in institutions positively affects subjective well-being (Hudson, 2006). However, the impact of institutional trust in relation

to fear of crime and well-being has not been investigated yet. Therefore, as an extension, this paper investigates whether institutional trust is a mediating factor in the relationship between fear of crime and life satisfaction. This leads to the third hypothesis of this paper:

Hypothesis 3: *Institutional trust is a mediating factor in the effect of fear of crime on individual subjective well-being.*

Finally, the last hypothesis that will be tested zooms in on crime rates at the country level. This hypothesis considers the macro-micro relationship between crime and subjective well-being and is stated as follows:

Hypothesis 4: *A higher crime rate in a country corresponds to a lower level of subjective well-being.*

3. Data

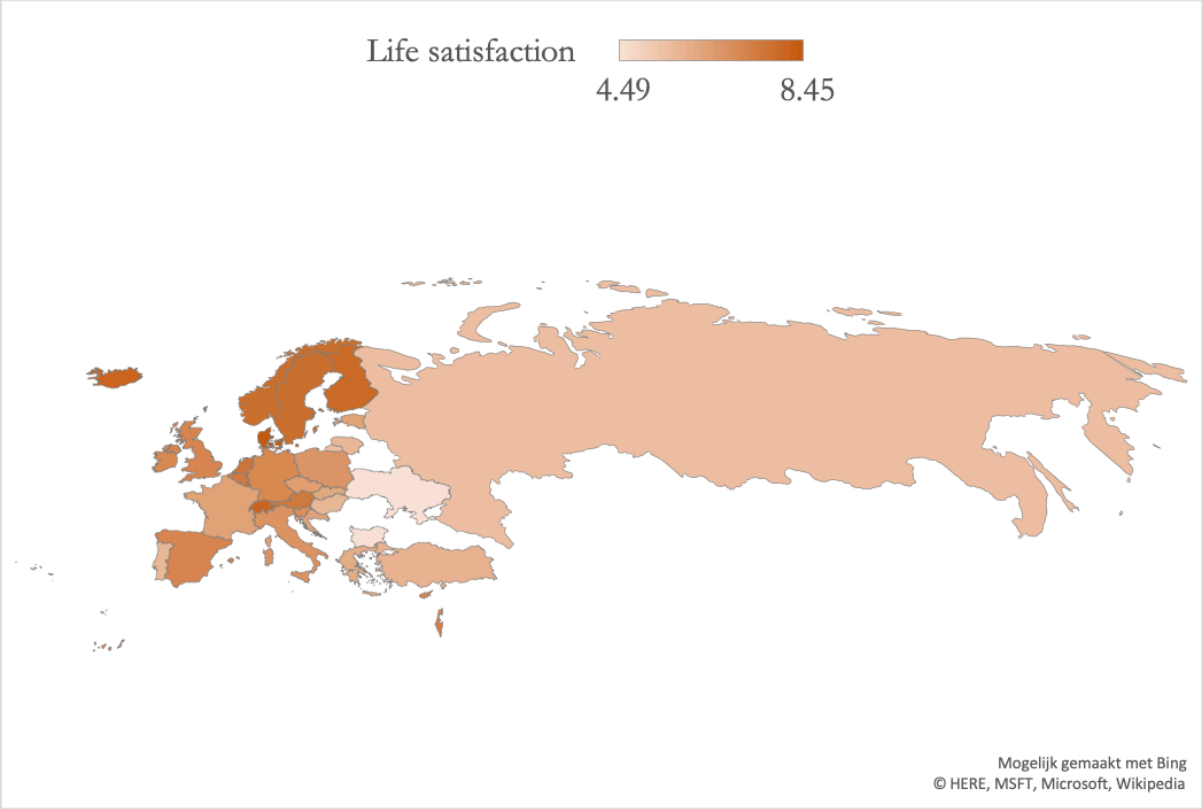
The main data source regarding individual subjective well-being is the ESS. The ESS is a cross-sectional survey that is repeated every two years and consists only of European countries. Every survey round, a representative sample of individuals from the participating countries is interviewed face-to-face. Moreover, the sampling technique is random (European Social Survey, 2019). In 2002, the ESS collected data for the first time, which is also the first round of data used for this paper. To date, there have been eight ESS rounds, the last of which has been in 2016. The questionnaire consists of a wide range of topics, including interest in politics, media use, crime, demographic variables and questions relating to subjective well-being. The second data source regarding variables at the country level is the World Bank Development Indicators. The World Bank Development Indicators have been providing statistical time series data since 1947. This mainly concerns data in the context of development, which can be easily compared between the different countries. Eventually, the dataset consists of 374,729 observations from 32 European countries. Each round, an average of 46,841 individuals are interviewed by the ESS, corresponding to an average of 1,922 observations per country per ESS round, with a standard deviation of approximately 450.

Subjective well-being

As stated in section 2.1, there are several ways to measure subjective well-being. In this study, individual subjective well-being is the main dependent variable and is measured using self-reported satisfaction with life, referring to the cognitive evaluation of an individual's life (Suh, Diener, Oishi, & Triandis, 1998). Regarding the validity of using a single-item scale to measure subjective well-being, Abdel-Khalek (2006) finds that this is a reliable measure when comparing results with studies using a multiple-item scale, for example the Satisfaction With Life Scale. The survey question regarding life satisfaction in the ESS is the following: *'All things considered, how satisfied are you with your life as a whole nowadays?'*. Respondents answer this question using an 11-point scale, where 0 stands for extremely dissatisfied and 10 stands for extremely satisfied.

In Figure 1, the average life satisfaction per country in the period 2002 until 2016 is depicted, where the averages are calculated using data from the ESS.[2] Generally, Figure 1 shows that the life satisfaction level is highest in Northern Europe, namely in Denmark, Norway, Finland, Sweden, and Iceland.

Figure 1: Average life satisfaction per country, period 2002-2016



[2] In Appendix A1, the European countries that are part of the dataset are presented with the average life satisfaction over the years 2002-2016.

As a robustness check, the analysis includes happiness measured on an 11-point scale as a dependent variable as well. In contrast to satisfaction with life as a whole which involves a longer period of time, this question measures how happy an individual is at this point in life. Accordingly, the corresponding survey question in the ESS is the following: *'Taking all things together, how happy would you say you are?'*, where 0 stands for extremely unhappy and 10 stands for extremely happy.

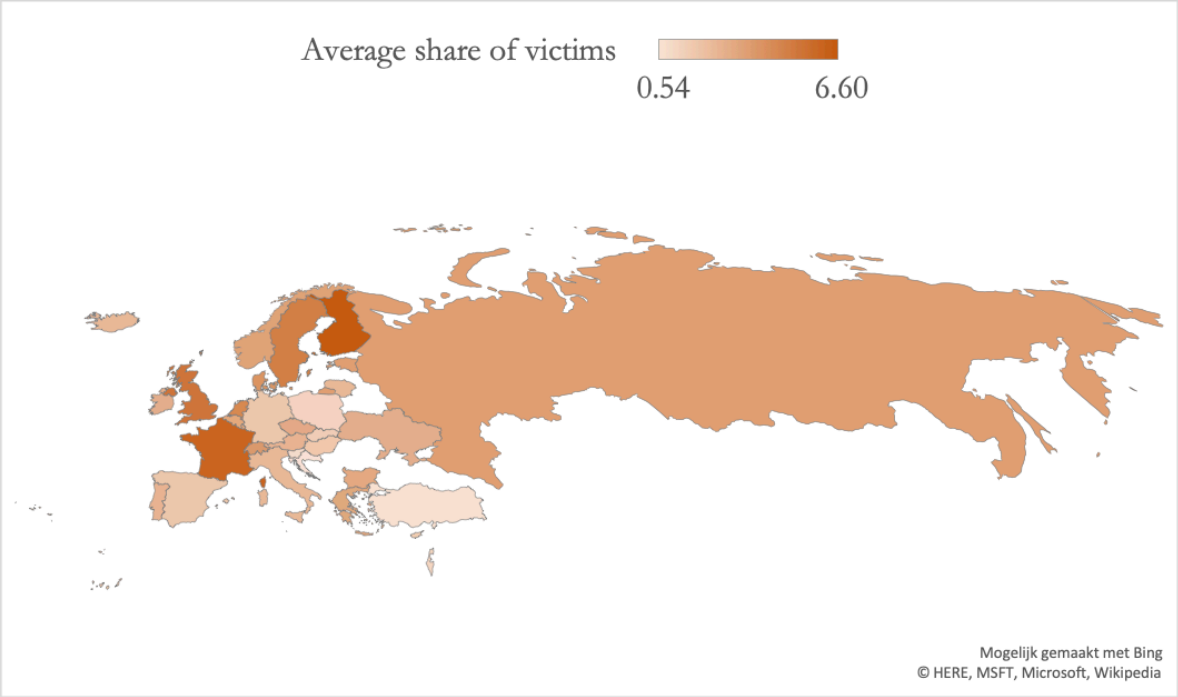
Crime-related variables

The main independent variables are crime-related variables and consist of three different variables, of which two variables are measured at the individual level and one variable is measured at the country level. The first variable is crime victimization and measures whether respondents have been victims of a burglary or assault in the last five years. In the ESS survey, the following question is asked: *'Have you or a member of your household been the victim of a burglary or assault in the last 5 years?'*. Respondents answer this question with yes or no, so originally this is a binary variable. However, this question is measured at the household level while the main interest is whether respondents have been crime victims themselves. Therefore, the size of the household is considered. If the household consists of one person, it is assumed that the respondent himself has become the victim of a crime if the aforementioned question in the ESS survey is answered in the affirmative.[3] Next, a dummy variable is created which equals 0 for non-victimized households, 1 for victimized respondents and 2 for victimized households.

Figure 2 visualizes the percentage of self-reported burglary or assault victims per country, averaged over all eight ESS rounds. Generally, this figure shows that the average percentage of self-reported crime victims is highest in the United Kingdom, France and Finland. In contrast, Turkey, Spain, Germany and Poland have a low percentage of self-reported crime victims compared to the other European countries in the sample.

[3] It is important to mention that this assumption could possibly contain a measurement error, since the household can currently consist of one person, whereas this was not the case five (or less) years ago.

Figure 2: Average percentage of self-reported crime victims per country, period 2002-2016



The second crime-related variable captures the fear of crime and measures whether respondents consider it to be safe to walk alone in the area after dark. In the ESS survey, the following question is asked: *'How safe do you – or would you – feel walking alone in this area after dark?'*. Respondents answer this question on a 4-point scale, where 1 represents the category 'very safe' and where 4 represents the category 'very unsafe'.

The last crime-related variable is the homicide rate, which is measured at the country level. A major concern is the comparison of crime rates between countries, since the definitions of different types of crime and the legal systems are not the same across countries. In this study, the data source for the homicide rate is the World Bank Development Indicators. For every country in the sample, the number of intentional homicides per 100,000 inhabitants is indicated. The choice of the homicide rate as a measure for the crime rate is based on the fact that this rate is most comparable between countries, because the definition of homicide across countries is more or less the same which is not the case for other types of crime. In addition, homicides are generally consistently reported by the police in European countries (Eurostat, 2014).

Indicators of institutional trust

With regard to Hypothesis 3, it will be tested whether trust in institutions is a mediating factor in the relationship between fear of crime and individual subjective well-being. In this paper, two indicators are used to measure institutional trust, one at the individual level and one at the country

level. An individual-level index of perceived institutional trust is created based on the average of four questions in the ESS which measure respectively individual trust in the police, the country's parliament, politicians and the legal system on an 11-point scale, where 0 stands for 'no trust at all' and where 10 stands for 'complete trust'.

The country-level indicator of trust is the rule of law, which is one of the six indicators of the WGI. The WGI is calculated using 31 data sources and captures perceptions of governance within countries, based on individual perceptions, the public sector, the private sector and perceptions of experts in the NGO sector (Kaufmann, Kraay, & Mastruzzi, 2011). By using the WGI, it is possible to compare the quality of institutions across countries over time. The WGI consists of the following six indicators: Voice and Accountability, Political Stability & Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption. In this sense, the rule of law indicator is defined as follows (Kaufmann, Kraay, & Mastruzzi, 2011, p. 223):

> "Perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence."

The WGI, including the rule of law indicator, are measured on a -2.5 to 2.5 scale, where -2.5 represents a low score on governance and where 2.5 represents a high score on governance.

Control variables

Several control variables that might moderate the relationship between crime and subjective well-being are added to the analysis. These control variables can be divided into individual-level controls and country-level controls. The individual-level controls are gender, marital status, education, employment status, age, age-squared, religiosity, feeling about the household's income, citizenship, health status, individual perceived trust and an indicator for mood, measured by the month of the interview. The country-level control variables are the natural logarithm of GDP per capita and both the inflation and the unemployment rate.

Regarding individual-level control variables, prior literature shows that personal characteristics influence the happiness of individuals. For example, it follows that women are generally happier than men, employed individuals are happier than non-employed individuals, being educated increases happiness and the effect of age on life satisfaction is U-shaped (Wood, Rhodes, & Whelan, 1989; Frey & Stutzer, 2000; Blanchflower & Oswald, 2008). In addition, being

healthy positively influences happiness and married individuals and individuals with a partner are happier than non-married individuals and individuals without a partner (Easterlin, 2003). Moreover, religious people report themselves happier in comparison with non-religious people and citizens of a country are generally more satisfied with their lives as compared to non-citizens (Myers & Diener, 1996; Kirmanoğlu & Başlevent, 2014). Lastly, prior literature shows that distress about the financial situation negatively impacts happiness (Lange & Byrd, 1998).

Regarding country-level controls, prior literature shows that GDP per capita increases happiness, whereas both the unemployment and the inflation rate negatively influence subjective well-being (Frey & Stutzer, 2000). Since self-reported happiness is influenced by the mood of individuals, the month of the interview is also added to the analysis as a control variable to control for mood effects.

In Table 1, the descriptive statistics of all of the variables included in the models are displayed, showing the amount of observations per variable (N), the mean, the standard deviation (SD) and both the minimum and maximum value of each variable included in the dataset. The description of all the variables are presented in Appendix A2. Furthermore, the correlation matrix is shown in Appendix A3. The correlation that stands out in terms of high correlation is the correlation between age and age-squared (0.981). However, there is a logical explanation for this high correlation since age-squared is calculated based on age. Moreover, the correlation between the two measures of individual subjective well-being, namely the dependent variables life satisfaction and happy, is quite high (0.712), something which also appears in prior literature (Gundelach & Kreiner, 2004).

Table 1: Descriptive statistics

Variables	**N**	**Mean**	**SD**	**Minimum**	**Maximum**
Dependent variables					
Life satisfaction	372,691	6.853	2.320	0	10
Happy	372,156	7.196	2.030	0	10
Individual-level variables					
Crime victimization	373,352	0.319	0.711	0	2
Fear of crime	370,301	2.028	0.805	1	4
Gender	374,397	1.538	0.499	1	2
Marital status	274,197	0.369	0.483	0	1
Education	370,639	1.048	0.602	0	2
Employment status	374,729	0.513	0.500	0	1
Age	373,047	47.95	18.60	13	123
Age-squared	373,047	2,645	1,860	169	15,129
Religiosity	369,908	1.377	0.485	1	2
Feeling about income	366,818	2.077	0.888	1	4

Citizenship	374,451	1.041	0.199	1	2
Health status	374,165	2.235	0.937	1	5
Perceived trust	372,477	4.714	2.181	0	10
Month of interview (mood indicator)	372,065	7.737	3.976	1	12
Country-level variables					
Homicide rate	363,308	1.930	2.501	0.300	20.13
GDP per capita (ln)	374,729	10.18	0.750	7.221	11.53
Inflation rate	374,729	2.752	2.974	-0.922	25.23
Unemployment rate	374,729	8.058	3.818	2.550	24.79
Rule of law	374,729	1.203	0.735	-0.955	2.100

4. Methodology

With respect to subjective well-being research, literature is inconclusive about which model is best to use. Because the dependent variable in subjective well-being research, such as satisfaction with life or happiness, is often measured on a certain scale (e.g. from 0 to 10), an important choice when it comes to picking the model is whether this variable is considered to be ordinal or cardinal. Initially, scholars mainly used models in which it is assumed that the distance between the categories is not known, meaning that the dependent variable is considered to be ordinal. Therefore, ordered probit and ordered logit models are commonly used models in happiness research (see for example Gerdtham & Johannesson, 2001; Hartog & Oosterbeek, 1998). However, the main drawback associated with the use of ordered probit and ordered logit models is that the magnitude of the coefficients cannot be interpreted directly, sole by means of marginal effects. Without estimating marginal effects, it is only possible to interpret the sign of the coefficients (Frey & Stutzer, 2000).

With the publication of the study by Ferrer-i-Carbonell & Frijters (2004), the methodology for happiness research has taken a second direction. According to their study, results from Ordinary Least Squares (OLS) models and ordered latent response models provide more or less the same results. Therefore, they conclude that it makes little difference whether the dependent variable is considered to be ordinal or cardinal. Equivalently, Frey & Stutzer (2000) find similar results when estimating both OLS models and ordered probit models. The fact that the magnitude of the coefficients can be interpreted directly by estimating an OLS model is a major advantage of this method.

Based on the findings from Ferrer-i-Carbonell & Frijters (2004) and Frey & Stutzer (2000), the OLS model is preferred over the ordered latent response model in this case. Hence, the dependent variable is considered to be cardinal, which means that the distance between the categories is assumed to be the same. To get an unbiased estimate by using OLS, there should be

no correlation between the error term and the independent variables, referring to the zero conditional mean assumption. In addition, there should be no multicollinearity, meaning that the independent variables are not linearly related to each other (Wooldridge, 2012). In this study, the following OLS model is estimated to investigate the relationship between crime and subjective well-being:

$$Life\ satisfaction_{i,c,t} = \beta_0 + \beta_1(Crime\ victimization_{i,c,t}) + \beta_2(Fear\ of\ crime_{i,c,t}) + \beta_3 X'_{i,c,t} + \Sigma\beta_4(ESSround_t) + \Sigma\beta_5(Country_c) + \mu_{i,c,t}$$

In this equation, the subscript i represents an individual in a country (c) in a certain ESS round (t). $Crime\ victimization$ refers to the categorical variable indicating if an individual is a victimized respondent, lives in a victimized household or lives in a non-victimized household. $Fear\ of\ crime$ refers to the categorical variable indicating if an individual considers it to be safe to walk alone in the area after dark. Individual-level control variables are captured by X' and both ESS round dummies and country dummies are added to the regression as well ($ESSround\ \&\ country$). Lastly, $\mu_{i,c,t}$ refers to the error term. In order to correct for potential heteroskedasticity problems, robust standard errors are estimated.

In the baseline OLS model, crime victimization is the only crime-related variable included in the regression. In a second specification, fear of crime is added to the model. Lastly, the third model adds both individual perceived trust and mood effects. To see if the results regarding crime victimization differ across the countries included in the sample, the regressions are also run by country. As a robustness check, the OLS models are estimated by using happiness on an 11-point scale as the dependent variable as well. Lastly, gender differences will be explored by adding interaction terms between gender and both crime victimization and fear of crime to the OLS regressions.

When the country-level variables are added to the analysis, a multi-level model is estimated. One major advantage of this model is that the model is operated based on different levels where both the coefficients and the standard errors are clustered on these levels (Ballas & Tranmer, 2012). In this case, level 1 refers to individuals and level 2 refers to the corresponding countries. However, the use of multi-level models in the case of cross-country datasets such as the ESS needs to be carefully considered. Firstly, the intra-class correlation (ICC) with respect to the baseline model including the main independent variables should be higher than 0.10 in order to estimate a reliable

model (Bliese, 1998).[4] Second, Bryan & Jenkins (2013) find that linear multi-level models only provide confidential results if the dataset includes 25 countries or more.[5] The following equation refers to the multi-level model that is estimated:

$$
\begin{aligned}
&Life\ satisfaction_{i,c,t} \\
&\quad = \gamma_{00} + \gamma_{10}\left(crime\ victimization_{i,c,t}\right) + \gamma_{20}\left(fear\ of\ crime_{i,c,t}\right) \\
&\quad + \gamma_{01}\left(homicide\ rate_{c,t}\right) + \gamma_{30}\left(X'_{i,c,t}\right) + \gamma_{02}\left(X''_{c,t}\right) + \Sigma\gamma_{40}\left(ESSround_{t}\right) \\
&\quad + \mu_{0j} + \mu_{1j}
\end{aligned}
$$

Again, the subscript i denotes an individual in a country (c) and ESS round (t). The country-level explanatory variable that is added to the analysis is the $homicide\ rate$ in a country in a given ESS round. Furthermore, X' refers to the individual-level control variables and X'' refers to the country-level control variables, which are both the inflation and the unemployment rate and the natural logarithm of GDP per capita. As in the OLS model, ESS round dummies are added to the regression. Finally, μ_{0j} represents the second level error term and μ_{1j} refers to the first level error term. Again, robust standard errors are estimated.

In a second specification of the multi-level model, both the rule of law indicator and the interaction term between this indicator and fear of crime are added to the analysis. Moreover, gender differences will be explored by adding interaction terms between gender and both crime victimization and fear of crime to the multi-level model.

5. Results

5.1 OLS regressions

The results of the OLS regressions are presented in Table 2. The regressions in Table 2 contain the pooled sample and both ESS round dummies and country dummies are added to the models. Column 1 refers to the baseline model where the main explanatory variable is crime victimization and controls for the baseline individual-level controls. Column 2 adds fear of crime to the analysis. Lastly, individual perceived trust and the month of the interview as an indicator of mood effects are added to the model in column 3.

[4] In this case, the ICC is equal to 0.132 when the multi-level model is estimated including the dependent variable life satisfaction and the main independent variables which are crime victimization, fear of crime and the homicide rate.
[5] It is expected that the multi-level model provides reliable results since the ESS dataset includes 32 countries in this case.

Generally, the results show that crime victimization negatively influences individual life satisfaction. More specifically, being a victimized respondent as compared to living in a non-victimized household decreases individual life satisfaction with 0.231, ceteris paribus. In addition, living in a victimized household as compared to living in a non-victimized household decreases individual life satisfaction with 0.112, ceteris paribus. These effects are significant at the 1% significance level. This implicates that the negative effect of crime victimization on individual subjective well-being is larger for crime victims themselves than for someone being part of a household where someone has become a victim of crime. Consequently, Hypothesis 1 cannot be rejected.

When fear of crime is added, column 2 shows that the negative effect of crime victimization on life satisfaction remains, but the magnitude of the effect is smaller. This is in line with the reasoning in the study by Hanslmaier (2013), stating that crime victimization increases fear of crime, mediating the relationship between crime victimization and well-being. With respect to the effect of fear of crime on life satisfaction, this relationship is also negative. For example, feeling very unsafe when walking alone in the area after dark as compared to feeling very safe when walking alone in the area after dark decreases individual life satisfaction by 0.577, ceteris paribus. The aforementioned effect is significant at the 1% significance level. This negative relationship is also visible for feeling unsafe as compared to feeling very safe and for feeling safe as compared to feeling very safe, although the negative effect is smaller for these two categories. Accordingly, Hypothesis 2 cannot be rejected.

The results are even robust when controlling for individual perceived trust and mood effects. Although the effect gets a bit smaller, the negative impact of crime victimization on life satisfaction continues to exist. This also holds for fear of crime. Furthermore, the effect of individual perceived trust on life satisfaction is positive and significant at the 1% significance level, which is as expected. With respect to the coefficients of the individual-level control variables, all of the signs are in line with the expectations based on the existing literature, although the effect of the employment status on subjective well-being is not statistically significant in the first two columns.

The results of the regressions by country are shown in Appendix B1. The effect of crime victimization on life satisfaction is negative for the vast majority of countries (more than 80% of the countries in the sample). However, this negative relationship is statistically significant for only 14 out of 32 countries. The number of countries where the effect is negative and statistically significant have a higher percentage of self-reported crime victims than the average, equalizing approximately 2.88%. The fact that the negative relationship between crime victimization and life

satisfaction is not significant for all the countries could also be related to the number of observations per country. In contrast, for a small number of countries, the effect of crime victimization on life satisfaction is positive, although this effect is not significant in any case. Furthermore, the magnitude of the coefficients regarding the effect of crime victimization on life satisfaction differs between the countries in the sample.

Finally, the results of the robustness check with happiness on an 11-point scale as the dependent variable instead of satisfaction with life as a whole, are presented in Appendix B2. The significant negative effect of being a victimized respondent as compared to living in a non-victimized household is also visible with general happiness as the dependent variable. However, the negative effect of living in a victimized household as compared to living in a non-victimized household is only statistically significant in the baseline model. In addition, fear of crime negatively influences the happiness level of individuals, which is significant at the 1% significance level for all of the categories.

Table 2: The effect of crime-related variables on satisfaction with life. OLS regressions.

	(1) Baseline model	(2) Fear of crime	(3) Trust & mood effects
Crime victimization			
Victimized respondent	-0.231***	-0.179***	-0.148***
	(0.0208)	(0.0208)	(0.0205)
Victimized household	-0.112***	-0.0695***	-0.0355***
	(0.0111)	(0.0112)	(0.0111)
Fear of crime			
Safe	-	-0.199***	-0.182***
		(0.00944)	(0.00937)
Unsafe	-	-0.398***	-0.325***
		(0.0129)	(0.0128)
Very unsafe	-	-0.577***	-0.438***
		(0.0230)	(0.0227)
Gender			
Female	0.150***	0.221***	0.199***
	(0.00773)	(0.00799)	(0.00790)
Marital status			
Married/in a partnership	0.364***	0.364***	0.348***
	(0.0101)	(0.0101)	(0.00995)
Education			
9-15 years of education	-0.0193	-0.0112	0.00734
	(0.0132)	(0.0133)	(0.0131)
>16 years of education	0.0431***	0.0382**	-0.00166
	(0.0151)	(0.0152)	(0.0150)
Employment status			
Employed	0.0131	0.0146	0.0257***
	(0.00966)	(0.00968)	(0.00958)
Age	-0.0618***	-0.0655***	-0.0586***

	(0.00127)	(0.00128)	(0.00127)
Age-squared	0.000654***	0.000697***	0.000621***
	(1.32e-05)	(1.34e-05)	(1.33e-05)
Religiosity			
Not religious	-0.185***	-0.186***	-0.128***
	(0.00865)	(0.00865)	(0.00857)
Feeling about income			
Coping on present	-0.517***	-0.504***	-0.445***
income	(0.00871)	(0.00871)	(0.00868)
Difficult on present	-1.360***	-1.330***	-1.221***
income	(0.0132)	(0.0132)	(0.0131)
Very difficult on present	-2.272***	-2.233***	-2.059***
income	(0.0205)	(0.0206)	(0.0205)
Citizenship			
Non-citizen	-0.175***	-0.169***	-0.238***
	(0.0205)	(0.0205)	(0.0202)
Health status			
Good	-0.487***	-0.454***	-0.432***
	(0.00941)	(0.00948)	(0.00941)
Fair	-1.072***	-1.018***	-0.957***
	(0.0123)	(0.0124)	(0.0123)
Bad	-1.842***	-1.768***	-1.687***
	(0.0204)	(0.0206)	(0.0204)
Very bad	-2.727***	-2.620***	-2.503***
	(0.0423)	(0.0434)	(0.0432)
Perceived trust	-	-	0.184***
			(0.00227)
Month of interview	-	-	-0.00236**
			(0.00106)
Constant	9.520***	9.668***	8.464***
	(0.0353)	(0.0357)	(0.0393)
ESS round dummies	YES	YES	YES
Country dummies	YES	YES	YES
Observations	260,386	257,624	254,749
R-squared	0.323	0.325	0.347

Notes: The dependent variable is satisfaction with life as a whole (11-point scale). In parentheses, the robust errors are shown. *** p<0.01, ** p<0.05, * p<0.1.

5.2 Multi-level models

The multi-level model results are depicted in Table 3. The first column refers to the baseline multi-level model and the second column adds the interaction term between fear of crime and the rule of law index to the baseline multi-level model.[6] First of all, the results show that the significant and negative effect of both crime victimization and fear of crime on life satisfaction remains visible in the multi-level model.

When zooming in on the country-level variables, no significant effect is found between the

[6] The results of the multi-level model including all individual-level control variables are presented in Appendix C1.

homicide rate and life satisfaction. This is in line with the results from the studies by Cohen (2008) and Hanslmaier (2013), who also did not find a significant relationship between crime rates and subjective well-being. Therefore, Hypothesis 4 can be rejected. The effects of both the unemployment and the inflation rate on life satisfaction are negative and significant at the 1% significance level, which is in line with the expectations. However, although not significant, the effect of the logarithm of GDP per capita on life satisfaction is negative.

The role of institutional trust is explored in the second column of Table 3. The results show that the effect of the rule of law on life satisfaction is negative and statistically significant at the 1% significance level. In other words, a higher score on the rule of law index decreases life satisfaction by 0.573, ceteris paribus. This result is not in line with the expectation, since it was expected that higher levels of institutional trust correspond to higher happiness levels (Hudson, 2006). This negative and statistically significant sign could be explained by the fact that there is not enough variation in the rule of law index between countries over several ESS rounds. To see if this is the case, the same model is estimated by using an OLS regression without country dummies. In this model, the effect of the rule of law index on individual subjective well-being turns positive and is statistically significant at the 1% significance level.

Lastly, the results regarding the interaction term between the rule of law and fear of crime are as expected, since this interaction term is positive and statistically significant for both the categories unsafe and very unsafe. This means that the negative effect of fear of crime on life satisfaction declines as the rule of law index gets higher for these categories (i.e. more confidence in national institutions). Consequently, Hypothesis 3 cannot be rejected, and some evidence is found that institutional trust is a mediating factor in the relationship between fear of crime and subjective well-being.

Table 3: The effect of crime-related variables on satisfaction with life. Multi-level models.

	(1) Baseline multi-level model	(2) Rule of law
Variables at the individual level		
Crime victimization		
Victimized respondent	-0.143***	-0.142***
	(0.0259)	(0.0257)
Victimized household	-0.0298*	-0.0271*
	(0.0158)	(0.0160)
Fear of crime		
Safe	-0.177***	-0.209***
	(0.0199)	(0.0431)
Unsafe	-0.314***	-0.423***
	(0.0241)	(0.0427)
Very unsafe	-0.435***	-0.559***

	(0.0390)	(0.0712)
Variables at the country level		
Homicide rate	-0.0248	-0.0329
	(0.0281)	(0.0273)
GDP per capita (ln)	-0.0537	-0.0203
	(0.223)	(0.219)
Inflation rate	-0.0220***	-0.0185***
	(0.00623)	(0.00612)
Unemployment rate	-0.0332***	-0.0353***
	(0.00987)	(0.00824)
Rule of law	-	-0.573***
		(0.137)
Interaction effect		
Fear of crime*Rule of law		
Safe*Rule of law	-	0.0204
		(0.0253)
Unsafe*Rule of law	-	0.0897***
		(0.0268)
Very unsafe*Rule of law	-	0.104**
		(0.0494)
Constant	9.052***	9.385***
	(2.224)	(2.195)
Individual control variables	YES	YES
Observations	249,122	249,122
Number of countries	32	32

Notes: The dependent variable is satisfaction with life as a whole (11-point scale). Individual control variables which are included are the following: gender, marital status, education, employment status, age, age-squared, religiosity, feeling about income, citizenship, health status, perceived trust in national institutions, month of interview and ESS round dummies. The interaction between fear of crime and the rule of law index is included as well. In parentheses, the robust errors are shown. *** p<0.01, ** p<0.05, * p<0.1.

5.3 Gender differences

Hypothesis 1a and 2a explore gender differences in the effect of both crime victimization and fear of crime on individual subjective well-being. Appendix D1 shows the OLS regressions regarding gender differences by including interaction effects between gender and both crime victimization and fear of crime. Furthermore, the multi-level models including these interaction effects are presented in Appendix D2. Column 1 adds the interaction effect between gender and crime victimization, column 2 adds the interaction effect between gender and fear of crime and column 3 includes both interaction effects. In terms of the magnitude of the coefficients and the significance, the results of the OLS models and multi-level models are more or less the same.

Generally, the results show that the negative effect of being a victimized respondent on life satisfaction softens for females. In other words, the negative effect of being a crime victim themselves is less strong for women as compared to men, ceteris paribus. The aforementioned effect is significant at the 1% significance level. Accordingly, Hypothesis 1a cannot be rejected. A possible explanation for this result could be the existing social stigma resting on men becoming

crime victims as compared to women (Davies & Hinks, 2010). Another explanation could be that the relationship between crime victimization and happiness is relative to women in the sense that the negative effect is softened when an acquaintance has been a victim of crime as well (Cheng & Smyth, 2015). However, for living in a victimized household opposite results are found. For females, the negative effect of living in a victimized household as compared to living in a non-victimized household on life satisfaction is stronger than for males. This effect is statistically significant at the 5% significance level. A reason for this could be that women are more likely to become afraid if someone in the household has been a victim of crime.

In addition, the results show that the negative effect of fear of crime on life satisfaction is less strong for females as compared to males, although this effect is only statistically significant at the 1% significance level for feeling unsafe when walking in the area after dark as compared to feeling very safe when walking in the area after dark. As a result, Hypothesis 2a can be (partly) rejected. This result is not in line with the expectations, since prior studies find that women are mostly affected by the fear of crime, whereas men are mostly affected by objective measures of crime (Davies & Hinks, 2010). Moreover, it follows from the existing literature that women take more precautions when it comes to being afraid of crime, which could negatively impact life satisfaction as well (Gordon, Riger, LeBailly, & Heath, 1980). However, the difference in the negative effect of fear of crime on life satisfaction between men and women is small in this case[7], indicating that there is not much difference. Moreover, it follows from earlier literature, and also from the models in this paper, that women are generally happier than men. Accordingly, it is possible that crime victimization and fear of crime have less impact on the happiness of women than it does on the happiness of men in general.

6. Conclusion and Discussion

By analysing data from 32 European countries, this paper finds a negative and significant relationship between satisfaction with life and both crime victimization and fear of crime. This result holds when controlling for mood effects and individual perceived trust. In addition, the results show that the negative effect of becoming a crime victim yourself is larger than when you are part of a household where someone has become a victim of crime. Furthermore, this relationship is robust when the dependent variable is measured by the feeling of happiness on an 11-point scale and is also visible when the models are run by country, although not all countries show a significant effect of crime victimization on life satisfaction. However, for those countries where this relationship is significant, it is negative, which is in line with the expectations. Therefore,

[7] For example, when both interaction effects are included in the multi-level model, the difference in magnitude in the effect of fear of crime on life satisfaction between women and men is equal to 0.086.

it is of great importance that governments continue their efforts to reduce crime in the pursuit of a happy population. In contrast to crime victimization and fear of crime, no significant relationship is found between homicide rates and life satisfaction. This could be due to the small variation in homicide rates between the countries in the sample over time and is in line with the results of other studies (Cohen, 2008; Hanslmaier, 2013).

In order to further explore the relationship between life satisfaction and both crime victimization and fear of crime, this study also zooms in on gender differences in this effect. Generally, the results show that the negative effect of both crime victimization and fear of crime on life satisfaction is less strong for females as compared to males. Regarding crime victimization, this gender difference could be explained by the social stigma concerning men becoming victims of crime (Davies & Hinks, 2010). With respect to fear of crime, the difference in the negative effect between men and women is significant as well, although small in magnitude.

Finally, institutional trust appears to be a mediating factor in the relationship between fear of crime and life satisfaction. The results show that as the rule of law index increases, the negative effect between fear of crime and life satisfaction softens. This implicates that trust in the police and the legal system contributes to a sense of security, making people less afraid of crime and ultimately happier. Moreover, this stresses the importance of the quality of institutions and individual's perceptions of this. Governments can respond to this by trying to increase the confidence in institutions, for example by launching campaigns, by having the police visibly present on the streets at night and by ensuring that any contact between citizens and institutions runs smoothly. Creating such a sense of both confidence and safety is most likely to contribute to a decrease in the fear of crime, which can in turn positively contribute to the happiness level of the population.

7. Limitations and Future Research

Several limitations of this research are important to note. First of all, a major limitation is that data has been used from European countries only. In Europe, the level of crime is generally lower and the (perceived) quality of institutions is higher compared to other continents such as Latin America and Africa (Del Frate, 1998). Therefore, the results of this research cannot be generalized to other continents. Moreover, the results show that the negative effect of crime victimization on life satisfaction already differs per country within Europe, also with regard to the magnitude of this effect. A second limitation of this research is that data has been used concerning victims of burglary and assault, and not of other types of crime. It is to be expected that the effect of crime victimization on the happiness of individuals could be different for crimes against property, violent crimes and relatively new forms of crime such as cybercrime. Besides, one can imagine that rape

and the fear of being raped are prevalent among women, pointing towards gender differences. Lastly, this research uses a single-item scale measure for subjective well-being. Although this is the most common question in happiness surveys, there are also drawbacks. For example, it can be difficult for individuals to weigh up all the domains in life and indicate how satisfied they are with their lives as a whole by means of one single question. An alternative could be the Satisfaction With Life Scale in which life satisfaction is divided into five different questions, referring to a multi-item scale (Diener, Emmons, Larsen, & Griffin, 1985).

Regarding future research, it would be interesting to examine the effect of crime on subjective well-being in developing countries where crime levels are generally higher. Furthermore, this study does not yield any significant results regarding homicide rates and life satisfaction. As stated before, a possible reason for this could be the small variation in homicide rates between the countries in the sample over time. Future research could focus on crime rates at the regional level in order to discover regional differences in this effect. In addition to gender differences which are explored in this study, it would be interesting to investigate other population differences, such as age differences, in the effect of crime on subjective well-being as well. The ageing of the population significantly increases the number of vulnerable older people. Older people are potentially more likely to be afraid of becoming a victim of crime which could in turn have a major impact on the happiness level of this population group. Finally, there has been an increase in the amount of terrorist attacks in Europe in recent years such as the Paris terrorist attacks in November 2015, which has caused a great deal of anxiety among the population in various European countries. In periods of heightened threat of terrorism and in the aftermath of a terrorist attack, one can imagine that the level of fear of crime is higher in general. Therefore, future research could address and control for terrorist attacks in the effect of fear of crime on subjective well-being.

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Appendix A1: List of countries and average life satisfaction, period 2002-2016

Country	Country code	Average life satisfaction
Austria	AT	7.508
Belgium	BE	7.428
Bulgaria	BG	4.500
Switzerland	CH	8.048
Cyprus	CY	7.109
Czechia	CZ	6.497
Germany	DE	7.079
Denmark	DK	8.455
Estonia	EE	6.330
Spain	ES	7.161
Finland	FI	7.973
France	FR	6.358
United Kingdom	GB	7.134
Greece	GR	6.066
Croatia	HR	6.282
Hungary	HU	5.690
Ireland	IE	7.113
Israel	IL	7.322
Iceland	IS	8.118
Italy	IT	6.799
Lithuania	LT	5.729
Luxembourg	LU	7.808
The Netherlands	NL	7.627
Norway	NO	7.869
Poland	PL	6.704
Portugal	PT	5.761
Russia	RU	5.519
Sweden	SE	7.859
Slovenia	SI	6.868
Slovakia	SK	6.224
Turkey	TR	5.886
Ukraine	UA	4.488

Appendix A2: Variable descriptions

Variables	Description	Variable type	Data source
Dependent variables			
Life Satisfaction	*"All things considered, how satisfied are you with your life as a whole nowadays?"*	Categorical, 0-10	ESS
Happy	*"Taking all things together, how happy would you say you are?"*	Categorical, 0-10	ESS
Individual-level variables			
Crime victimization	*"Have you or a member of your household been the victim of a burglary or assault in the last 5 years?"* 0: Non-victimized household 1: Victimized respondent 2: Victimized household	Categorical, 0-2	ESS
Fear of crime	*"How safe do you – or would you – feel walking alone in this area after dark?"*	Categorical, 1-4	ESS
Gender	1: Male 2: Female	Dummy variable	ESS
Marital status	0: Separated/divorced/widowed/never married 1: Married/in a partnership	Dummy variable	ESS
Education	Measured in years of education 0: 0-8 years of education 1: 9-15 years of education 2: >16 years of education	Categorical, 0-2	ESS
Employment status	0: currently not employed 1: currently employed	Dummy variable	ESS
Age	Measured in years	Continuous	ESS
Age-squared	Measured in years	Continuous	ESS
Religiosity	*"Do you consider yourself as belonging to any particular religion or denomination?"* 1: Yes 2: No	Dummy variable	ESS
Feeling about income	*"Which of the descriptions on this card comes closest to how you feel about your household's income nowadays?"* 1: Living comfortably on present income 2: Coping on present income 3: Difficult on present income 4: Very difficult on present income	Categorical, 1-4	ESS
Citizenship	1: Citizen 2: Non-citizen	Dummy variable	ESS
Health status	*"How is your health in general?"* 1: Very good 2: Good	Categorical, 1-5	ESS

	3: Fair 4: Bad 5: Very bad		
Perceived trust	Trust index, averaged over perceived trust in the following national institutions: country's parliament, legal system, police and politicians	Categorical, 0-10	ESS
Month of interview	Month number in a certain year, indicator of mood effects	Continuous, 1-12	ESS
Country-level variables			
Homicide rate	Intentional homicides per 100,000 people	Continuous	World Bank
GDP per capita (ln)	Natural logarithm of GDP per capita	Continuous	World Bank
Inflation rate	Measured in %, consumer prices	Continuous	World Bank
Unemployment rate	Measured in %, share of total labor force	Continuous	World Bank
Rule of Law	One of the WGI indicators. Measures institutional trust	Continuous, -2.5-2.5	Kaufmann et al. (2010)

Appendix A3: Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
(1) Life satisfaction	1.000																				
(2) Happy	0.712	1.000																			
(3) Crime victimization	-0.001	0.013	1.000																		
(4) Fear of crime	-0.209	-0.198	0.080	1.000																	
(5) Gender	-0.025	-0.018	-0.016	0.255	1.000																
(6) Marital status	0.048	0.091	0.027	-0.014	-0.047	1.000															
(7) Education	0.135	0.143	0.087	-0.107	-0.046	-0.048	1.000														
(8) Employment status	0.099	0.112	0.070	-0.140	-0.125	0.098	0.296	1.000													
(9) Age	-0.098	-0.133	-0.108	0.117	0.080	0.180	-0.262	-0.288	1.000												
(10) Age-squared	-0.080	-0.121	-0.114	0.129	0.083	0.114	-0.293	-0.366	0.981	1.000											
(11) Religiosity	0.020	0.023	0.052	-0.050	-0.092	-0.114	0.139	0.114	-0.157	-0.163	1.000										
(12) Feeling about income	-0.453	-0.400	-0.025	0.211	0.088	-0.060	-0.238	-0.198	0.084	0.077	-0.086	1.000									
(13) Citizenship	0.006	0.012	0.010	-0.011	-0.016	0.006	0.021	0.032	-0.066	-0.070	-0.012	0.016	1.000								
(14) Health status	-0.356	-0.368	-0.017	0.230	0.091	0.032	-0.247	-0.258	0.418	0.414	-0.061	0.292	-0.036	1.000							
(15) Perceived trust	0.358	0.301	-0.017	-0.188	-0.020	0.018	0.093	0.038	-0.012	-0.001	-0.010	-0.298	0.065	-0.171	1.000						
(16) Month of interview	0.088	0.087	0.027	-0.050	-0.020	0.019	0.061	0.039	-0.011	-0.011	0.079	-0.111	0.000	-0.015	0.072	1.000					
(17) Homicide	-0.188	-0.159	0.004	0.129	0.035	0.025	-0.036	-0.019	0.009	0.009	-0.001	0.225	-0.027	0.163	-0.140	-0.019	1.000				

rate																					
(18) GDP per capita (ln)	0.334	0.287	0.028	-0.206	-0.045	-0.089	0.151	0.083	-0.019	-0.018	0.123	-0.394	0.100	-0.226	0.350	0.138	-0.487	1.000			
(19) Inflation rate	-0.225	-0.187	-0.016	0.134	0.023	0.173	-0.091	-0.031	0.013	0.005	-0.089	0.252	-0.063	0.143	-0.203	-0.147	0.543	-0.559	1.000		
(20) Unemployment rate	-0.160	-0.142	0.003	0.082	0.010	-0.084	-0.061	-0.088	-0.037	-0.027	-0.122	0.213	-0.032	0.071	-0.207	-0.096	0.059	-0.367	-0.008	1.000	
(21) Rule of Law	0.335	0.291	0.045	-0.198	-0.046	-0.043	0.136	0.082	-0.007	-0.009	0.145	-0.403	0.089	-0.201	0.372	0.185	-0.626	0.863	-0.657	-0.339	1.000

Appendix B1: Within-country OLS regressions.

Country	% Victimized respondents	(1) Baseline controls	(2) Fear of crime	(3) Perceived trust	(4) Month of interview
Austria	2.53	0.005	0.098	0.087	0.093
Belgium	3.17	-0.444***	-0.415***	-0.412***	-0.410***
Bulgaria	3.12	-0.192	-0.073	-0.076	-0.082
Switzerland	3.80	-0.330	-0.023	-0.002	-0.001
Cyprus	1.56	0.039	0.073	0.084	0.081
Czechia	3.02	-0.228**	-0.120	-0.092	-0.091
Germany	1.86	-0.148	-0.104	-0.072	-0.075
Denmark	4.01	-0.181**	-0.192**	-0.191**	-0.191**
Estonia	3.59	-0.201*	-0.107	-0.048	0.001
Spain	1.86	-0.124	-0.137	-0.105	-0.106
Finland	6.60	-0.159**	-0.136**	-0.119**	-0.119**
France	5.99	-0.196**	-0.120	-0.091	-0.091
United Kingdom	5.30	-0.300***	-0.261***	-0.200***	-0.199***
Greece	3.20	-0.043	0.075	0.136	0.135
Croatia	0.54	-0.048	0.282	0.415	0.415
Hungary	1.78	-0.115	-0.033	-0.019	-0.021
Ireland	2.81	-0.616***	-0.575***	-0.518***	-0.511***
Israel	1.13	-0.047	0.013	0.005	0.005
Iceland	2.35	-0.203	-0.134	-0.063	0.091
Italy	2.36	0.010	0.129	0.093	0.107
Lithuania	2.35	0.005	0.136	0.139	0.139
Luxembourg	3.26	0.112	0.140	0.136	0.138
The Netherlands	4.54	-0.261***	-0.224***	-0.200***	-0.198***
Norway	3.43	-0.184**	-0.159*	-0.144*	-0.144*
Poland	1.22	-0.301	-0.203	-0.191	-0.190
Portugal	2.58	-0.073	-0.004	-0.041	-0.043
Russia	3.60	-0.451***	-0.370***	-0.303**	-0.303**
Sweden	4.91	-0.287***	-0.267***	-0.232***	-0.232***
Slovenia	0.89	0.138	0.194	0.195	0.200

Slovakia	1.49	-0.494**	-0.398*	-0.346	-0.340
Turkey	0.66	-0.846	-0.759	-0.573	-0.575
Ukraine	2.77	-0.430***	-0.350**	-0.267*	-0.264*

Notes: The explanatory variable is victimized respondent. The dependent variable is satisfaction with life as a whole (11-point scale). Model (1) includes the baseline controls: gender, marital status, education, employment status, age, age-squared, religiosity, feeling about income, citizenship, health status and ESS round dummies. Fear of crime is added in model (2). Perceived trust in national institutions is added in model (3). The month of the interview is added in model (4). In parentheses, the robust errors are shown. *** p<0.01, ** p<0.05, * p<0.1.

Appendix B2: The effect of crime on individual happiness. OLS regressions. Robustness check.

	(1) Baseline model	(2) Fear of crime	(3) Trust & mood effects
Crime victimization			
Victimized respondent	-0.241***	-0.202***	-0.181***
	(0.0194)	(0.0194)	(0.0192)
Victimized household	-0.0446***	-0.0103	0.0133
	(0.0101)	(0.0101)	(0.0101)
Fear of crime			
Safe	-	-0.211***	-0.200***
		(0.00851)	(0.00848)
Unsafe	-	-0.375***	-0.322***
		(0.0117)	(0.0117)
Very unsafe	-	-0.471***	-0.377***
		(0.0211)	(0.0210)
Gender			
Female	0.162***	0.224***	0.209***
	(0.00700)	(0.00725)	(0.00721)
Marital status			
Married/in a partnership	0.540***	0.538***	0.527***
	(0.00912)	(0.00914)	(0.00909)
Education			
9-15 years of education	0.0700***	0.0763***	0.0890***
	(0.0121)	(0.0122)	(0.0121)
>16 years of education	0.112***	0.107***	0.0772***
	(0.0138)	(0.0138)	(0.0138)
Employment status			
Employed	-0.0129	-0.0120	-0.00458
	(0.00869)	(0.00870)	(0.00866)
Age	-0.0512***	-0.0542***	-0.0493***
	(0.00115)	(0.00116)	(0.00116)
Age-squared	0.000499***	0.000533***	0.000479***
	(1.21e-05)	(1.22e-05)	(1.21e-05)
Religiosity			
Not religious	-0.141***	-0.141***	-0.0995***
	(0.00784)	(0.00784)	(0.00781)
Feeling about income			
Coping on present income	-0.354***	-0.341***	-0.298***
	(0.00788)	(0.00788)	(0.00789)
Difficult on present income	-0.939***	-0.911***	-0.834***
	(0.0118)	(0.0118)	(0.0118)
Very difficult on present income	-1.679***	-1.648***	-1.523***
	(0.0188)	(0.0189)	(0.0189)
Citizenship			
Non-citizen	-0.107***	-0.0994***	-0.150***
	(0.0185)	(0.0185)	(0.0184)
Health status			
Good	-0.493***	-0.460***	-0.445***
	(0.00836)	(0.00843)	(0.00841)

Fair	-1.031***	-0.982***	-0.939***
	(0.0111)	(0.0112)	(0.0112)
Bad	-1.792***	-1.726***	-1.671***
	(0.0190)	(0.0192)	(0.0191)
Very bad	-2.631***	-2.537***	-2.448***
	(0.0421)	(0.0432)	(0.0433)
Perceived trust	-	-	0.130***
			(0.00206)
Month of interview	-	-	0.000672
			(0.000961)
Constant	9.102***	9.243***	8.380***
	(0.0324)	(0.0328)	(0.0360)
ESS round dummies	YES	YES	YES
Country dummies	YES	YES	YES
Observations	260,161	257,426	254,525
R-squared	0.283	0.285	0.298

Notes: The dependent variable is general happiness (11-point scale). In parentheses, the robust errors are shown.
*** p<0.01, ** p<0.05, * p<0.1.

Appendix C1: Full multi-level model (baseline and rule of law).

	(1) Baseline multi-level model	(2) Rule of law
Variables at the individual level		
Crime victimization		
Victimized respondent	-0.143***	-0.142***
	(0.0259)	(0.0257)
Victimized household	-0.0298*	-0.0271*
	(0.0158)	(0.0160)
Fear of crime		
Safe	-0.177***	-0.209***
	(0.0199)	(0.0431)
Unsafe	-0.314***	-0.423***
	(0.0241)	(0.0427)
Very unsafe	-0.435***	-0.559***
	(0.0390)	(0.0712)
Gender		
Female	0.194***	0.192***
	(0.0144)	(0.0143)
Marital status		
Married/in a partnership	0.351***	0.351***
	(0.0212)	(0.0212)
Education		
9-15 years of education	0.0144	0.0131
	(0.0328)	(0.0328)
>16 years of education	0.0101	0.0118
	(0.0477)	(0.0479)
Employment status		
Employed	0.0202	0.0199
	(0.0156)	(0.0158)
Age	-0.0589***	-0.0586***
	(0.00467)	(0.00469)
Age-squared	0.000624***	0.000620***
	(4.15e-05)	(4.16e-05)
Religiosity		
Not religious	-0.121***	-0.120***
	(0.0238)	(0.0236)
Feeling about income		
Coping on present income	-0.440***	-0.440***
	(0.0380)	(0.0377)
Difficult on present income	-1.211***	-1.211***
	(0.0786)	(0.0786)
Very difficult on present income	-2.058***	-2.055***
	(0.0979)	(0.0979)
Citizenship		
Non-citizen	-0.230***	-0.230***
	(0.0356)	(0.0356)
Health status		
Good	-0.432***	-0.432***
	(0.0229)	(0.0226)
Fair	-0.954***	-0.954***

	(0.0399)	(0.0396)
Bad	-1.687***	-1.684***
	(0.0525)	(0.0522)
Very bad	-2.497***	-2.495***
	(0.0761)	(0.0760)
Perceived trust	0.181***	0.182***
	(0.0100)	(0.00977)
Month of interview	-0.00253	-0.00116
	(0.00323)	(0.00267)
Variables at the country level		
Homicide rate	-0.0248	-0.0329
	(0.0281)	(0.0273)
GDP per capita (ln)	-0.0537	-0.0203
	(0.223)	(0.219)
Inflation rate	-0.0220***	-0.0185***
	(0.00623)	(0.00612)
Unemployment rate	-0.0332***	-0.0353***
	(0.00987)	(0.00824)
Rule of law	-	-0.573***
		(0.137)
Interaction effect		
Fear of crime*Rule of law		
Safe*Rule of law	-	0.0204
		(0.0253)
Unsafe*Rule of law	-	0.0897***
		(0.0268)
Very unsafe*Rule of law	-	0.104**
		(0.0494)
Constant	9.052***	9.385***
	(2.224)	(2.195)
ESS round dummies	YES	YES
Observations	249,122	249,122
Number of countries	32	32

Notes: The dependent variable is satisfaction with life as a whole (11-point scale). The interaction between fear of crime and the rule of law index is included as well. In parentheses, the robust errors are shown. *** p<0.01, ** p<0.05, * p<0.1.

Appendix D1: Gender differences. OLS regressions

	(1) Interaction 1	(2) Interaction 2	(3) Both interactions
Crime victimization			
Victimized respondent	-0.260***	-0.147***	-0.254***
	(0.0295)	(0.0205)	(0.0296)
Victimized household	-0.0124	-0.0346***	-0.00847
	(0.0155)	(0.0111)	(0.0155)
Fear of crime			
Safe	-0.182***	-0.184***	-0.183***
	(0.00937)	(0.0121)	(0.0121)
Unsafe	-0.325***	-0.382***	-0.381***
	(0.0128)	(0.0203)	(0.0203)
Very unsafe	-0.440***	-0.473***	-0.469***
	(0.0227)	(0.0479)	(0.0479)
Gender			
Female	0.197***	0.177***	0.177***
	(0.00864)	(0.0150)	(0.0153)
Marital status			
Married/in a partnership	0.348***	0.349***	0.349***
	(0.00995)	(0.00996)	(0.00996)
Education			
9-15 years of education	0.00684	0.00727	0.00683
	(0.0131)	(0.0131)	(0.0131)
>16 years of education	-0.00222	-0.00118	-0.00171
	(0.0150)	(0.0150)	(0.0150)
Employment status			
Employed	0.0248***	0.0255***	0.0246**
	(0.00958)	(0.00958)	(0.00958)
Age	-0.0584***	-0.0585***	-0.0584***
	(0.00127)	(0.00127)	(0.00127)
Age-squared	0.000618***	0.000621***	0.000618***
	(1.33e-05)	(1.33e-05)	(1.33e-05)
Religiosity			
Not religious	-0.128***	-0.128***	-0.127***
	(0.00857)	(0.00857)	(0.00857)
Feeling about income			
Coping on present income	-0.445***	-0.444***	-0.444***
	(0.00868)	(0.00868)	(0.00868)
Difficult on present income	-1.221***	-1.220***	-1.220***
	(0.0131)	(0.0131)	(0.0131)
Very difficult on present income	-2.059***	-2.058***	-2.058***
	(0.0205)	(0.0205)	(0.0205)
Citizenship			
Non-citizen	-0.238***	-0.237***	-0.237***
	(0.0202)	(0.0202)	(0.0202)
Health status			
Good	-0.432***	-0.432***	-0.432***
	(0.00941)	(0.00941)	(0.00941)
Fair	-0.956***	-0.957***	-0.956***
	(0.0123)	(0.0123)	(0.0123)

Bad	-1.686***	-1.687***	-1.686***
	(0.0204)	(0.0204)	(0.0204)
Very bad	-2.503***	-2.502***	-2.502***
	(0.0431)	(0.0432)	(0.0432)
Perceived trust	0.184***	0.184***	0.184***
	(0.00227)	(0.00227)	(0.00227)
Month of interview	-0.00236**	-0.00236**	-0.00236**
	(0.00106)	(0.00106)	(0.00106)
Interaction effects			
Gender*Crime victimization			
Female*Victimized respondent	0.207***	-	0.198***
	(0.0402)		(0.0402)
Female*Victimized household	-0.0447**	-	-0.0506**
	(0.0215)		(0.0215)
Gender*Fear of crime			
Female*Safe	-	0.00937	0.00881
		(0.0182)	(0.0182)
Female*Unsafe	-	0.0895***	0.0870***
		(0.0253)	(0.0254)
Female*Very unsafe	-	0.0542	0.0465
		(0.0539)	(0.0540)
Constant	8.463***	8.472***	8.470***
	(0.0393)	(0.0395)	(0.0396)
ESS round dummies	YES	YES	YES
Country dummies	YES	YES	YES
Observations	254,749	254,749	254,749
R-squared	0.347	0.347	0.347

Notes: The dependent variable is satisfaction with life as a whole (11-point scale). The interactions between gender and crime victimization and between gender and fear of crime are included as well. In parentheses, the robust errors are shown. p<0.01, ** p<0.05, * p<0.1.

Appendix D2: Gender differences. Multi-level models.

	(1) Interaction 1	(2) Interaction 2	(3) Both interactions
Variables at the individual level			
Crime victimization			
Victimized respondent	-0.261***	-0.142***	-0.255***
	(0.0331)	(0.0259)	(0.0326)
Victimized household	-0.00795	-0.0290*	-0.00417
	(0.0172)	(0.0158)	(0.0172)
Fear of crime			
Safe	-0.177***	-0.182***	-0.181***
	(0.0199)	(0.0189)	(0.0188)
Unsafe	-0.314***	-0.370***	-0.368***
	(0.0240)	(0.0272)	(0.0270)
Very unsafe	-0.437***	-0.472***	-0.467***
	(0.0391)	(0.0511)	(0.0506)
Gender			
Female	0.191***	0.168***	0.168***
	(0.0137)	(0.0181)	(0.0183)
Marital status			
Married/in a partnership	0.351***	0.352***	0.352***
	(0.0212)	(0.0211)	(0.0212)
Education			
9-15 years of education	0.0138	0.0143	0.0139
	(0.0328)	(0.0328)	(0.0329)
>16 years of education	0.00953	0.0106	0.0101
	(0.0478)	(0.0477)	(0.0477)
Employment status			
Employed	0.0192	0.0200	0.0191
	(0.0156)	(0.0156)	(0.0156)
Age	-0.0588***	-0.0589***	-0.0587***
	(0.00467)	(0.00467)	(0.00467)
Age-squared	0.000621***	0.000624***	0.000621***
	(4.15e-05)	(4.15e-05)	(4.15e-05)
Religiosity			
Non-religious	-0.120***	-0.121***	-0.120***
	(0.0238)	(0.0238)	(0.0238)
Feeling about income			
Coping on present income	-0.440***	-0.439***	-0.439***
	(0.0380)	(0.0380)	(0.0380)
Difficult on present income	-1.211***	-1.211***	-1.211***
	(0.0786)	(0.0786)	(0.0785)
Very difficult on present income	-2.057***	-2.057***	-2.057***
	(0.0979)	(0.0979)	(0.0979)
Citizenship			
Non-citizen	-0.229***	-0.229***	-0.229***
	(0.0357)	(0.0357)	(0.0357)
Health status			
Good	-0.432***	-0.432***	-0.432***
	(0.0229)	(0.0229)	(0.0229)
Fair	-0.954***	-0.954***	-0.954***

	(0.0399)	(0.0400)	(0.0400)
Bad	-1.686***	-1.686***	-1.686***
	(0.0524)	(0.0525)	(0.0524)
Very bad	-2.496***	-2.496***	-2.496***
	(0.0761)	(0.0761)	(0.0760)
Perceived trust	0.181***	0.181***	0.181***
	(0.0100)	(0.0100)	(0.0100)
Month of interview	-0.00253	-0.00254	-0.00253
	(0.00322)	(0.00322)	(0.00322)
Variables at the country level			
Homicide rate	-0.0248	-0.0246	-0.0246
	(0.0282)	(0.0281)	(0.0281)
GDP per capita (ln)	-0.0530	-0.0548	-0.0541
	(0.223)	(0.223)	(0.223)
Inflation rate	-0.0220***	-0.0219***	-0.0219***
	(0.00623)	(0.00623)	(0.00622)
Unemployment rate	-0.0332***	-0.0332***	-0.0332***
	(0.00987)	(0.00986)	(0.00986)
Interaction effects			
Gender*Crime victimization			
Female*Victimized respondent	0.219***	-	0.211***
	(0.0361)		(0.0354)
Female*Victimized household	-0.0426**	-	-0.0483**
	(0.0193)		(0.0195)
Gender*Fear of crime			
Female*Safe	-	0.0154	0.0148
		(0.0194)	(0.0193)
Female*Unsafe	-	0.0893***	0.0864***
		(0.0278)	(0.0275)
Female*Very unsafe	-	0.0587	0.0501
		(0.0396)	(0.0392)
Constant	9.045***	9.070***	9.062***
	(2.226)	(2.224)	(2.225)
ESS round dummies	YES	YES	YES
Observations	249,122	249,122	249,122
Number of groups	32	32	32

Notes: The dependent variable is satisfaction with life as a whole (11-point scale). The interactions between gender and crime victimization and between gender and fear of crime are included as well. In parentheses, the robust errors are shown. *** p<0.01, ** p<0.05, * p<0.1.