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Evidence from Survey Data

Mohammad Reza Farzanegan, Sven Fischer

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Poschingerstr. 5, 81679 Munich, Germany

Telephone +49 (0)89 2180-2740, Telefax +49 (0)89 2180-17845, email office@cesifo.de

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The Effect of the “Woman Life Freedom” Protests on Life Satisfaction in Iran: Evidence from Survey Data

Abstract

This study examines the causal effect of the violent “Woman, Life, Freedom” protests in Iran during the last quarter of 2022 on individual life satisfaction. To evaluate the impact, we use two original representative surveys in Iran conducted in 2022. Our results, based on an ordered logit regression analysis for a sample of more than 2,000 individuals, show that the violent protest environment had a significant and negative effect on life satisfaction in Iran. To determine the exposure of the respondents to protests, we calculated the number of protests within a 25km radius of the respondents’ locations. The protest environment reduced the probability of life satisfaction by 3.7 percentage points. Moreover, we find significant heterogeneity among the respondents with respect to their life satisfaction before and after protests. The largest negative impact of the protests on life satisfaction is observed among women, members of working class, and those with primary and tertiary education. These results are robust to other determinants of individual life satisfaction, such as marital status, employment, perception of corruption, feeling of security, religiosity, and other sociodemographic factors.

JEL-Codes: D740, F520, H560, I310, N150.

Keywords: protest, violence, life satisfaction, well-being, Woman Life Freedom, survey, Iran.

Mohammad Reza Farzanegan
Center for Near and Middle Eastern Studies
(CNMS), School of Business & Economics,
Economics of the Middle East Research Group
Philipps-University Marburg / Germany
farzanegan@uni-marburg.de

Sven Fischer
Center for Near and Middle Eastern Studies
(CNMS), School of Business & Economics,
Economics of the Middle East Research Group
Philipps-University Marburg / Germany
sven.fischer@uni-marburg.de

1. Introduction

During the final months of 2022, countrywide protests in Iran under the banner "Woman, Life, Freedom" attracted international attention. The protests originated in the western Iranian city of Saqqez following the death of Mahsa Amini on 16 September 2022 while in custody of the morality police in Tehran. They quickly spread across Iran, garnering significant international media coverage, which distinguished them from earlier protests in the country (such as the November 2019 fuel price protests and the December 2017 economic protests). The protesters' demands ranged from increased freedoms to the overthrow of the state. The level of applied violence from both the protesters and government security forces was also noteworthy. According to Loft (2023), as of April 4, 2023, at least 19,200 people had been detained and 537 protesters had been killed.

Our study does not intend to investigate the socio-economic and institutional drivers of the 2022 protests, but rather focuses on examining the effects of these protests on the subjective well-being of individuals. Specifically, we aim to understand how the direct and indirect experiences of violence and the volatile political situation at the end of 2022 have affected the life satisfaction of the people in Iran. Furthermore, we seek to identify which segments of society were more mentally vulnerable and impacted by the political turmoil. Additionally, we aim to assess the robustness of the influence of protest events on individual life satisfaction, while controlling for other socio-economic characteristics.

To answer these questions, we benefit from two contracted original surveys conducted in Iran by 'R-Research Ltd' (organization responsible for implementing Wave 7 of the World Values Survey in Iran) in 2022. The first survey was conducted in January-February 2022, when there were no particular political or economic shocks, and the second in November 2022, following two months of countrywide protests (see Figure 1). Both surveys included questions regarding the subjective well-being and different socio-economic characteristics of the respondents.

Our main results show that protests significantly and negatively reduced the subjective well-being in our sample of more than 2,000 individuals. The protests were associated with a decline of 3.7 percentage points in the probability of being satisfied with life. We also explored the heterogeneity in the subjective well-being of individuals under protests. Particularly, we show that women, individuals who identified as working class, and individuals with primary and tertiary education are the key drivers of the decline in life satisfaction in our sample.

To the best of our knowledge, this is the first empirical study which examines the effects of the "Woman, Life, Freedom" protests in Iran at the end of 2022 on individual life satisfaction using

representative original surveys. Moreover, we identify important heterogeneities in the decline of subjective well-being during violent political conditions across a wide range of personal social, demographic, and economic characteristics.

The remainder of the paper is structured in the following way: Section 2 gives an overview of the relevant literature and Section 3 presents the data and methodology. In Section 4, the results are presented and discussed, and Section 5 concludes the paper.

2. Literature Review

Earlier studies have examined the effects of various types of conflicts on the subjective well-being of individuals. In this section, we discuss the key findings of these studies, separating internal and external conflicts.

2.1. The Effect of External Conflicts

Focusing on the case of war in Ukraine, Coupe and Obrizan (2016) apply a difference-in-difference approach and show that the average level of happiness in regions directly affected by war has declined significantly. The size of the decline in their study is comparable to the decrease of happiness following an individual's shift from a high- to a low-income class. Their study also shows that the decline in happiness was not observed in other regions in that are far from the war in the eastern parts of Ukraine.

Another study by Osiichuk and Shepotylo (2020), based on two large household surveys conducted over 2012–2016, investigates the effect of the Russian-Ukrainian hybrid war on the well-being of civilians in both countries. They find that the effect of conflict on well-being is stronger in areas near the conflict zones. A significant channel of the effect is the negative expectations of individuals in both countries regarding their financial well-being. They also show that female respondents suffered more because of the financial well-being impact on under the conflict. Moreover, they find an increase in chronic diseases in Ukraine. In both countries, mental health is adversely affected during the initial phases of the conflict. However, in Russia, this impact is statistically significant solely in the region adjacent to the conflict zones, whereas in Ukraine, it is significant in regions that are further away from the conflict zones.

Kijewski (2020) studied the long-term consequences of World War II (WWII) on individual life satisfaction across generations. Her findings indicate that even six decades after the end of WWII, war experiences continue to be related to lower levels of life satisfaction among the war generation and subsequent generations. The long-term effects of WWII on individual life

satisfaction with family victimization during the war was also examined by Djankov et al. (2016) in their sample of Eastern European countries in 2010 and found no significant effect on life satisfaction.

The war between Israel and Lebanon in 2006 was also a focus of a study by Van Praag et al. (2010). The event was a conflict that occurred across borders, involving the state of Israel and a highly organized foreign Hezbollah army, which conducted intense bombardments on northern Israel for 34 days. Their results show that when surveyed either during or after the conflict, Jews and Arabs residing in Israel did not exhibit significantly different levels of life satisfaction compared to those who were asked about their happiness prior to the war. It should be noted that the war resulted in many more casualties in Lebanon (estimated 1100 deaths) compared to an estimated 60 deaths in Israel (Human Rights Watch, 2007).

2.2. The Effect of Internal Conflicts

Welsch (2008) focuses on the effect of civil conflict on life satisfaction, using cross national regressions. He shows that the number of conflict victims has a significant effect on subjective well-being, directly via health and psychological channels and indirectly via decline in income. The Bosnian War is another case study of a civil conflict which became international. Shemyakina and Plagnol (2013) used survey data collected after the 1992–1995 Bosnian War to examine how individual life satisfaction changed after this event. Regional and individual variation in exposure to conflict was used to identify the effect. They show that individual war-related trauma had a negative and significant influence on subjective well-being. Those who lost their residence showed a stronger decline in subjective well-being.

There are also studies which have examined the effects of less violent events of unrest, such as anti-government demonstrations, general strikes, and riots, all of which can result in larger costly instabilities such as revolution or civil war (Ishak and Farzanegan 2022), thus affecting subjective well-being. Protests are explained as the most common form of modern political conflict (Liu, Modrek, and Sieverding 2019). Experiencing such political conflicts can have a significant influence on mental health, especially among early adults. The impressionable years hypothesis explains that key attitudes, beliefs, and values are shaped during a period of great mental plasticity in early adulthood (Farzanegan and Gholipour 2021).

Liu et al. (2019) examine the political turmoil under the Arab Spring in Egypt and its effects on the well-being of Egyptians. They use a nationally representative panel of youth in the 2009 (pre-Arab Spring) and 2013/2014 (post-Arab Spring) iterations of the Survey of Young People in Egypt (SYPE). Their results show that being exposed to protests resulted in heightened

perceptions of uncertainty regarding the future. Among young individuals who had experienced protests, young men were slightly more inclined to report good overall health, but they also encountered significant deterioration in mental health compared to young women who had been exposed to protests. Distinctions were also observed in the perceptions of uncertainty and mental health based on individual and familial participation in protest events.

Cheung (2022) shows how participation in the Occupy Movement in Hong Kong reduced the life satisfaction of its participants. He uses conflict theory which assumes that social conflict reduces well-being because conflict is associated with many phenomena that reduce life satisfaction, such as violence, competition, discord, fighting, polarization, and hostility, among others. Lau et al. (2017) provide further empirical evidence on the negative effect of the Occupy Movement on mental health in Hong Kong. Several other authors have also studied how political violence and armed conflict affect mental health (Giacaman et al. 2007; Dimitry 2012; Moussa et al. 2015). Another path of literature shows how participation in political protests and other forms of political participation can increase social well-being (Klar and Kasser 2009; Welzel 2013) through the feeling of empowerment.

In addition to studies which have examined the effects of civil wars and protests, a line of literature has looked at the effect of terrorism on life satisfaction, measuring an individual's willingness to pay to be free from terrorism. Frey et al. (2009) used individual survey data and examined the mental costs of terrorism for France and the British Isles, finding a large negative effect of terrorism on subjective well-being, particularly relating to the serious conflict in Northern Ireland. A significant negative effect of terrorism on life satisfaction is also estimated in panel data covering 81 countries from 1994 to 2009 by Farzanegan et al. (2017). They also quantify the willingness to pay for a hypothetical reduction in terrorism.

The literature on the determinants of life satisfaction has also covered many other personal and institutional factors which we will explain in the next section when presenting the dependent and explanatory variables.

3. Data and Methodology

3.1. Data

In this study, we evaluate the impact of the violent protest environment in the context of the “Woman, Life, Freedom” protests in Iran on life satisfaction using data from two self-developed surveys, collected by computer-assisted telephone interviews (CATI) and conducted in the Persian language. We engaged R-Research Limited, the organization responsible for executing Wave 7 of the World Values Survey in Iran, to conduct two survey projects in the country. Each

survey consists of 39 questions capturing different aspects related to social, political, and economic attitudes and preferences, as well as the respondent's socio-economic characteristics. The interviews of the first survey were conducted between 17 January 2022 and 4 February 2022 among a representative sample of 1,306 Iranians, with 1,214 completed interviews. The interviews of the second survey were conducted between 9 and 20 November 2022 among a representative sample of 1,373 Iranians, with 1,212 completed interviews. The margin of error of the samples in both surveys is approximately +/- 2.7%. To achieve a sample that represents the Iranian population, the surveys used a multi-stage cluster sampling approach with six stages, as presented in Figure A1 in the Appendix.

The sampling procedure includes two strata, namely the region and type of locality, which are the first two stages. For this reason, Iran is divided into nine regions, and these regions are further divided into rural and urban locations. The next two stages are the primary sampling units (PSU), which are cities, towns, and rural districts, and the secondary sampling units (SSU), which are the selection of municipal districts in tier I and tier II settlements. These types of settlements are cities with at least half a million residents. Within each defined sampling unit, the random digit dialing (RRD) method with landline telephone was used to randomly select households, which is the fifth stage. Finally, in the sixth stage, the respondents were selected by the next birthday method, where only people 18 years or older were considered. With this approach, all Iranian provinces were covered, but not every province was selected in the sample, as the sample was not stratified by province. On basis of the standard definitions of the American Association for Public Opinion Research (AAPOR 2016), the contact rate of the first survey was 89%, the cooperation rate 75%, and the overall response rate 67%. The interviews lasted 15-51 minutes, with an average of 24 minutes. In the second survey, the contact rate was 92%, the cooperation rate 70%, and the overall response rate 65%. The interviews lasted 14-68 minutes, with an average of 21 minutes.

An overview of the sampling distribution of completed interviews in each region compared to the share of the region's population is presented in Table A1 in the Appendix. The population in each of the nine regions was calculated based on the official Iranian 2016 Census (SCI 2018). We can see that the completed interviews in each region have a similar share to the population living in these regions. The split between urban and rural population of 74% and 26%, respectively, was achieved among the completed interviews, with a split of 74.9% and 25.1% in the first survey and a split of 75.6% and 24.4% in the second survey. Due to the random sampling procedure to determine the survey participants, we also have a representative distribution of other characteristics such as age, gender, and education, as presented in Table

A2 in the Appendix. The goal of the sampling procedure was to achieve a sample that represents the general population of Iran, and the achieved shares of characteristics are comparable. Table 1 presents the variables used in the analysis and the responses to the questions of both surveys.

Table 1: Responses to survey questions

No.	Variable	Survey 1	Survey 2	Total
Q01	<i>Life Satisfaction</i>	n = 1212	n = 1212	n = 2424
	1. Completely dissatisfied	15.35%	18.48%	16.91%
	2. Rather dissatisfied	20.79%	22.44%	21.62%
	3. Rather satisfied	46.62%	46.04%	46.33%
	4. Completely satisfied	17.24%	13.04%	15.14%
Q02	<i>Protests (within 25 km)</i>	n = 1214	n = 1212	n = 2426
	0. No	100.00%	24.50%	62.28%
	1. Yes	0.00%	75.50%	37.72%
Q03	<i>Gender</i>	n = 1214	n = 1212	n = 2426
	0. Male	49.42%	50.91%	50.16%
	1. Female	50.58%	49.09%	49.84%
Q04	<i>Age</i>	n = 1211	n = 1208	n = 2419
	Min.	18	18	18
	Max.	65	65	65
	Mean	43.07	40.69	41.88
Q05	<i>Marital Status</i>	n = 1214	n = 1211	n = 2425
	0. Other	28.75%	26.59%	27.67%
	1. Married	71.25%	73.41%	72.33%
Q06	<i>Employment Status</i>	n = 1209	n = 1211	n = 2420
	0. Other	76.67%	75.89%	76.28%
	1. Unemployed	23.33%	24.11%	23.72%
Q07	<i>Perception of Corruption</i>	n = 1160	n = 1124	n = 2284
	0. No; small degree; average degree	48.28%	44.84%	46.58%
	1. Large degree; abundant	51.72%	55.16%	53.42%
Q08	<i>Perception of Security</i>	n = 1212	n = 1211	n = 2423
	0. Not at all secure; not very secure	14.60%	16.68%	15.64%
	1. Quite secure; very secure	85.40%	83.32%	84.36%
Q09	<i>Importance of Religion</i>	n = 1211	n = 1200	n = 2411
	0. Not at all important; not very important	29.81%	29.75%	29.78%
	1. Very important; rather important	70.19%	70.25%	70.22%
Q10	<i>Educational Level</i>	n = 1214	n = 1212	n = 2426
	1. Illiterate	8.40%	7.34%	7.87%
	2. Primary Education	12.03%	11.39%	11.71%
	3. Secondary Education	43.57%	44.06%	43.82%
	4. Tertiary Education	36.00%	37.21%	36.60%
Q11	<i>Social Class</i>	n = 1211	n = 1203	n = 2414
	1. Lower class	10.49%	11.47%	10.98%
	2. Working class	26.26%	26.27%	26.26%
	3. Lower-middle class	46.16%	46.13%	46.15%
	4. Upper-middle class	16.85%	16.04%	16.45%
	5. Upper class	0.25%	0.08%	0.17%

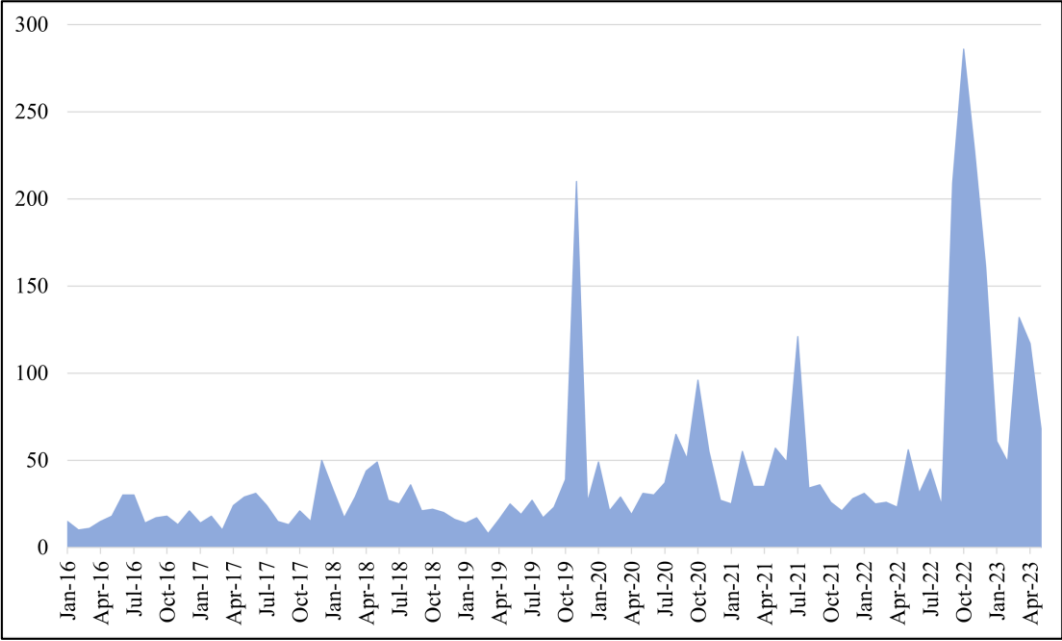
3.1.1. Dependent Variable

The dependent variable in our estimations is life satisfaction, measured by a four-point Likert scale. The corresponding question from the survey is “All things considered, how satisfied are you with your life as a whole these days?” with the possible answers “Completely dissatisfied”, “Rather dissatisfied”, “Rather satisfied”, and “Completely satisfied”. The descriptive statistics presented in Table 1 already provide a first glimpse of the difference in life satisfaction between the two surveys. The share of respondents who are completely dissatisfied has increased by 3.1 percentage points (pp) and the share of respondents who are completely satisfied has decreased by 4.2 pp. Previous studies have highlighted several drivers of life satisfaction or subjective well-being, such as income, education, gender, age, health, employment status, political stability, and political freedoms (Frijters, Haisken-DeNew, and Shields 2004; Jagodzinski 2010; Ngamaba 2017; Arrondo, Cárcaba, and González 2021; Ngoo, Tan, and Tey 2021). These studies used data from the World Values Survey (WVS), European Values Study (EVS), Asia Barometer Survey, and other national surveys. The results suggest that there are regional differences in the determinants of life satisfaction. We have included the main determinants of life satisfaction as control variables in our estimations.

3.1.2. Key Explanatory Variable

The “Woman, Life, Freedom” protests were triggered by the death of Mahsa Amini on 16 September 2022 while in custody of the morality police in Tehran. People took to the streets to express their anger and demand political change. Between 16 September 2022 and 31 May 2023, Iran experienced 3,340 protest events which affected all 31 provinces (ACLED 2023). While 2,043 events (61%) were labeled as peaceful, there was also a large share (39%) of violent events. Figure 1 presents the number of violent events in Iran per month and highlights the violent atmosphere of the 2022/23 protests which was not seen in previous protests. According to the data, the largest number of violent events took place in October and November 2023 with 286 and 227 events, respectively. This exceeded the 210 violent events during the 2019 fuel price protests in November 2019. We considered an event violent if it was not labeled as a “peaceful protest” by the Armed Conflict Location & Event Data Project (ACLED). This includes the sub-events such as abduction/forced disappearance, armed clash, excessive force against protesters, looting/property destruction, mob violence, protest with intervention, and violent demonstration, among others.

Figure 1: Number of violent events per month in Iran, 2016-2023



Source: ACLED (2023)

To measure the impact of the partly violent protest environment on life satisfaction, we create a dummy variable that is 1 if a respondent from the second survey (in November 2022) was exposed to protests within a 25km radius of the respondent’s location, and 0 otherwise. As presented in Table 1, this applies to 75.5% of the respondents. We calculate the distance between the respondent and the protest event using Vincenty’s (1975) formula. The two surveys provide us with the cities or rural districts of the respondents, from which we derive the coordinates of the centroids. The coordinates of the protest events are provided by ACLED. We decided on the distance of 25 km for mainly two reasons. First, the largest Iranian cities span about 50 km, such as Tehran (with a West-East distance of about 47 km) and Isfahan (with a North-South distance of about 38 km). Therefore, the radius of 25 km from the respondent’s location will make sure that all protests within a city are considered. Second, the distance of 25 km is also reasonable as it can theoretically be reached by car in under an hour and can be considered as part of the living area.

If an event happens in this area – for example, a violent protest, crime, or natural disaster – residents might be directly or indirectly affected, in this case by the protest environment. By protest environment, we refer to the situation of protests associated with violence, disruption of infrastructure and services, political instability, and uncertainty about the future. The reaction of the government and the development of protests can also affect life satisfaction and the overall situation of uncertainty can also affect the markets and investment decisions. Previously

discussed studies have shown how violent events such as war, conflict, and terrorism can affect life satisfaction (Welsch 2008; Frey, Luechinger, and Stutzer 2009; Shemyakina and Plagnol 2013; Coupe and Obrizan 2016; Farzanegan, Krieger, and Meierrieks 2017; Osiichuk and Shepotylo 2020; Kijewski 2020). There are also some studies focused on the topic of protests which have shown how protests and other forms of political participation can affect subjective well-being (Klar and Kasser 2009; Welzel 2013; Lau et al. 2017; Liu, Modrek, and Sieverding 2019; Cheung 2022). Overall, we expect that the exposure to protests reduces life satisfaction.

3.1.3. Control Variables

a) Gender

We include the control variable *Female* which is a dummy variable that is 1 for female, and 0 otherwise. As presented in Table 1, 49.84% of respondents in the total sample are female, and the remaining 50.16% are male. There are several studies that investigate the relationship between gender and life satisfaction and find a positive association between the female gender and subjective well-being (Joshani and Jovanović 2020; Becchetti and Conzo 2022), but other studies present inconclusive results (Eckermann 2014; Meisenberg and Woodley 2015; Liu, Modrek, and Sieverding 2019). These authors showed that age, region, employment, religion, culture, and history might play a role in this context. Therefore, we expect to see an insignificant association of the gender dummy variable and life satisfaction. However, we expect a statistically significant difference of the protest dummy variable depending on the gender because female Iranians were at the forefront of the protests and were more emotionally affected by the mandate on the hijab, which was a core topic of the protests.

b) Age

This is an indicator of the age of respondent in years. The survey only included respondents aged between 18 and 65, thus, we do not expect significant results related to old age (65+) which have been found in several studies (Gana et al. 2013; Hudomiet, Hurd, and Rohwedder 2021). The mean age of respondents in the total sample is 42 years. To investigate a U-shape relationship between age and life satisfaction, we include a squared term of age, which has been discussed in several previous studies (Bartram 2021; Becker, Heblich, and Sturm 2021). The assumption is a high life satisfaction in younger ages which decreases during the teenage years until reaching a minimum during middle-aged adulthood. After this turning point, life satisfaction increases. This phenomenon is known as ‘paradox of well-being.’ Therefore, we expect the coefficient of the squared term to be positive.

c) Marital Status

We define a dummy variable as 1 for respondents who are married, and 0 otherwise (e.g., single, never married, widowed, divorced, separated). As presented in Table 1, 72.33% of respondents in the total sample were married. We expect that being married has a positive effect on life satisfaction, which has also been shown by several studies (Mikucka 2016; Purol et al. 2021; Rasciute, Downward, and Simmons 2023). Purol et al. (2021) argue that being married is associated with several emotional, social, and health-related benefits. There are several advantages of companionship associated with marriage, which is one main explanation for the positive effect. This argument is supported by Naess et al. (2015) who show that not only marriage, but also other forms of cohabitation enhance life satisfaction.

d) Employment Status

We define a dummy variable as 1 for respondents who are unemployed, and 0 otherwise (e.g., full-time work, part-time work, self-employed, homemaker, retired). As presented in Table 1, 23.72% of respondents in the total sample are unemployed. We expect that being unemployed has a negative effect on life satisfaction which has also been shown by a large body of literature (Dolan, Peasgood, and White 2008; Georgellis et al. 2022; Gedikli et al. 2023). One of the most influential theories on this relationship comes from Jahoda (1981), who differentiates between the manifest and latent functions of employment. The manifest benefit is the financial reward that enables people to earn a living and there are five latent byproducts of employment, for example, the structuring of the working day, the provision of social contacts, the participation in a collective purpose, the development of personal identity and status, and the imposition of regular activity. Since unemployed people are excluded from these benefits, they might suffer psychologically, feel disheartened, and lose their sense of time, self-worth, and respect, all of which can reduce life satisfaction.

e) Perception of Corruption

We include the control variable *Corruption* which is a dummy variable that is 1 for respondents who perceive “a large degree of corruption” or “abundant corruption” in Iran, and 0 otherwise. This indicator was re-scaled from a five-point Likert scale. As presented in Table 1, 53.42% of respondents in the total sample have a rather high perception of corruption. We expect that a higher perception of corruption, as measured by the dummy variable, will have a negative association with life satisfaction. Both individual-level and cross-country studies have shown that the perception of corruption reduces life satisfaction (Ciziceno and Travaglino 2019; Amini and Douarin 2020; Ma, Guo, and Yu 2022). There are several possible explanations on how

corruption can reduce life satisfaction. Corruption can create an environment of uncertainty about receiving certain services, for example, access to health, education, and other public services (Gupta, Davoodi, and Tiongson 2001). Corruption can weaken the security apparatus and thus facilitate crime, terrorism, and political instability (Farzanegan and Witthuhn 2017). Corruption and bribery can serve as a regressive tax which will affect the poorer population more, and thus increase income inequality (Kaufmann, Montoriol-Garriga, and Recanatini 2008). Corruption can also create other inequalities, for example, in the form of unequal opportunities, especially for the younger population, in terms of having a successful career or founding a business (Mitchell and Campbell 2009).

f) Perception of Security

We include the control variable *Security* which is a dummy variable that is 1 for respondents who feel “very secure” or “quite secure” in their neighborhood, and 0 otherwise. This indicator was re-scaled from a four-point Likert scale. As presented in Table 1, 84.36% of respondents in the total sample feel secure. We expect that a higher perception of security, as measured by the dummy variable, will have a positive association with life satisfaction because several previous studies have provided evidence for this relationship (Brenig and Proeger 2018; Spencer and Liu 2019; Cordeiro, Kwenda, and Ntuli 2020). The negative effect of crime on subjective well-being is plausible because being surrounded by criminal activity reduces the quality of life.

g) Importance of Religion

We include the control variable *Religion* which is a dummy variable that is 1 for respondents who answered that religion is “very important” or “rather important,” and 0 otherwise. This indicator was re-scaled from a four-point Likert scale. As presented in Table 1, 70.22% of the respondents in the total sample consider religion as important. We expect that religiosity, as measured by the dummy variable, will have a positive association with life satisfaction. This relationship has been discussed and several studies (Okulicz-Kozaryn 2010; Berthold and Ruch 2014; Yaden et al. 2022) have found empirical evidence and discuss possible mechanisms. One explanation is that religion can promote social capital and provide a social setting which increases life satisfaction. Additionally, through the promotion of healthy lifestyles, practicing religion can positively affect mental and physical health. Spirituality and religiosity can also have psychological benefits, for example, as a provider of comfort in extreme situations or as a coping mechanism in the context of grief and trauma.

h) Educational Level

The indicator for the level of education is a categorical variable that has four categories: illiterate, primary education, secondary education, and tertiary education. We include three of these categories as dummy variables and use illiterate as the reference category. This indicator was re-scaled from 12 categories which include different schooling levels in Iran. Table 1 shows the shares of the four different levels of education within our total sample. According to the results, 7.87% of respondents are illiterate, 11.71% have primary education, 43.82% have secondary education, and 36.6% have tertiary education. There is a large body of literature that discusses the relationship between education and life satisfaction and presents inconclusive results. One view finds a positive association between education and subjective well-being (Jongbloed 2018; Araki 2022). A possible explanation is that education improves subjective well-being because it increases access to employment and economic resources, thus increasing control over life and stable social relationships (i.e., marriage) (Ross and Van Willigen 1997). However, another argument is that education has little direct impact on subjective well-being, but only affects well-being indirectly through enhanced occupational, financial, and social opportunities. This means that the effect of education becomes statistically insignificant or negative once other relevant covariates are included. Empirical evidence for an insignificant or negative effect is provided by several authors (Powdthavee 2008; Shields, Wheatley Price, and Wooden 2009; Powdthavee, Lekfuangfu, and Wooden 2015).

i) Social Class

The indicator for social class is a self-reported categorical variable that has five categories: lower class, working class, lower-middle class, upper-middle class, and upper class. As there were only four respondents from the upper-class category in both surveys, we combine the upper and upper-middle classes into one category in our estimations, leaving us with four categories. The reference group in our estimations is lower class. Table 1 shows the shares of the five social classes within our total sample. According to the results, 10.98% of the respondents belong to the lower class, 26.26% are from the working class, 46.15% are from the lower-middle class, 16.45% are from the upper-middle class, and 0.17% are from the upper class. As we did not include questions about income in the surveys, this social class indicator also proxies different income levels (Westhoff, Bukodi, and Goldthorpe 2022) because social class is highly correlated with income level. Conversely, household income has also been used to proxy social status (Connolly and Sevä 2018). We expect that respondents from higher social classes report higher life satisfaction, as shown by several previous studies (Yu and Blader

2020; Kaiser and Trinh 2021; Haddad et al. 2022). The relationship between income and happiness was studied by Easterlin (1974; 2001) who showed that people with more income are, on average, happier, when considering within-country variation. Kaiser and Trinh (2021) argue that there are different explanations of how social class can affect subjective well-being. The risk of losing a job is higher for members of the working class. A lower social class is also associated with fewer financial resources and higher health risks. A higher social class can be associated with a higher social status in terms of respect and admiration received from others.

3.2. Estimation Methodology

The research design is based on two representative surveys in Iran which were conducted with the same sampling approach. The first survey was conducted in early 2022 and the second survey was conducted in late 2022, during the peak of the protests. We are assuming that participants of the second survey are the treatment group and the participants of the first survey are the control group. The treatment is the protest environment which is measured by our protest dummy variable. We consider the respondents of the second survey as the treated group because they have directly or indirectly been exposed to the protest environment. By exposed, we do not mean that the respondents have necessarily taken part in protests, but that they have seen protests in real life, social or print media, or television. As the “Woman, Life, Freedom” protests were the largest protests in the last decade in Iran, it is unlikely that respondents of the survey have not learned about it.

In the period between 16 September 2022 to 8 November 2022, Iran experienced 1,222 protests (ACLEDE 2023). The latter date is one day before the second survey. The death of Mahsa Amini and the related protests sparked emotional debates in different media within and outside Iran, and therefore it is unrealistic to assume that respondents have not somehow been affected by the events. However, we did not include questions in the survey about participation in the protests, so we do not know about the direct involvement of the respondents, or how strongly they have been affected. A simple way to measure the impact of the situation is by using a dummy variable that is 1 if the respondent is from the treatment group and 0 if the respondent is from the control group. To improve this dummy variable, we do not consider all respondents from the second survey as treated, but only those who live in a location within 25 km from at least one protest.

This dummy variable was used in Table 2 in the results section. To test if proximity to the protests is responsible for the measured impact, we created another dummy variable presented in Table A3 in the Appendix that is 1 if the respondent was questioned in the second survey and

was located 25km from a protest. The dummy variable used reflects those respondents who have not been physically close to protests. In this estimation, the dummy variable is insignificant, which shows that the protest environment is responsible for the change in life satisfaction between the two surveys.

Based on the previous discussion, we have defined several hypotheses:

Hypothesis 1: The violent protest environment has reduced life satisfaction in Iran.

Hypothesis 2: There is a heterogenous effect of the violent protest environment on life satisfaction depending on gender, education, and social class.

For the estimation methodology, we are using several ordered logistic regressions and the following specification to test these hypotheses:

$$\begin{aligned}
 \text{Life Satisfaction}_i = & \alpha + \beta_1 \cdot \text{Protest}_i + \beta_2 \cdot \text{Female}_i + \beta_3 \cdot \\
 & (\text{Protest} \times \text{Female})_i + \beta_4 \cdot \text{Age}_i + \beta_5 \cdot \text{Age}^2_i + \beta_6 \cdot \text{Married}_i + \beta_7 \cdot \\
 & \text{Unemployed}_i + \beta_8 \cdot \text{Corruption}_i + \beta_9 \cdot \text{Security}_i + \beta_{10} \cdot \text{Religion}_i + \quad (1) \\
 & \beta_{11} \cdot \text{Education}_i + \beta_{12} \cdot (\text{Protest} \times \text{Education})_i + \beta_{13} \cdot \text{Social Class}_i + \\
 & \beta_{14} \cdot (\text{Protest} \times \text{Social Class})_i + \varepsilon_i
 \end{aligned}$$

We aim to explain the respondents' life satisfaction by the protest dummy variable and additional control variables. The constant (α) and error term (ε) are also included. Except for age, all explanatory variables are binary or categorical variables. The coefficient β_1 addresses Hypothesis 1 and the coefficients β_3 , β_{12} , and β_{14} address Hypothesis 2.

4. Results and Discussion

The results of the empirical investigation using ordered logit regression are presented in Table 2 where we report the average marginal effects. In this first estimation, we did not include the interaction terms. Each column includes one of the four possible answers to the question “All things considered, how satisfied are you with your life as a whole these days?” According to the results, respondents from the second survey who were within the 25 km from the protests show a negative association with the outcomes “rather satisfied” and “completely satisfied.” This means that respondents who live near protest locations have a 1.7 percentage point (pp) lower probability of being rather satisfied with life and a 2.0 pp lower probability of being completely satisfied with life.

We also included several control variables which are known to affect life satisfaction, such as age, marital status, employment status, perception of corruption, feeling of security, religiosity, level of education, and self-reported social class. The feeling of security and the importance of religion are positively associated with life satisfaction and the remaining variables show negative associations. Security is a binary variable that is 1 if respondents feel “very secure” and “quite secure”, and 0 otherwise. Thus, respondents who feel secure have a 10 pp higher probability of being completely satisfied with life. Religion is a binary variable that is 1 if respondents consider it “very important” and “quite important”, and 0 otherwise. This means that respondents who consider religion as important have a 7.2 pp higher probability of being completely satisfied with life.

From our control variables, the strongest negative marginal effects can be seen when considering the educational levels and self-reported social classes. Both are categorical variables with four categories. We differentiate four educational levels: illiterate, primary education, secondary education, and tertiary education. The reference group is illiterate, which is not included in the estimation. The results suggest that respondents with higher educational levels are less satisfied with life; for example, respondents who reported tertiary education have a 15.6 pp lower probability of being completely satisfied with life. We define the social classes in four categories: lower class, working class, lower-middle class, and upper-middle class. The latter also includes the four upper-class respondents. Compared to the reference group, which is lower class, respondents from the other social classes report higher life satisfaction; for example, upper and upper-middle class respondents have a 24.4 pp higher probability of being completely satisfied with life.

Table 2: Life satisfaction, ordered logit, marginal effects

	(2.1) Completely dissatisfied	(2.2) Rather dissatisfied	(2.3) Rather satisfied	(2.4) Completely satisfied
Protests (within 25 km)	0.023** (2.244)	0.013** (2.224)	-0.017** (-2.254)	-0.020** (-2.214)
Female	-0.012 (-1.220)	-0.007 (-1.223)	0.009 (1.216)	0.011 (1.224)
Age	0.000 (0.006)	-0.000 (-0.607)	-0.000 (-0.329)	0.000 (0.671)
Age ²	See Figure A2 in the Appendix.			
Married	-0.027* (-1.928)	-0.016* (-1.921)	0.020* (1.922)	0.024* (1.924)
Unemployed	0.035*** (2.716)	0.021*** (2.707)	-0.026*** (-2.718)	-0.030*** (-2.694)
Corruption	0.078*** (7.198)	0.046*** (7.373)	-0.057*** (-6.973)	-0.068*** (-7.240)
Security	-0.116*** (-8.269)	-0.068*** (-7.767)	0.084*** (7.995)	0.100*** (7.773)
Religion	-0.083*** (-7.180)	-0.049*** (-7.090)	0.060*** (7.093)	0.072*** (6.936)
Primary education	0.063*** (3.084)	0.061*** (2.827)	-0.017 (-1.576)	-0.107** (-2.562)
Secondary education	0.099*** (5.527)	0.085*** (4.165)	-0.042*** (-5.104)	-0.141*** (-3.494)
Tertiary education	0.118*** (6.068)	0.095*** (4.515)	-0.057*** (-6.177)	-0.156*** (-3.783)
Working class	-0.142*** (-3.897)	-0.030*** (-4.904)	0.121*** (4.101)	0.051*** (4.820)
Lower-middle class	-0.194*** (-5.482)	-0.059*** (-10.357)	0.165*** (5.792)	0.088*** (8.313)
Upper and upper-middle class	-0.287*** (-8.140)	-0.151*** (-14.178)	0.196*** (6.826)	0.242*** (12.457)
Observations	2253	2253	2253	2253

Notes: z-statistics based on robust standard errors are reported in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1

4.1. Heterogeneity Across Gender, Education, and Social Class

We are also interested to learn how the protest environment has affected different subgroups of the population, namely, gender, education, and social class. For that reason, we have included several interaction terms in our estimation which are presented in Table 3 where we report the average marginal effects of the ordered logit regression. According to the results, female respondents who were close to the protests have a 5.3 pp higher probability to be completely dissatisfied with life and a 1.9 pp higher probability to be rather dissatisfied with life. The results suggest that there is a statistical difference in the impact of the protest dummy variable depending on gender and the effect is driven by female respondents. The effect of the interaction is also stronger than the protest dummy variable without interaction.

The interactions of the protest dummy variable and different levels of education reveal that the effect is mainly driven by respondents with primary and tertiary education. More precisely, respondents with primary education who were close to the protests have a 7.1 pp lower probability to be completely satisfied with life and a 7.7 pp lower probability to be rather satisfied. Moreover, respondents with tertiary education who were close to the protests have a 2.4 pp lower probability to be completely satisfied with life and a 6.1 pp lower probability to be rather satisfied. The interactions of the protest dummy variable and different social classes show that the effect is mainly driven by respondents who consider themselves to be part of the working class. Accordingly, working-class respondents who were close to the protests have a 4 pp lower probability of being completely satisfied with life and an 8.2 pp lower probability of being rather satisfied.

Table 3: Life satisfaction, ordered logit, marginal effects, with interactions

	(3.1) Completely dissatisfied	(3.2) Rather dissatisfied	(3.3) Rather satisfied	(3.4) Completely satisfied
Protests (within 25 km)	0.036*** (3.024)	0.008 (1.288)	-0.037*** (-3.614)	-0.007 (-0.720)
Female	-0.017 (-1.610)	-0.012* (-1.940)	0.012 (1.626)	0.016* (1.831)
Protests × Female	0.053*** (3.55)	0.019** (2.21)	-0.049*** (-4.16)	-0.023* (-1.69)
Primary education	0.072*** (3.489)	0.060*** (2.763)	-0.021 (-1.643)	-0.111** (-2.566)
Secondary education	0.100*** (5.597)	0.086*** (4.163)	-0.040*** (-3.692)	-0.146*** (-3.512)
Tertiary education	0.118*** (6.045)	0.093*** (4.310)	-0.053*** (-4.670)	-0.158*** (-3.702)
Protests × Primary education	0.096*** (3.05)	0.052*** (2.60)	-0.077*** (-3.46)	-0.071** (-2.28)
Protests × Secondary educ.	0.013 (0.76)	-0.006 (-0.60)	-0.020 (-1.42)	0.012 (0.91)
Protests × Tertiary education	0.067*** (3.27)	0.018** (2.02)	-0.061*** (-3.55)	-0.024** (-2.04)
Working class	-0.148*** (-4.053)	-0.027*** (-2.875)	0.122*** (4.263)	0.053*** (4.757)
Lower-middle class	-0.201*** (-5.674)	-0.051*** (-5.771)	0.167*** (6.049)	0.085*** (7.763)
Upper and upper-middle class	-0.293*** (-8.274)	-0.142*** (-11.514)	0.202*** (7.266)	0.233*** (11.838)
Protests × Working class	0.089*** (3.04)	0.033*** (3.16)	-0.082*** (-3.20)	-0.040*** (-2.74)
Protests × Lower-middle class	0.010 (0.71)	0.004 (0.42)	-0.014 (-1.13)	-0.000 (-0.02)
Protests × Upper and upper-middle class	-0.017 (-1.54)	-0.025 (-1.59)	-0.019* (-1.69)	0.061* (1.71)
Age	0.000 (0.021)	-0.000 (-0.673)	-0.000 (-0.402)	0.000 (0.750)
Age ²		See Figure A3 in the Appendix.		
Married	-0.028* (-1.943)	-0.016* (-1.937)	0.020* (1.938)	0.024* (1.938)
Unemployed	0.034*** (2.579)	0.020*** (2.578)	-0.024*** (-2.580)	-0.029** (-2.564)
Corruption	0.077*** (7.106)	0.046*** (7.282)	-0.056*** (-6.864)	-0.067*** (-7.166)
Security	-0.114*** (-8.240)	-0.067*** (-7.710)	0.083*** (7.945)	0.099*** (7.732)
Religion	-0.081*** (-7.027)	-0.048*** (-6.961)	0.059*** (6.933)	0.071*** (6.811)
Observations	2253	2253	2253	2253

Notes: z-statistics based on robust standard errors are reported in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1

4.2. The Role of the Intensity of Protests

When evaluating the impact of protests on individual life satisfaction, we can also consider the intensity of the protests in terms of quantity and quality. We use the number of protests within a 25km radius of the respondents' location to measure the number of protests, and we separate the protests into peaceful and violent, categorized according to the utilized database (ACLED 2023). Out of the 1,222 protests in the studied period (16 September 2022 to 8 November 2022), 699 protests (57.2%) were categorized as peaceful protests and the remaining 523 protests (42.8%) can be categorized as violent protests. The results of the second survey show that 74.9% of respondents were close to any type of protests. More precisely, 66.1% were close to violent protests and 69.6% were close to peaceful protests. We can see that there is a huge overlap, which means that most respondents (60.8%) have experienced both types of protest, making it difficult to discern the influence of the types of protest.

Table 4 presents the results of the empirical investigation using ordered logit regression where we report the average marginal effects. We can see that violent protests have a negative effect on life satisfaction, but peaceful protests have a positive effect on life satisfaction. On the one hand, an increase in the exposure to a violent protest by one protest is associated with a 0.3 pp lower probability of being completely satisfied with life. On the other hand, an increase in the exposure to a peaceful protest by one protest is associated with a 0.1 pp higher probability of being completely satisfied with life. In addition to the direction of the effect, there is also another difference between the two types of protests, namely, that the impact of the violent protests is stronger in size.

The finding that violent events can reduce life satisfaction has been discussed by several authors (Welsch 2008; Frey, Luechinger, and Stutzer 2009; Shemyakina and Plagnol 2013; Coupe and Obrizan 2016; Farzanegan, Krieger, and Meierrieks 2017; Osiichuk and Shepotylo 2020; Kijewski 2020). Welsch (2008) argues that the social costs of civil conflict are also of an intangible character which means that the violent environment may also affect people not physically involved in conflict. This can happen through self-interest and altruism. First, the consequences of a violent environment can include health and psychic costs in terms of pain, suffering, fear, and agony. Second, individuals may feel empathy for those who have become victims of violent protests, for example relatives, friends, or even people not personally known. This can explain our findings of the negative impact of violent protests on life satisfaction. There has also been a discussion that violent protests neither help the protestors nor help the government, because repression of protests might not always stop protests (Bell and Murdie

2018) and violent protests can reduce the societal support of protesters (Simpson, Willer, and Feinberg 2018). Our findings reveal a possible channel of how the support of protests can be affected, namely through life satisfaction.

On the contrary, there are also authors who show how protests and other forms of political participation can have a positive effect on subjective well-being (Frijters, Haisken-DeNew, and Shields 2004; Klar and Kasser 2009; Welzel 2013; Cheung 2022) which can help to explain the positive effect of peaceful protests on life satisfaction. One possible explanation is that the participation in protests can facilitate the feeling of empowerment and political emancipation which can increase life satisfaction (Welzel 2013; Cheung 2022). While this only applies to people who have participated in protests, there is also evidence that political freedom increases life satisfaction (Frijters, Haisken-DeNew, and Shields 2004). Therefore, we argue that peaceful protests give a signal to the population that political freedoms, for example the right to associate, exist which will increase the life satisfaction of the whole population, and not just those who participated in the protests.

Another possible explanation is that peaceful protests can serve as a collective cathartic experience and give the feeling of greater social cohesion which can increase subjective well-being (Ni et al. 2020). In their literature review, Ni et al. (2020) show that collective actions may reduce depression and suicide which can be indicators of improved life satisfaction. They argue that this can be explained by collective actions serving as a cathartic experience when people collectively express grievances. Another argument is that greater social cohesion among subpopulations, either supporting or opposing the cause of the collective action, can strengthen social ties, which in turn could buffer the adverse impact of the violent protest environment. Moreover, Ni et al. (2020) find that the negative impact of exposure to collective action appears to vary with the level of violence, which can explain the different effect that we find in the case of violent and peaceful protests in Iran.

Table 4: Life satisfaction, ordered logit, marginal effects, violent and peaceful protests separated

	(5.1) Completely dissatisfied	(5.2) Rather dissatisfied	(5.3) Rather satisfied	(5.4) Completely satisfied
Number of violent protests (within 25 km)	0.003*	0.002*	-0.002*	-0.003*
	(1.915)	(1.895)	(-1.905)	(-1.904)
Number of peaceful protests (within 25 km)	-0.002*	-0.001*	0.001*	0.001*
	(-1.755)	(-1.738)	(1.747)	(1.747)
Female	-0.013	-0.008	0.010	0.011
	(-1.281)	(-1.283)	(1.277)	(1.284)
Age	-0.000	-0.000	-0.000	0.000
	(-0.034)	(-0.625)	(-0.275)	(0.684)
Age ²	See Figure A4 in the Appendix.			
Married	-0.027*	-0.016*	0.019*	0.023*
	(-1.875)	(-1.869)	(1.868)	(1.871)
Unemployed	0.035***	0.020***	-0.025***	-0.030***
	(2.665)	(2.656)	(-2.669)	(-2.642)
Corruption	0.079***	0.046***	-0.057***	-0.068***
	(7.229)	(7.402)	(-7.002)	(-7.272)
Security	-0.115***	-0.068***	0.083***	0.099***
	(-8.137)	(-7.650)	(7.884)	(7.657)
Religion	-0.083***	-0.049***	0.060***	0.072***
	(-7.153)	(-7.053)	(7.077)	(6.901)
Primary education	0.063***	0.061***	-0.016	-0.107**
	(3.079)	(2.827)	(-1.535)	(-2.562)
Secondary education	0.099***	0.085***	-0.042***	-0.142***
	(5.568)	(4.192)	(-5.078)	(-3.512)
Tertiary education	0.118***	0.095***	-0.057***	-0.157***
	(6.124)	(4.547)	(-6.166)	(-3.804)
Working class	-0.141***	-0.031***	0.121***	0.051***
	(-3.865)	(-4.925)	(4.068)	(4.793)
Lower-middle class	-0.192***	-0.059***	0.164***	0.088***
	(-5.415)	(-10.338)	(5.719)	(8.235)
Upper and upper-middle class	-0.286***	-0.151***	0.196***	0.241***
	(-8.062)	(-14.143)	(6.763)	(12.368)
Observations	2253	2253	2253	2253

Notes: z-statistics based on robust standard errors are reported in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1

5. Conclusion

Overall, the results reveal that a protest environment reduces life satisfaction. This is especially the case for marginalized groups or those who feel marginalized which are in our study female and working-class respondents. The protest dummy variable shows that respondents who live near protest locations have a 3.7 pp lower probability of being rather satisfied with or being completely satisfied with life. But when considering the interaction terms, we can see that female respondents who live near protest locations have a 7.2 pp lower probability of being

rather satisfied with or being completely satisfied with life, and that working-class respondents who live near protest locations have a 12.2 pp lower probability of being rather satisfied with or being completely satisfied with life. When taking into account the intensity of protests, in terms of quantity and quality, we show that violence (and not the act of the protest itself) is responsible for the decrease of life satisfaction, which is in line with previous literature on the impact of violent events on life satisfaction (Welsch 2008; Frey, Luechinger, and Stutzer 2009; Shemyakina and Plagnol 2013; Coupe and Obrizan 2016; Farzanegan, Krieger, and Meierrieks 2017; Osiichuk and Shepotylo 2020; Kijewski 2020).

As the main finding is the negative role of violent protest for subjective well-being, it will be important to reduce violence during protests. This also has additional benefits for the protestors and the government. Previous studies have shown that repression of protests might fuel protests (Bell and Murdie 2018) and violent protests might reduce the societal support of protesters (Simpson, Willer, and Feinberg 2018), which means that both parties might not achieve their goals. Canetti et al. (2017) also show that exposure to violence reduces compromise in a political conflict. This means for the context of Iran that people who have been exposed to violence are less willing to go into a constructive dialogue with the opposing party. As we have the two parties (government and protestors), we would expect that violent protest will make reforms less likely and will be destructive for cohesion of society.

To achieve the reduction of violent protests, there needs to be a legal framework that allows for peaceful protests and persecutes violent protestors. This will prevent inciting violence from those protesting. On the other hand, there also needs to be training on de-escalation tactics and the recruitment of trained security personnel to prevent violence from the government's security forces. If violent events happen, it will be important to discuss and persecute it in a transparent way, so that it will not continue to heat up the tensions. As our results also show that peaceful protests can increase life satisfaction, this can also be a stabilizing factor for the country, if there is a clear legal framework for peaceful protests. If people can openly show their grievances, it can be less likely that they will join violent groups. Ni et al. (2020) show that peaceful protests can serve as a collective cathartic experience and give the feeling of greater social cohesion which can increase subjective well-being.

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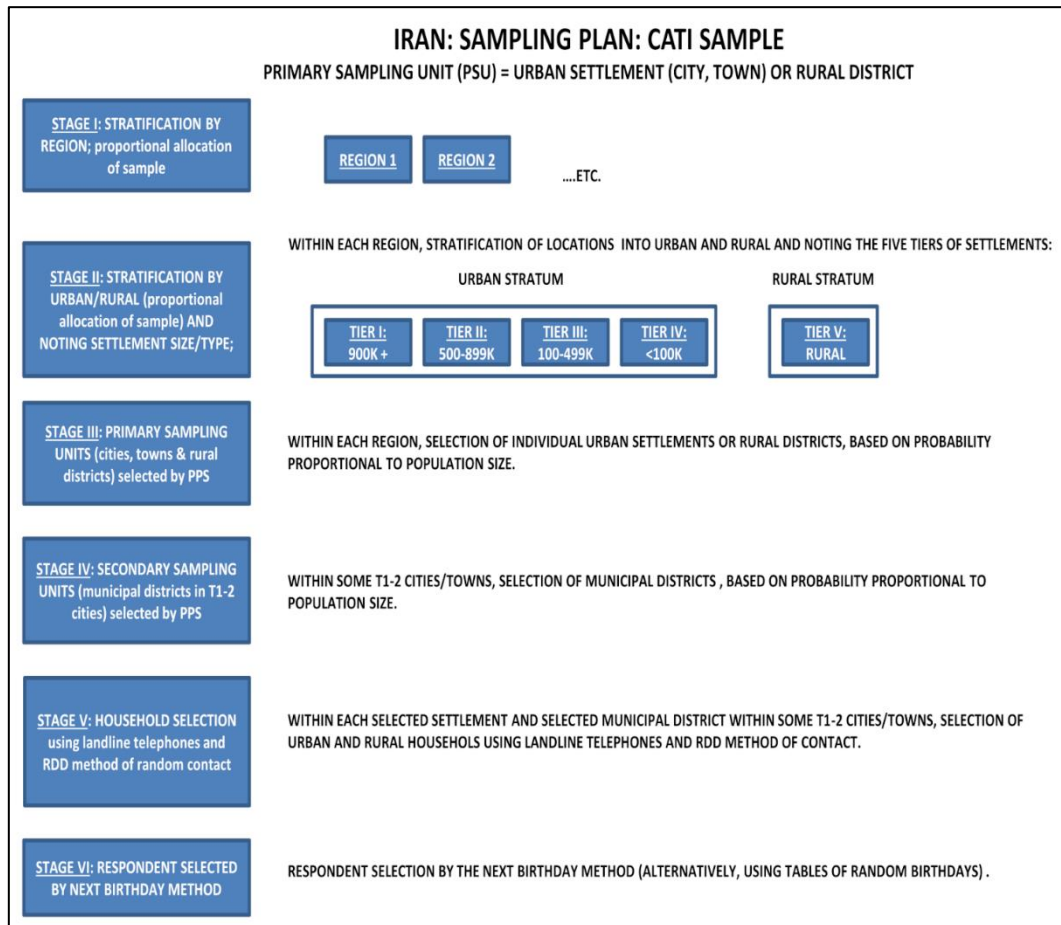
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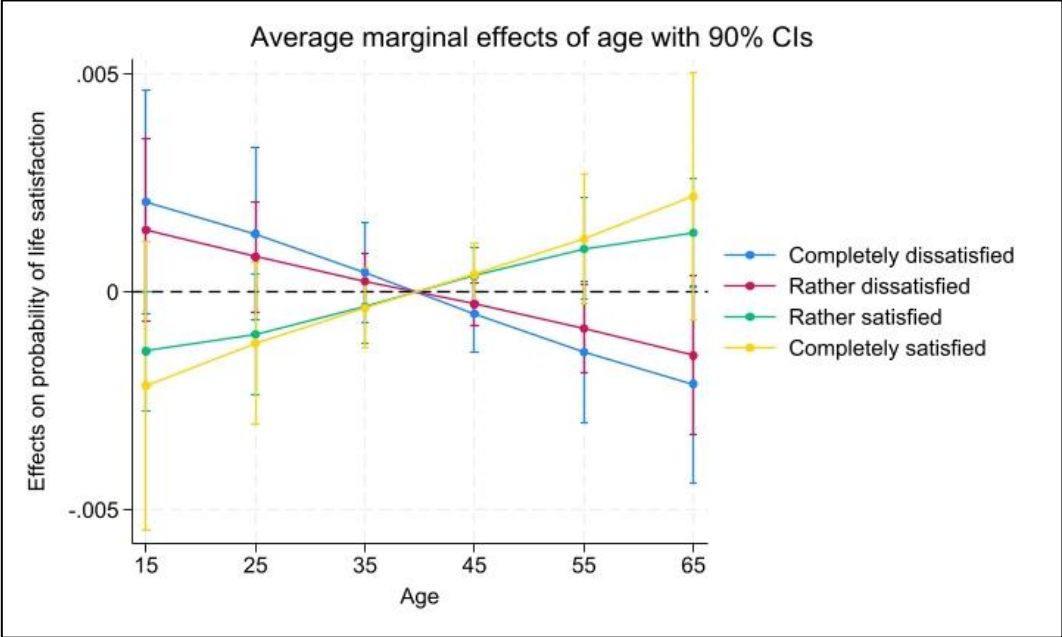
Appendix

Figure A1: Overview of the survey’s multi-stage cluster sampling



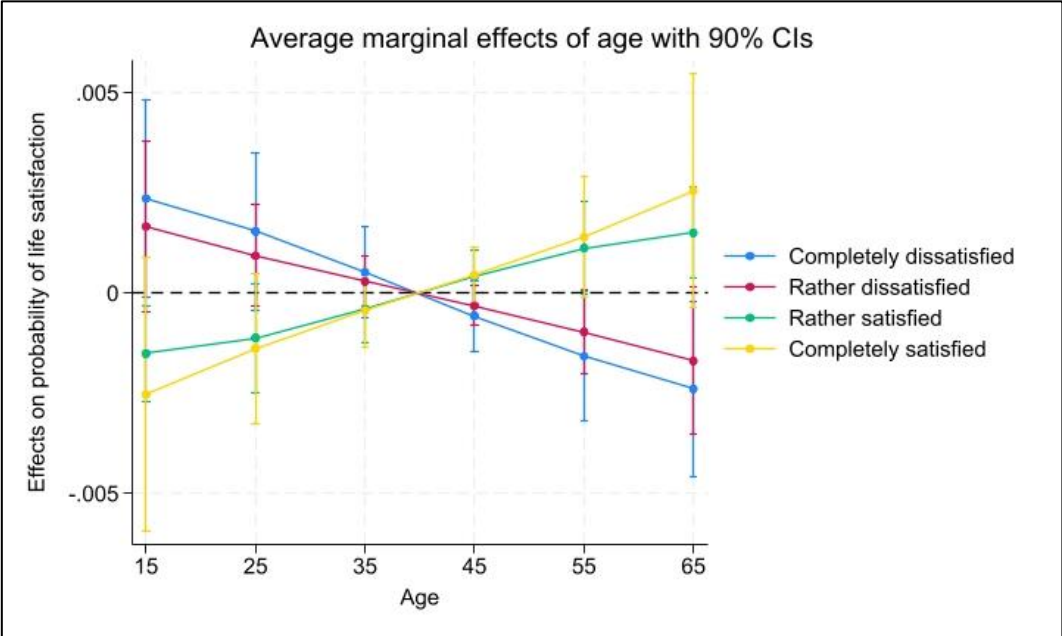
Source: Technical Report of R-Research

Figure A2: Marginal effects of the squared term (Age²) in Table 2



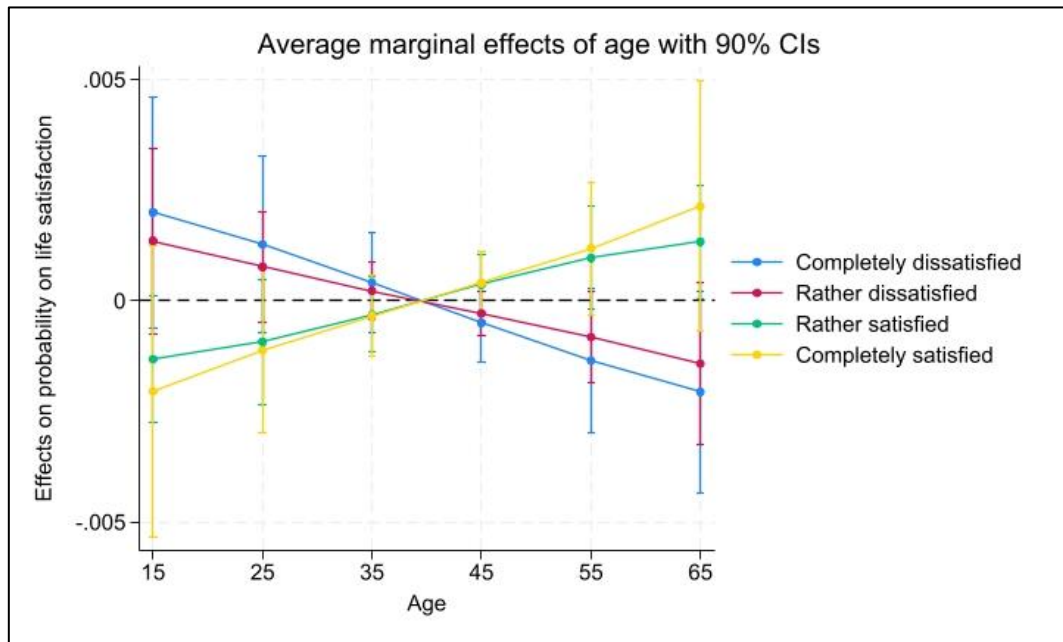
Notes: At almost every age, the effect of age on life satisfaction is statistically insignificant, when considering significance at the 10% level. An exception is the effect of age on the outcome “rather satisfied” at the age of 65, which is positive and statistically significant.

Figure A3: Marginal effects of the squared term (Age²) in Table 3



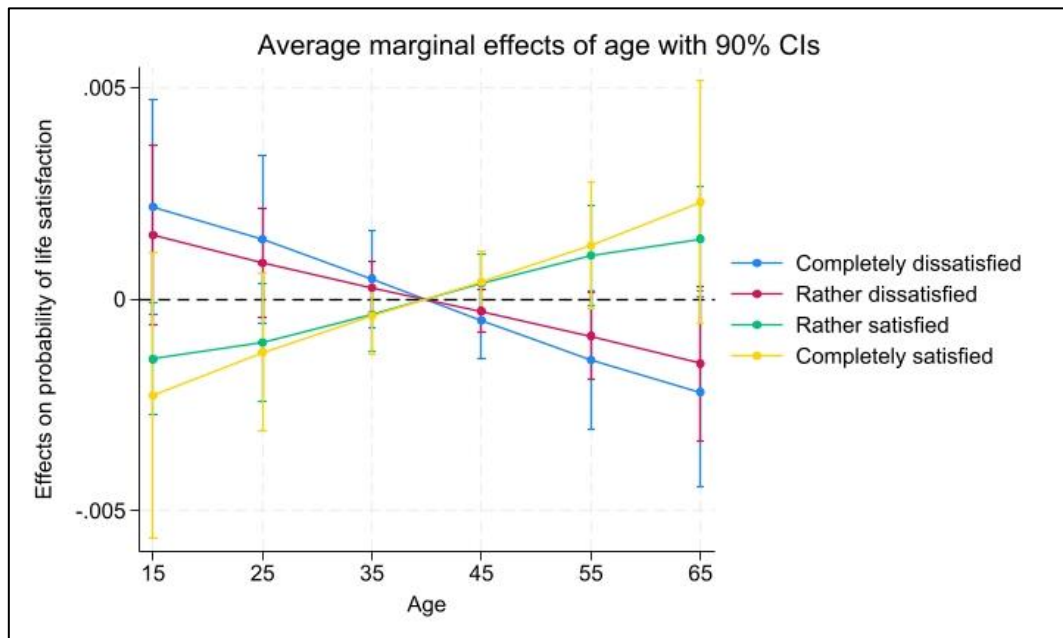
Notes: At almost every age, the effect of age on life satisfaction is statistically insignificant, when considering significance at the 10% level. An exception is the effect of age on the outcome “completely dissatisfied” at the age of 65, which is negative and statistically significant, as well as the effect of age on the outcome “rather satisfied” at the age of 65, which is positive and statistically significant.

Figure A4: Marginal effects of the squared term (Age^2) in Table 4



Notes: At almost every age, the effect of age on life satisfaction is statistically insignificant, when considering significance at the 10% level. An exception is the effect of age on the outcome “rather satisfied” at the age of 65, which is positive and statistically significant.

Figure A5: Marginal effects of the squared term (Age^2) in Table A3



Notes: At almost every age, the effect of age on life satisfaction is statistically insignificant, when considering significance at the 10% level. An exception is the effect of age on the outcome “rather satisfied” at the age of 65, which is positive and statistically significant.

Table A1: Sample distribution of completed interviews

Region	Provinces	Share of population (Census 2016)			Completed interviews (Survey Jan./Feb. 2022)			Completed interviews (Survey November 2022)		
		Region	Urban	Rural	Region	Urban	Rural	Region	Urban	Rural
1. North	Gilan, Golestan, Mazandaran	10%	59%	41%	119 (9.8%)	71 (59.7%)	48 (40.3%)	120 (9.9%)	75 (62.5%)	45 (37.5%)
2. Tehran	Tehran, Alborz, Semnan, Qazvin, Qom, Markazi, Hamadan	28%	89%	11%	335 (27.6%)	305 (91%)	30 (9%)	335 (27.6%)	305 (91%)	30 (9%)
3. Centre	Isfahan, Chaharmahal and Bakhtiari, Yazd	9%	84%	16%	104 (8.6%)	89 (85.6%)	15 (14.4%)	106 (8.8%)	91 (85.9%)	15 (14.2%)
4. North- West	West Azerbaijan, East Azerbaijan, Ardabil, Zanjan	12%	69%	31%	149 (12.3%)	104 (69.8%)	45 (30.2%)	149 (12.3%)	105 (70.5%)	44 (29.5%)
5. North- East	Razavi Khorasan, North Khorasan, South Khorasan	10%	70%	30%	120 (9.9%)	90 (75%)	30 (25%)	120 (9.9%)	90 (75%)	30 (25%)
6. South- West	Khuzestan, Lorestan	8%	73%	27%	94 (7.7%)	63 (67%)	31 (33%)	94 (7.8%)	64 (68.1%)	30 (31.9%)
7. South	Fars, Kohgiluyeh and Boyerahmad, Bushehr, Hormozgan	11%	66%	34%	125 (10.3%)	80 (64%)	45 (36%)	126 (10.4%)	81 (64.3%)	45 (35.7%)
8. West	Ilam, Kurdistan, Kermanshah	5%	73%	27%	75 (6.2%)	59 (78.7%)	16 (21.3%)	75 (6.2%)	60 (80%)	15 (20%)
9. South- East	Sistan and Baluchestan, Kerman	7%	54%	46%	93 (7.7%)	48 (51.6%)	45 (48.4%)	87 (7.2%)	45 (51.7%)	42 (48.3%)
Total		100%	74%	26%	1214 (100%)	909 (74.9%)	305 (25.1%)	1212 (100%)	916 (75.6%)	296 (24.4%)

Notes: The share of population in the nine regions and the share of urban and rural population within each region are based on the official Iranian 2016 Census (SCI 2018) as presented in the technical reports of R-Research.

Table A2: Characteristics of respondents in the survey samples compared to the general population

		Target	Achieved (Survey Jan./Feb. 2022)	Achieved (Survey November 2022)
Age	18–24	15%	12.8%	12.5%
	25–49	59%	50.4%	58.3%
	50–59	13%	23.7%	19.4%
	60–65	4%	12.9%	9.4%
Gender	Female	49.6%	50.6%	50.9%
	Male	50.4%	49.4%	49.1%
Education	Illiterate	15%	8.4%	7.3%
	Primary school	18%	12%	11.4%
	(Partial) middle school	14%	10.2%	10.5%
	Partial high school	7%	2.4%	1.7%
	High school diploma	22%	31%	31.9%
	Tertiary education	24%	36%	37.2%

Notes: The target is based on the official Iranian 2016 Census (SCI 2018) as presented in the technical reports of R-Research.

Table A3: Life satisfaction, ordered logit, marginal effects, protests more than 25 km away

	(1) Completely dissatisfied	(2) Rather dissatisfied	(3) Rather satisfied	(4) Completely satisfied
Protests (>25 km away)	0.009 (0.534)	0.005 (0.534)	-0.006 (-0.534)	-0.008 (-0.534)
Female	-0.013 (-1.238)	-0.007 (-1.240)	0.009 (1.234)	0.011 (1.242)
Age	0.000 (0.037)	-0.000 (-0.610)	-0.000 (-0.362)	0.000 (0.669)
Age ²	See Figure A5 in the Appendix.			
Married	-0.027* (-1.893)	-0.016* (-1.886)	0.020* (1.887)	0.023* (1.889)
Unemployed	0.035*** (2.712)	0.021*** (2.700)	-0.026*** (-2.715)	-0.030*** (-2.688)
Corruption	0.079*** (7.215)	0.046*** (7.391)	-0.057*** (-6.989)	-0.068*** (-7.268)
Security	-0.119*** (-8.492)	-0.070*** (-7.942)	0.086*** (8.231)	0.102*** (7.938)
Religion	-0.083*** (-7.153)	-0.049*** (-7.065)	0.060*** (7.075)	0.072*** (6.915)
Primary education	0.063*** (3.098)	0.061*** (2.847)	-0.017 (-1.540)	-0.108*** (-2.578)
Secondary education	0.099*** (5.604)	0.086*** (4.217)	-0.042*** (-5.090)	-0.143*** (-3.527)
Tertiary education	0.118*** (6.123)	0.096*** (4.558)	-0.057*** (-6.142)	-0.157*** (-3.809)
Working class	-0.139*** (-3.804)	-0.030*** (-4.884)	0.119*** (3.998)	0.051*** (4.709)
Lower-middle class	-0.190*** (-5.360)	-0.059*** (-10.276)	0.162*** (5.653)	0.087*** (8.149)
Upper and upper-middle class	-0.284*** (-8.015)	-0.151*** (-14.155)	0.194*** (6.702)	0.240*** (12.372)
Observations	2253	2253	2253	2253

Notes: z-statistics based on robust standard errors are reported in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1