


# Growing up in the Iran–Iraq war and preferences for strong defense

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## Abstract

The purpose of this study is to examine the relationship between individuals' experiences of the Iran–Iraq war (1980–1988) during early adulthood (18–25 years) and their preference for strong national defense forces and their willingness to fight for Iran (in the event of another war). Using the World Values Survey data, we provide evidence that Iranians who experienced the war during their early adulthood give top priority to strong defense forces. However, we find that there is no significant association between individuals' experiences of the war during early adulthood and their willingness to fight for Iran. The results are robust to controlling for a set of individuals' socioeconomic and political characteristics as well as different age cohorts. Finally, we show that our results are not influenced by age cohort effect.

## KEYWORDS

impressionable years hypothesis, Iran–Iraq war, linear probability model, logit regression, military spending, preferences for defense

## JEL CLASSIFICATION

H56; P16; Z13

## 1 | INTRODUCTION

In this paper we explore whether individuals' experiences of the Iran–Iraq war (1980–1988) during early adulthood are related to Iranians' preferences for having strong national defense forces (*DEFENSE*) and a willingness to fight for their country (*FIGHT*).

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Our interest in the relationship between experiencing a war during individuals' early adulthood (impressionable years) and *DEFENSE* and *FIGHT* was sparked by the works of Alesina and Fuchs-Schündeln (2007), Ehrmann and Tzamourani (2012), and Giuliano and Spilimbergo (2014) on the role of the historical macroeconomic environment and political regime on individuals' preferences. Giuliano and Spilimbergo (2014, p. 813) find that "individuals who grew up during a recession tend to support more government redistribution and believe that luck is more relevant than effort in determining economic success in life." They also argue that large macroeconomic shocks experienced during early adulthood shape preferences for redistribution. They mainly justified their results by *the impressionable years hypothesis* which states that core attitudes, beliefs, and values crystallize during a period of great mental plasticity in early adulthood (the so-called impressionable years, between ages 18 and 25) and remain largely unchanged thereafter (Krosnick & Alwin, 1989). Alesina and Fuchs-Schündeln (2007) show that, after German reunification, East Germans (who lived under a Communist regime) are more in favor of redistribution and state intervention than West Germans. Ehrmann and Tzamourani (2012) find that inflation memories play an important role in shaping the preferences of economic agents about price stability. In addition, they provide evidence that memories of hyperinflation last for a long time, whereas those of moderate inflation experiences tend to erode after approximately a decade.

Relying on the findings of the above-mentioned studies as a foundation and using Iranian data, we hypothesize that individuals who experienced the Iran–Iraq war during their early adulthood would prefer stronger national defense forces and would be willing to fight for Iran in the event of another war. We are interested in testing how experiences of war affect individuals' thinking toward having strong national defense forces and a willingness to fight for the country.

If several conflicts have impacts on individuals' preferences, one could think of two possible reactions to these conflicts. One might argue that Iranian people with experiences of conflict may turn strongly against conflict and might not want to experience them again. This argument is closely related to the literature on how external threats may shape policy preferences (e.g., Bartels, 1994; Huddy et al., 2005). For example, using US data, Huddy et al. (2005) find that perceived future terrorist threat leads to greater support for an aggressive national security policy. The opposite hypothesis is that, under the continuous influence of domestic media, many Iranians still believe that a stronger national defense force is essential to their welfare and protection. This belief has especially grown since the Iran–Iraq war. As noted by Marcus (2010), and well remembered by Iranians, when Iran was attacked by Iraq in 1980, the international community did not come to its aid, nor did it sanction Iraq. According to the Foundation for Maintenance and Publication of Sacred Defense Works and Values, in total, 5 million Iranians were involved in the war, another 190,000 became martyrs (according to Shi'a Muslims' beliefs), 672,000 people were wounded, and 42,000 Iranians were taken prisoner in Iraq. Among the martyrs, 33,000 were school students and 3,500 university students. The damage costs for Iran estimated by the United Nations were about US\$97 billion (BBC, 2015). Farzanegan (2020) also estimates that the average Iranian lost in total approximately \$34,660 during 1978–1988.

The Iran–Iraq war had three distinguishing characteristics. First, it was longer than either world war, mainly because Iraq could not end it and Iran did not want to call a ceasefire until 1988. Second, it was an asymmetrical war: both countries were financing their military needs through exports of oil, yet Iraqis were getting significant financial help from other Arab countries, while Iran was under sanctions. Third, it was a total war and it included three modes of warfare not observed in previous wars since 1945: indiscriminate ballistic missile attacks on cities from both sides, but mainly by Iraq<sup>1</sup>; the significant use of chemical weapons by Iraq; and approximately 520 attacks on third-country oil tankers in the Persian Gulf.<sup>2</sup>

The Iranian Foreign Minister, Mohammad Javad Zarif, defended Iran's ballistic missile program in defiance of Western and Israeli criticism in an interview with CNN's Fareed Zakaria,<sup>3</sup> referring to the memories of the Iran–Iraq war:

[Y]ou know, we go back to a history where our cities were being showered with missiles from Saddam Hussein... and Iran did not have a single missile to work as a deterrence against its citizens.

The long-term mental impacts of experiencing war conditions are also discussed by Behrouzan (2013).<sup>4</sup> She highlights the importance of investigating this issue in the affected countries:

Understanding the psychological impact of war on civilians is important because wars change a society's relationship with the future. War conditions create memories and wounds that outlive the wars themselves. Their images and sounds persist in art, economics, politics, and private lives through multiple generations. They create corrosive memories that take decades to work through. But they also resonate, belatedly, in higher rates of physical and mental illness ... The internalized, normalized, and assimilated memories of war will ... shape a society's sense of well-being, and can then translate to medical, political, and economic consequences.

Using data from Iranian respondents to the World Values Survey (WVS 2005–2009), we provide evidence that individuals who experienced the Iran–Iraq war during their early adulthood (18–25 years) prefer a stronger national defense. This result should not be interpreted as a causal impact as we only use data for one wave of the WVS. In addition, we do not find a significant association between these individuals and their willingness to fight for the country in another war in the future.

Our study contributes to two strands of the literature: on the impact of long-term macroeconomic and political events on preference formation; and on the long-run impact of wars and violence on political attitudes. First, while Alesina and Fuchs-Schündeln (2007), Ehrmann and Tzamourani (2012), Giuliano and Spilimbergo (2014), and others have examined the effects of historical recession and inflation on individuals' preferences for redistribution, government intervention, and price stability, to the best of our knowledge, no empirical study has tested the relationship between experiences of wars during early adulthood and *DEFENSE* and *FIGHT* for a country in the Middle East, where the words "war" and "conflict" are on the daily news. Second, a large number of studies have examined the long-term consequences of conflicts on political attitudes and actions, among them Canetti et al. (2019) on the impact of conflict frames on political attitudes; Diccico and Fordham (2018) on elite opinion about foreign policy; Freitag et al. (2017) on political participation; Hong and Kang (2017) on people's attitudes toward the government; Oto-Peralías (2015) on knowledge and engagement in politics; and Mueller (1991) on attitudes toward war. However, little empirical work has been devoted to the relationship between war memories and *DEFENSE* and *FIGHT*.

In terms of the implications of our research, the findings of our study would be useful to understand the voting behavior of those who experienced the war during their early adulthood. They would also help international authorities to have a better understanding of the social drivers of Iranian military programs.

The remainder of this paper is structured as follows. Section 2 describes the data and our empirical strategy. Section 3 presents and discusses the results. Section 4 concludes.

## 2 | DATA AND EMPIRICAL STRATEGY

### 2.1 | Data

Our analysis relies on data from the WVS 2005–2009 introduced by Inglehart et al. (2018). The surveys were conducted by a network of social scientists at leading universities around the world, coordinated by the WVS Association. The surveys monitor cultural values, attitudes, and beliefs toward gender, family, and religion; attitudes and experience of poverty; education, health, and security; social tolerance and trust; attitudes toward multilateral institutions; and cultural differences and similarities between regions and societies.<sup>5</sup> The surveys also contain information on the sociodemographic characteristics of respondents, such as age, gender, educational level, employment status, income, and marital status.

It is noteworthy that the Iran sample of the WVS contains respondents from the whole country. However, the data do not show whether an individual spent his/her impressionable years in provinces directly affected by war or whether they experienced the direct loss of a family member in the war. Our assumption is that during the eight years of the war the whole country was directly or indirectly affected by war conditions. We hypothesize that those Iranians who entered early adulthood during the war have developed different attitudes toward the role of national defense in Iran in the post-war years.

In sensitivity tests, we will examine whether this is indeed related to their experience and memory of war or is simply an age cohort effect regardless of socioeconomic or war and peace conditions (i.e., those who are in their early adulthood years have specific attitudes toward strong defense or fighting for their country). We examine our question for two other countries lacking a conflict or war, namely Sweden and Thailand. If we find a similar positive link between being a member of early adulthood (18–25 years) and support for strong defense, then this might be related to specific characteristics of this age cohort, regardless of war experience.

An additional robustness check is to examine the effect on other age cohorts (0–5, 6–11, 12–17) who were in these age ranges in any year of the war with Iraq. Can we also see a similar relationship with support of strong defense as in the case of the impressionable years for other age cohorts? This analysis is motivated by findings of Bellucci et al. (2019) who argue that exposure to warfare in early life shapes human capital outcomes in later life and has a long-term impact on social preferences.

Furthermore, we split the eight-year war into first and second phases (pre and post 1984) and check the relationship between being in early adulthood (and other age cohorts) and the preference for strong defense. The second phase (1984–1988) was associated with a series of missile and air strikes by the Iraqi Army against large urban areas in Iran, such as Tehran, affecting civil population significantly.

Finally, we also consider a specification in which all other age group categorical variables (except for the reference age group of 18–25) are simultaneously included in the analysis. In such a specification, the coefficient on the 18–25 age dummy variable would be interpreted relative to all other groups.

#### 2.1.1 | WVS 2005–2009 Iranian sample

The WVS questionnaire was translated from English into Persian by a member of the research team. The translated questionnaire was also pre-tested. It was administered to 200 individuals. The survey was designed and conducted by the Institute for Social Research at the University of Michigan and Institute of Social Research, University of Tehran. The data were collected from the national

population, both sexes, 16 years and over, for the period from June 1 to August 1, 2005. The survey procedure was based on personal face-to-face interviews.

### 2.1.2 | Why Iran?

We focus on Iran for three reasons. First, the country has experienced different types of conflicts at different levels of intensity over the past century. Second, Iran's economy has been suffering from low economic growth (excluding oil exports) and high unemployment over the past three decades.<sup>6</sup> Despite slow economic development, the government of Iran typically allocates a large amount of the annual budget to organizations related to national defense (Farzanegan, 2014), as opposed to investing in major drivers of sustainable long-run economic growth (expenditures in technology and environment).<sup>7</sup> Tables 1 and 2 provide some insights into the size of government military expenditure in Iran, alongside comparable countries and the world average. As can be seen from Table 1, military expenditure in 2017 as a percentage of central government expenditure (16.05%) was much higher than the average for the world (6.26%) and for upper-middle-income economies (6.28%). However, the ratio is slightly lower than the average for Middle Eastern and North African countries (18.6%). A clear picture of government interest in national defense is given in Table 2. Government expenditure per capita in three important sections of contemporary Iran (water resources, environment, and communications technology) is only about 15% of government expenditure per capita in defense.

Third, there is an increasing international focus on the military spending projects of Iran since the new round of sanctions by the United States administration (Dizaji & Farzanegan, 2021; Farzanegan, 2021). In May 2018, President Donald Trump withdrew the US from the Iran Nuclear Deal. He further criticized this deal and the lifting of sanctions by declaring that: “[I]n the years since the deal was reached, Iran's military budget has grown by almost 40 percent—while its economy is doing very badly.” Some observers argue that the sanctions might lead to very strong nationalist resentment in Iran itself (Marcus, 2010). It is therefore interesting to understand the determinants of Iran's military spending beyond the often-discussed socioeconomic and institutional drivers at the macro level, focusing more on perceptions of Iranians regarding the importance of defense as well as social values, which shape such perceptions.<sup>8</sup>

Hence, the Iranian sample provides a motivating context to find out if government expenditures on defense are supported by Iranian citizens who experienced a war during their early adulthood. Iran's defense ambitions may have other social supporters within the country who deserve to be considered by international observers.

**TABLE 1** Military expenditure and armed forces personnel in Iran, comparable countries and the world, 2017

	Military expenditure (% of central government expenditure)	Armed forces personnel (% of total labor force)
<b>Iran</b>	<b>16.05</b>	<b>2.08</b>
Middle East and North Africa	18.6	2.29
Upper middle income	6.28	0.74
World	6.26	0.81

Source: World Bank (2019).

**TABLE 2** Government expenditures per capita by function (US dollars), 2017

Function	
Social welfare	281
Education and research	213
Health	184
Defense	153
Water resources	19
Environment	1.8
Communication and technology	1.2

*Note:* The data come from the Iranian government's budget report in 2017 (or 1,396 in the Iranian calendar). The exchange rate: \$US 1 = IRR 32,850.

*Source:* Ghadimi (2017).

## 2.2 | Dependent variables

In this study, we use data from the WVS Wave 5 (2005–2009). We estimate the regressions using two different but related questions as the dependent variables.

### 2.2.1 | Preference for strong national defense

First, among the various belief and preference questions, the survey contains a set of questions regarding individuals' views about what should be the country's aims for the next ten years. The question asks respondents: "People sometimes talk about what the aims of this country should be for the next ten years. On this card are listed some of the goals which different people would give top priority. Would you please say which one of these you, yourself, consider the most important? (Code one answer only under 'first choice.')" In particular, respondents are asked to indicate which of the following goals is considered to be their "first choice":

- A high level of economic growth
- Making sure this country has strong defense forces
- Seeing that people have more say about how things are done at their jobs and in their communities
- Trying to make our cities and countryside more beautiful.

For our analysis, we recoded the responses using a dummy variable which equals 1 if the respondent mentions "strong defense forces" as their first choice and 0 otherwise. Of the 2,618 valid responses, approximately 13% (334) opted for strong defense as their first choice and the rest selected other items as their top preference for Iran in the coming years.

### 2.2.2 | Willingness to fight for country

The other key dependent variable asks the respondents if they were willing to fight for their country if the country were to come to a war.<sup>9</sup> We call this variable willingness to fight for country (*FIGHT*). Answers can take the value 0 (no) or 1 (yes). Of the 2,286 valid responses, 1,864 (82%) replied

positively to this question and 422 persons (18%) rejected fighting for Iran if the country were to go to war.

### 2.3 | Explanatory variable of interest

Following Giuliano and Spilimbergo (2014), our main explanatory variable of interest is a dummy equal to 1 if an individual was in his/her “impressionable years” (age 18–25) at any point during the war with Iraq. As noted by Giuliano and Spilimbergo (2014) and in line with the frequently discussed impressionable years hypothesis in social psychology, the impressionable years are those years that shape the basic values, attitudes, and world views of individuals. Krosnick and Alwin (1989) and Newcomb et al. (1967) also present evidence on significant (political) socialization between the ages of 18 and 25. Other studies also find evidence on the important role of historical environment during the impressionable years on basic attitudes and worldviews of individuals (Cutler, 1974; Dennis, 1973; Easton & Dennis, 1969; Greenstein, 1965; Hess & Torney, 1967; Sears, 1975, 1981, 1983).

We also generate similar dummies for other age ranges (0–5, 6–11, 12–17) to find out if exposure to war conditions in other age groups has effects on our outcome of interest similar to the case of the impressionable years.<sup>10</sup>

One of the limitations of our data set is that the age group (or the cohort) that we are using in our study were around 40 years old in 2005–2009. It is likely that these middle-aged persons have more established economic and social status as well as family ties. Thus, they may worry more about security issues which might endanger their economic interests more significantly than the other younger age cohorts. We are controlling for other determinants of individual preferences such as income, age, employment, family status and political preferences, among others. Therefore, we can be more confident about the independent impact of age effects during the war period.

Of the 2,656 valid respondents, 714 (27%) were in their impressionable years of life when the Iran–Iraq war took place. During the second phase of the war (1984–1988), 587 persons (22) were in the early adulthood bracket.

### 2.4 | Control variables

In order to test the long-term relationship between experience of war and *DEFENSE* and *FIGHT*, it is crucial to control for other possible determinants, which may shape the perception of individuals regarding their first choice for the aim of country and their willingness to fight. In the empirical estimations, we control for a range of sociodemographic characteristics such as gender, employment status, marital status, number of children, income, education status, patriotism, confidence in government, religiosity, and interest in politics.

Our control for gender is a dummy variable that is equal to 1 for males and 0 for females. We also created a dummy variable for employment status (1 if a person is in full-time employment and 0 otherwise) and marital status (1 if married and 0 otherwise: single, divorced, or widowed). We also use a binary variable for income status in which the individuals in the top three deciles (8th, 9th, and 10th) are assigned the value 1 and others 0. Our expectation is that higher-income groups of society may prefer a stronger order and security due to their higher economic interests being at risk if security is undermined. In other words, while higher national defense standards afford citizens a similar protection from foreign threats, the costs of not having a strong defense would be felt more by higher-income

individuals (Beamer, 1999, pp. 22–23). Lower-income individuals may prefer a stronger focus on economic growth.

In addition, individuals with higher degrees of national pride may be more willing to fight if the country calls on them to do so in war conditions (Anderson et al., 2018). We use the WVS question that asks respondents to indicate “How proud are you to be Iranian?” The possible answers are very proud, quite proud, not very proud, not proud at all, no answer, and don't know).

Higher degrees of confidence in the government system may also increase the probability of voting for stronger defense and willingness to fight for one's country (Anderson et al., 2018). Lower confidence due to perceptions of corruption may reduce citizens' trust in the government (especially in the allocation of budgets to military projects) and undermine the willingness of people to defend a corrupt system at the time of external invasion. To measure this variable, we use a question from the WVS about confidence in government: “I am going to name a number of organizations. For each one, could you tell me how much confidence you have in them [government in our study]: is it a great deal of confidence, quite a lot of confidence, not very much confidence or none at all?”

Higher levels of religiosity may also stimulate the decision to fight for one's own country by increasing the non-materialistic values in the cost–benefit analysis. For example, Anderson et al. (2018) find that respondents who indicate that they do not belong to any denomination are less likely to say that they are willing to fight for their country than respondents who indicate a religious affiliation. The question from the WVS that we use is: Independently of whether you attend religious services or not, would you say you are: a religious person, not a religious person, a convinced atheist.

## 2.5 | Model specification

Our main hypothesis is that individuals who have experienced any year of the Iran–Iraq war in their early adulthood have a higher preference for stronger national defense forces and a willingness to fight for Iran. Additionally, we examine whether this association is stronger in the second half of the war which was associated with significant air and missile strikes by Iraq. More specifically, our hypotheses are:

H1. Individuals who have experienced (directly or indirectly) the Iran–Iraq war (in full or in part) in their early adulthood have a higher preference for stronger national defense forces.

H2. Individuals who have experienced (directly or indirectly) the Iran–Iraq war (in full or in part) in their early adulthood have a willingness to fight for Iran.

To test our hypotheses, we develop the following model:

$$Beliefs_i = \beta_0 + \beta_1 Age\ 18 - 25 + \beta_2 X_i + \varepsilon_i, \quad (1)$$

where *Beliefs* indicates the response to one of the two questions described above (*DEFENSE* and *FIGHT*) of individual *i*. It is coded 1 if an individual mentions “strong defense” as the first choice of the country's aims or indicates a willingness to fight for Iran in the event of another war, respectively. The variable *Age 18–25* is a dummy indicating whether an individual experienced any year of the Iran–Iraq war during his/her impressionable years (18–25). *X* is a vector that includes the control variables and  $\varepsilon$  is an error term.



We apply logistic regression for estimation because the dependent variable is binary (taking on values of 0 and 1).<sup>11</sup> Our logistic regressions rely on maximum likelihood estimation rather than ordinary least squares (OLS).<sup>12</sup> This is an iterative approach where we estimate different solutions until the best solution, with maximum likelihood, is achieved.

### 3 | RESULTS

#### 3.1 | Strong defense as the first choice of country

Table 3 shows the results of logistic regressions in which we compare the association of being in the Iran–Iraq war period during impressionable years versus other age ranges with support of strong defense. It shows that experiencing an asymmetric war during early adulthood is related to the formation of attitudes regarding the importance of strong defense for Iran's future. The coefficient for “early adulthood (18–25 years)” in model 1 of Table 3 is positive and statistically significant. Such a positive association is not observed for other age ranges which experienced any year of the war. To make this clearer, we calculate the marginal coefficient of our explanatory variables on the predicted probability of an individual opting for strong defense in the future. The average marginal coefficients show that being in early adulthood in any year of the Iran–Iraq war period increases the probability of supporting strong defense (instead of economic growth, democracy, or environmental issues) by 3 percentage points.<sup>13</sup>

To what extent are our estimation results robust to control of other drivers of individuals preferences for strong defense as the first choice of the state? In Table 4, focusing on the early adulthood age cohort, we control for other possible covariates. We observe that our initial finding of a positive association between experience of the war during the impressionable years and the probability of

**TABLE 3** Strong defense, “impressionable years” versus other age cohorts

Explanatory variables	Dependent variable: <i>Strong defense as first choice of country (DEFENSE)</i>			
	(1)	(2)	(3)	(4)
Early adulthood (18–25) in war	0.255** (2.00)			
Age under 5 in war		−0.170 (−1.45)		
Age 6–11 in war			−0.138 (−1.16)	
Age 12–17 in war				0.174 (1.41)
Observation	2,615	2,615	2,615	2,615
Wald $\chi^2$	4.00	2.09	1.34	1.98
Prob > $\chi^2$	0.04	0.14	0.24	0.15
Log pseudo-likelihood	−995.15	−996.05	−996.43	−996.13

Notes: Estimation method is logit which fits maximum likelihood models. Robust *t*-statistics are in parentheses.

\*\*Significant at 5% level.

TABLE 4 Supporting strong defense, impressionable year and control variables

	Dependent variable: <i>Strong defense as first choice of country (DEFENSE)</i>											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Early adulthood (18–25) in war	0.252** (1.96)	0.287** (2.24)	0.258** (2.02)	0.238* (1.81)	0.260** (2.04)	0.296** (2.09)	0.258** (2.02)	0.230* (1.78)	0.225* (1.73)	0.266** (2.08)	0.250* (1.84)	0.261* (1.93)
Confidence in the government	0.236*** (3.39)										0.163** (2.17)	0.177** (2.37)
Upper-income class		0.554*** (3.05)									0.564*** (2.86)	0.579*** (2.97)
Middle-income class			-0.193 (-1.57)									
Employed				-0.016 (-0.10)								
Higher education					-0.113 (-0.72)							
Married						-0.113 (-0.85)						
Male							-0.152 (-1.29)					
Proud of nationality								0.174** (1.98)			0.077 (0.77)	
Religious person									0.234 (1.36)			
Interest in politics										0.091 (1.29)		

(Continues)

TABLE 4 (Continued)

Dependent variable: Strong defense as first choice of country (DEFENSE)												
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Willing to fight for country											0.529*** (2.68)	0.568*** (2.97)
Observation	2,592	2,590	2,590	2,603	2,604	2,606	2,586	2,606	2,526	2,605	2,211	2,217
Wald $\chi^2$	16.48	13.7	6.95	3.56	4.70	4.36	6.06	8.03	5.25	5.60	30.11	31.15
Prob > $\chi^2$	0.00	0.00	0.03	0.16	0.09	0.11	0.04	0.01	0.07	0.06	0.00	0.00
Log pseudo-likelihood	-982.32	-983.51	-986.54	-991.8	-993.27	-991.71	-990.29	-988.19	-965.07	-992.89	-861.17	-865.29

Notes: Estimation method is logit. Robust t-statistics are in the parentheses. \*, \*\*, and \*\*\* are significant at 10%, 5%, and 1% levels, respectively.

supporting strong defense as the top priority for the country's future is robust to the inclusion of other individual socioeconomic and political characteristics of individuals. Individuals who experienced the war for at least part of their early adulthood had a higher preference for a strong defense as the first priority of the Iranian government. Their support was, on average, 3% higher than the support of those who were not in this age range at the time of the war. Among control variables, higher confidence in government, membership of the upper-income class (top three deciles), national pride, and willingness to fight for the country in the event of another war are significantly and positively correlated with our dependent variable.

Our finding provides empirical support for the impressionable years hypothesis and is in line with studies that show impressionable years of life (18–25) are very important in shaping an individuals' core attitudes, beliefs, and values (e.g., Alesina & Fuchs-Schündeln, 2007; Ehrmann & Tzamourani, 2012; Giuliano & Spilimbergo, 2014). In addition, our results support the view that wars and conflicts have long-lasting impacts on individuals' political attitudes and actions in societies that have experienced wars and conflicts (e.g., Diccio & Fordham, 2018; Freitag et al., 2017; Hong & Kang, 2017; Oto-Peralías, 2015).<sup>14</sup>

We can also see a consistent positive relationship between being in the higher-income deciles and preferences for strong defense. Apparently, those who have higher endowments in Iran believe more in putting security at the top of the national agenda. This may be due to the greater economic loss they may incur during such times of instability.

Being proud of one's Iranian nationality is positively and significantly correlated with individual preference for strong defense forces (model 8 of Table 4) but it loses its statistical significance when we control for other factors in model 11. We also find that when there is a great deal of confidence in the government, individuals feel more comfortable selecting strong defense as the first choice for the country. Often, lower confidence in the government is a symptom of higher perceptions of corruption. In such a case, individuals may be more suspicious of defense spending as a channel for enriching corrupt government employees. This is especially true considering the lower transparency in defense projects in Iran: according to the Government Defense Anti-Corruption Index (GI) published by Transparency International, Iran's GI ranking in Band E places it in the high-risk category for corruption in the defense and security sector. The highest risk area is finance and procurement.<sup>15</sup> Interestingly, the probability of supporting strong defense if an individual was in early adulthood during the war increases at higher levels of confidence in government (see Figure 1).

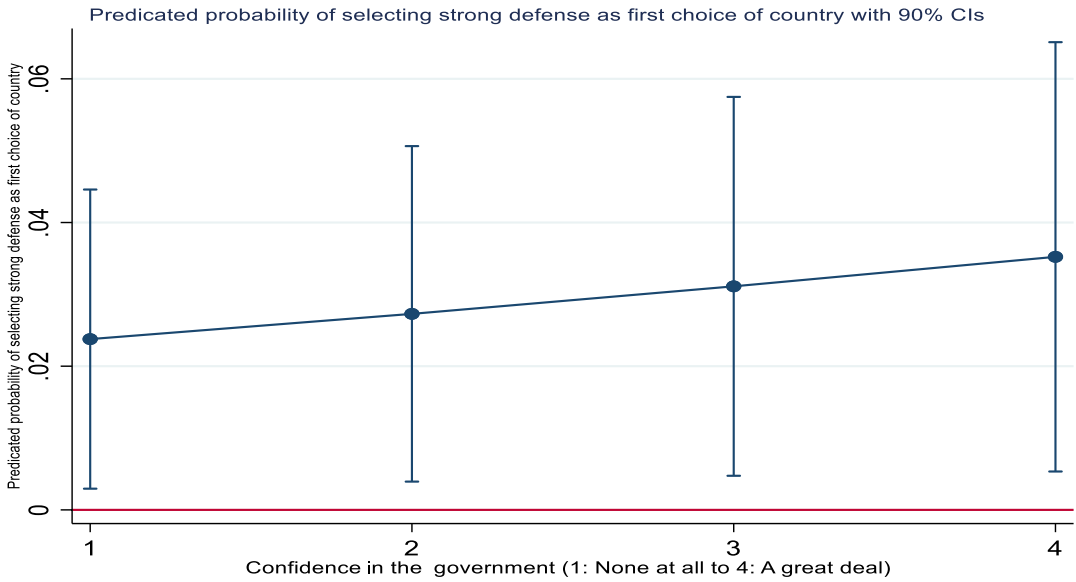
We do not observe a robust and significant association between other co-variables such as gender, employment status, religiosity, marriage, higher education, and interest in politics and the dependent variable of *DEFENSE* (see Table 4).

We respecify model 12 of Table 4 and check the association of other age ranges who experienced any year of the war, controlling for other key factors. Also, we re-estimate the model by focusing on the experience of the second phase of the war (1984–1988) by different age cohorts. The results are shown in Table 5. We observe that those respondents who were in their early adulthood in the second phase of war still show a higher probability of supporting strong defense as the first aim of the country.

Finally, we revised our initial model specification (Equation 1) by including all age cohorts at the same time with our key reference age group.<sup>16</sup> The revised specification is as follows:

$$\begin{aligned} Beliefs_i = & \beta_0 + \beta_1 Age\ 0-5 + \beta_2 Age\ 6-11 + \beta_3 Age\ 12-17 + \beta_4 Age\ 26-31 + \beta_5 Age\ 32-37 + \beta_6 \\ & Age\ 38-43 + \beta_7 Age\ 44-49 + \beta_8 Age\ 50-55 + \beta_9 Age\ 56-61 + \beta_{10} Age\ 62-67 + \beta_{11} Other\ Controls_i + \varepsilon_i. \end{aligned} \quad (2)$$

The value of these age dummies is 1 if a person experienced the Iran–Iraq war in these age ranges and 0 otherwise. The reference age group is 18–25. The constant term in regression shows the effect of the



**FIGURE 1** Marginal effect of experience of the war with Iraq during the impressionable years at different levels of confidence in government. The calculated marginal effects are based on model 12 of Table 4 [Colour figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

reference group when we include all other age groups. If it is statistically significant and larger in size than other estimated coefficients of other age groups, then we can suggest that “early adulthood (18–25) in war” is most likely to support strong national defense forces.

We apply a linear probability model (LPM) with robust standard errors as suggested by Hellevik (2009) and Allison et al. (2020).<sup>17</sup> Using an LPM with robust standard errors, which generates the marginal effect of explanatory variables, makes it possible to test the above hypothesis regarding the constant term and reference age group.

The estimation results are shown in model 1 in Table 6 (inclusion of all age cohorts except for the reference group without other control variables). The constant term, which reflects the effect of the reference group (18–25), is highly statistically significant (at the 99% confidence level), and its estimated marginal effect is positive and larger than the estimated marginal effects of the other (non-significant) age groups dummies. Model 1 shows that an individual who experienced any year of the war with Iraq during his/her early adulthood had approximately a 15 percentage point higher probability of supporting strong defense as the first priority of government at the time of the survey in 2009, compared to other individuals who experienced the war in other age cohorts. This is also the case when we add other robust control variables in model 2 in Table 6. When we include other important control variables such as confidence in government, income level, and willingness to fight for the country, the estimated probability effects for our reference age group reduces to 7 percentage points.

### 3.2 | Willingness to fight for Iran and experience of war conditions in the impressionable years

Next, we investigate to what extent the experience of war conditions during early adulthood may be related to the response of individuals on their willingness to fight for Iran in the event of another war. The concept of willingness to fight is not identical to support for strong defense as the first choice of

**TABLE 5** Strong defense, impressionable years versus other age ranges and second phase of war

	Dependent variable: <i>Strong defense as first choice of country (DEFENSE)</i>						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Age under 5 during (1980–88)	–0.206* (–1.65)						
Ages 6–11 during (1980–88)		–0.137 (–1.07)					
Ages 12–17 during (1980–88)			0.159 (1.21)				
Ages 18–25 during (1984–88)				<b>0.242*</b> <b>(1.69)</b>			
Under age 5 during (1984–88)					–0.117 (–0.90)		
Ages 6–11 during (1984–88)						–0.226 (–1.63)	
Ages 12–17 during (1984–88)							0.032 (0.23)
Confidence in the government	0.177** (2.37)	0.178** (2.40)	0.184** (2.46)	0.176** (2.35)	0.182** (2.43)	0.176** (2.38)	0.183** (2.45)
Upper-income class	0.577*** (2.96)	0.563*** (2.90)	0.558*** (2.86)	0.571*** (2.93)	0.571*** (2.93)	0.560*** (2.88)	0.557*** (2.87)
Willing to fight for country	0.564*** (2.95)	0.572*** (2.99)	0.569*** (2.97)	0.569*** (2.97)	0.569*** (2.97)	0.567*** (2.96)	0.576*** (3.01)
Observation	2,217	2,217	2,217	2,217	2,217	2,217	2,217
Wald $\chi^2$	29.88	27.51	28.59	29.99	27.56	29.08	26.85
Prob > $\chi^2$	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Log pseudo-likelihood	–865.77	–866.55	–866.41	–865.72	–866.72	–865.77	–867.10

Notes: Estimation method is logit. Robust *t*-statistics are in parentheses. \*, \*\* and \*\*\* denote significance at 10%, 5%, and 1% levels, respectively.

Iran. The former has more weight of willingness of an individual to pay the high costs of joining the fight, while the latter is rather silent on who should pay the costs of defense. As we will see in the estimation results, while the richer deciles of the country showed consistent support for strong defense, their association with willingness to fight is statistically non-significant. They may prefer a strong defense for higher security and stability given their economic endowments, but may prefer defense costs and fighting to be carried by other levels of society.

We also expect to observe a stronger positive relationship between national pride and willingness to defend the country at a time of war. Also, the higher levels of confidence in government stimulate the willingness of an individual to fight on behalf of such a system. People are less willing to bear the costs of war under a corrupt and inefficient political regime. We also expect to see a stronger role of religiosity in explaining the willingness to fight for one's country. Part of the high costs associated with warfare can be recompensed by attaching to it religious significance, such as introducing it as a holy war against the enemies of Islam. We have observed this phenomenon in the Iran–Iraq war where

**TABLE 6** Strong defense, impressionable years versus other age ranges

	(1)	(2)
	<b>Dependent variable: Strong defense as first choice of country (DEFENSE)</b>	
<b>Constant (reference age group: 18–25 in war)</b>	<b>0.15***</b> <b>(5.24)</b>	<b>0.07*</b> <b>(1.80)</b>
Age under 5 during (1980–88)	–0.02 (–0.74)	–0.04 (–1.44)
Ages 6–11 during (1980–88)	–0.02 (–1.44)	–0.02 (–1.13)
Ages 12–17 during (1980–88)	0.01 (0.29)	–0.01 (–0.39)
Ages 26–31 during (1980–88)	–0.00 (–0.02)	–0.02 (–0.46)
Ages 32–37 during (1980–88)	–0.02 (–0.60)	–0.01 (–0.36)
Ages 38–43 during (1980–88)	–0.05 (–1.08)	–0.08* (–1.67)
Ages 44–49 during (1980–88)	–0.03 (–0.54)	–0.01 (–0.27)
Ages 50–55 during (1980–88)	0.04 (0.41)	0.03 (0.30)
Ages 56–61 during (1980–88)	–0.08 (–0.71)	–0.14 (–1.21)
Ages 62–67 during (1980–88)	0.08 (0.63)	0.16 (1.12)
Confidence in the government		0.02** (2.42)
Upper-income class		0.08** (2.50)
Willing to fight for country		0.05*** (3.36)
Observations	2,615	2,217
Root-mean-square error	0.33	0.34

Notes: Estimation method for linear probability model is ordinary least squares. Robust *t*-statistics are in parentheses. \*, \*\* and \*\*\* denote significance at 10%, 5%, and 1% levels, respectively.

Saddam Hussein was introduced as *kafir*<sup>18</sup> (unbeliever) and Iranian soldiers as *razmandegan-e-Islam* (soldiers of Islam). The role of religion in the mobilization of the Iranian people and their participation in the war against Saddam’s army is undeniable (for a review, see Rezamand, 2010). Logically, the religious influence is stronger for those who are more committed to religion and its regular practices such as going to mosques or fasting during Ramadan.

TABLE 7 Willingness to fight for country among Iranians

Dependent variable: <i>Willingness to fight for country</i>											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Early adulthood (18–25) in war	0.147 (1.16)	0.174 (1.41)	0.171 (1.39)	0.160 (1.26)	0.141 (1.14)	0.006 (0.04)	0.164 (1.32)	0.048 (0.38)	0.079 (0.62)	0.187 (1.52)	−0.011 (−0.08)
Confidence in the government	0.663*** (8.58)										0.462*** (5.75)
Upper-income class		0.061 (0.31)									
Middle-income class			−0.038 (−0.33)								
Employed				−0.075 (−0.52)							
Higher education					−0.354*** (−2.66)						−0.192 (−1.30)
Married						0.410*** (3.45)					0.104 (0.80)
Male							0.026 (0.24)				
Proud of nationality								0.914*** (12.88)			0.700*** (9.32)
Religious person									1.055*** (8.13)		0.605*** (4.17)
Interest in politics										0.430*** (5.94)	0.378*** (4.89)
Observation	2,264	2,264	2,264	2,273	2,274	2,277	2,257	2,278	2,203	2,275	2,161

(Continues)



TABLE 7 (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
<b>Dependent variable: Willingness to fight for country</b>											
Wald $\chi^2$	74.48	2.04	2.00	2.27	8.06	14.3	1.81	166.3	67.51	37.75	209.96
Prob > $\chi^2$	0.00	0.36	0.36	0.32	0.01	0.00	0.40	0.00	0.00	0.00	0.00
Log pseudo-likelihood	-1,038	-1,084.8	-1,084.8	-1,084.8	-1,086.6	-1,083.8	-1,082.9	-1,082	-1,005	-1,016.7	-910.16

Notes: Estimation method is logit. Robust *t*-statistics are in parentheses. \*, \*\*, and \*\*\* denote significance at 10%, 5%, and 1% levels, respectively.

The relationship between Iranians with experience of war during their early adulthood and those with the willingness to fight in future wars is not evident. Such experiences of destruction in a war and the costs that their families may have paid, combined with the post-war enrichments of opportunists, can have a significant and negative relationship with their willingness to pay similar costs again.

Table 7 shows the logit regression results using *FIGHT* as a dependent variable, while the covariates are the same as in earlier estimations. We can find empirical support for the above discussed drivers of willingness to fight in models 1–11. Model 11 controls for previously significant variables. This model shows that individuals with higher confidence in government, higher national pride, a higher degree of religiosity, and interest in politics may be more willing to fight for their country. We also observe that there is no statistically significant relationship between individuals with experience of the Iran–Iraq war during their early adulthood and their willingness to fight in the event of another war, controlling for other factors.

How can we know that the found relationship between the 18–25 age cohort and preference for strong defense (in Tables 3 and 4) is not a result of younger cohorts' general higher support of defense? To address this concern, we selected two other countries which did not have a conflict experience similar to Iran in the past (Sweden and Thailand). We re-estimate our models with data from these countries. We do not observe any significant relationship between the 18–25 age cohort in Sweden and their preference for strong defense, controlling for other factors. A similar result was found for Thailand. Thus, we can be more confident that our findings for the case of Iran are not the result of younger cohorts' generally higher support of defense but are mainly due to their experience of an unbalanced and destructive war in the 1980s.<sup>19</sup>

## 4 | CONCLUSIONS

This study shows that the Iran–Iraq war shocks experienced during the critical years of early adulthood are related to individuals' preferences for strong defense as the first choice of the Iranian government. Individuals who grew up during the Iran–Iraq war (1980–1988) tend to support stronger defense forces compared to other aims such as economic growth, environmental quality and freedom of speech. Our findings are supported using evidence from the Wave 5 (2005–2009) of the World Values Survey, and are robust to the inclusion of a diverse set of controls and various specifications. We also find that the link between war shocks during the impressionable years of individuals and their support for strong defense gets stronger at higher levels of confidence in government. Higher confidence in government is often due to lower perceptions of corruption by individuals, and thus more trust in the government to manage the defense projects for sustainable order and stability.

Using the willingness to fight for country in the event of another war shows a different picture. Iranians who experienced the destruction of the Iran–Iraq war during their early adulthood show no significant positive correlation with support for another fight. This may be due to the post-war economic and political enrichments of part of the military while the fatalities/casualties of war were borne by ordinary Iranians. As a result, people may be less willing to pay the high costs of joining another destructive war in which the military and political elites may ultimately enrich themselves in post-war period.

In addition, we find that higher levels of confidence in government are positively and significantly associated with support for strong defense and the willingness to fight for one's country. Higher-income groups support stronger defense but do not show a significant positive correlation with willingness to fight in the event of another war.

The top income deciles of a country have larger economic endowments at risk in the case of conflict and war, supporting more investment in the military and security infrastructure of country. However, they may also be less willing to join the fight in the event of another war due to their higher economic opportunity costs.

Our study helps to understand the socioeconomic factors which may shape individuals' support for stronger defense at the country level. In particular, our findings suggest that political parties need to focus on the theme of "stronger national defense" in their election campaigns (parliamentary and presidential) for those who are experienced the Iran–Iraq war.

Ultimately, the findings of this research should be considered in light of its limitations, which point to some topics for future research. One of the limitations of our study is that we do not have information on whether a WVS respondent lived in a city that directly experienced war. For example, a respondent in Tehran might originally come from Abadan (which is located in the war-affected province of Khuzestan). Likewise, a respondent in Abadan might originally come from other provinces of Iran (as there are many working-class migrants in Khuzestan's petroleum industry).

The other limitation of our study is that in 2005 (or sometime between 2005 and 2009), a variety of contemporary developments could have pushed respondents to prioritize a strong national defense, not the least of which are the US invasion of neighboring Iraq in 2003 and the USA's continued military presence in Iraq, Saudi Arabia, and Kuwait, among other countries. The point here is not to overstate the influence of the US on Iranian attitudes toward their own country's priorities, but rather to suggest that plausible influences on those attitudes may not be addressed or accounted for in our study. Since we only have access to one survey, we cannot capture previous years' impact on attitudes in 2005.

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## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon request.

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## ENDNOTES

- <sup>1</sup> A famous episode in the Iran–Iraq war was the War of the Cities. It comprised five series of air raids, missile attacks and artillery shellings on major cities and urban areas as initiated by the Iraqi Army, with the aim of breaking the unity of civilians in Iran in their support of Islamic revolution. The main urban areas, far from the war fronts (e.g., Tehran, Qom, Isfahan, Tabriz, and Shiraz among others), were under significant missile and air attacks. The Iran–Iraq War convinced Tehran that a strong, capable missile force is critical to the country's security (Nadimi, 2015).
- <sup>2</sup> See <https://www.history.com/topics/middle-east/iran-iraq-war>
- <sup>3</sup> See <https://edition.cnn.com/videos/tv/2017/09/25/exp-gps-0924-zarif-interview-iran.cnn>
- <sup>4</sup> There are several studies which examine the long-term psychological consequences of violence. See, for example, Moya and Carter (2019) on violence and the formation of hopelessness in Colombia. For the long-term health effects of early life exposure to civil conflict (for the case of Peru), see Grimard and Laszlo (2014).

- <sup>5</sup> The WVS official questionnaire can be found at <http://www.worldvaluessurvey.org/WVSDocumentationWV6.jsp>
- <sup>6</sup> The average annual unemployment rate over the period 1991–2017 was 11.36% for Iran whereas, compared to 5.86% for the upper-middle-income economies (an income group which includes Iran), according to the World Bank (<https://data.worldbank.org/indicator/SL.UEM.TOTL.ZS>). Similarly, the average annual growth rate of gross domestic product per capita over 1991–2017 was 2.01%, whereas the average for the upper-middle-income economies was 3.64% (<https://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG>).
- <sup>7</sup> For related studies, see Farzanegan and Krieger (2019) and Farzanegan (2011).
- <sup>8</sup> For key details about Iran's nuclear deal, see <https://www.bbc.com/news/world-middle-east-33521655>
- <sup>9</sup> The question in the WVS survey is: "Of course, we all hope that there will not be another war, but if it were to come to that, would you be willing to fight for your country?"
- <sup>10</sup> The existing literature mostly focuses on the negative and long-run impact of wars on child and teenage memories. However, in sensitivity analysis, we also generate new dummies for all other age groups (26–31, 32–37, 38–43, 44–49, 50–55, 56–61, and 62–67). These age cohort dummies are coded 1 if the respondents were in these age cohorts during any year of war with Iraq and 0 otherwise. In sensitivity checks, we control for all age cohorts (except for reference category) and examine how the reference group (i.e., 18–25 years) affects the outcome of our interest (preference for strong defense) relative to other age groups during the war with Iraq.
- <sup>11</sup> Using the *probit* regression instead of the *logit* does not change our findings regarding the positive and significant association between experiencing the war during early adulthood and selecting "strong defense forces" as the first choice for aim of the country. For example, re-estimating model 12 in Table 4, which includes the most robust control variables, with the probit method instead of the logit, shows comparable results. Although the probit point estimates of are smaller than the logit point estimates, marginal effects which are used after probit estimations give results very close to those obtained from margins after logit regression (in Figure 1). Our probit regression results are available upon request.
- <sup>12</sup> In the sensitivity analysis, we also apply a linear probability model for testing our main hypothesis.
- <sup>13</sup> The estimated marginal effect after the logit regression is close to the estimated coefficients from linear probability models (LPMs). In the sensitivity analysis, we re-visit our main model specification, using LPM approach.
- <sup>14</sup> Our focus is on tracing the association between our main variable of interest, namely experience of war during early adulthood and the degree of agreement on strong defense by individuals. Our expected association was positive and thus we aimed to also check the robustness of this association, controlling for other possible factors which may shape the preferences of individuals besides the experience of war conditions (e.g., income, education, employment, political interests). Our specifications followed this intention in Table 4. One reason not to include all variables at once in the model was to reduce the risk of multicollinearity. Another reason is easier tracing of the association between our main variable of interest (age cohort) and outcome by adding/excluding control variables one by one. However, as we show in Table A1 in the Appendix, starting the estimation with a full model and then dropping insignificant variables does not affect our main findings.
- <sup>15</sup> See [http://government.defenceindex.org/generate-report.php?country\\_id=6297](http://government.defenceindex.org/generate-report.php?country_id=6297)
- <sup>16</sup> In our sample, there were no individuals who were in the age groups of 68–73, 74–79, 80–85, and 86–91 during the war with Iraq. We thank an anonymous reviewer for suggesting this examination.
- <sup>17</sup> Estimated LPM coefficients are close to marginal effects after logit regression. For ease of interpretation and hypothesis testing with reference to the constant term, we present LPM results. The results of marginal effects from logit estimations are available upon request.
- <sup>18</sup> See <http://www.oxfordislamicstudies.com/article/opr/t125/e1229>
- <sup>19</sup> The estimation results for Sweden and Thailand are available upon request.

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APPENDIX

TABLE A1 General-to-specific modeling

	Dependent variable: Strong defense as first choice of country (DEFENSE)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Early adulthood (18–25) in war	0.326** (2.12)	0.327** (2.12)	0.353** (2.31)	0.349** (2.29)	0.262* (1.89)	0.258* (1.87)	0.267* (1.95)	0.270** (1.99)	0.261* (1.93)
Confidence in the government	0.167** (2.16)	0.167** (2.16)	0.165** (2.14)	0.170** (2.20)	0.163** (2.12)	0.165** (2.15)	0.176** (2.31)	0.179** (2.39)	0.177** (2.37)
Upper-income class	0.523** (2.28)	0.541*** (2.70)	0.539*** (2.69)	0.536*** (2.70)	0.558*** (2.79)	0.567*** (2.84)	0.590*** (2.98)	0.584*** (2.99)	0.579*** (2.97)
Middle-income class	–0.024 (–0.16)								
Employed	–0.088 (–0.48)	–0.086 (–0.47)							
Higher education	–0.048 (–0.28)	–0.051 (–0.29)	–0.028 (–0.16)						
Married	–0.241 (–1.59)	–0.240 (–1.59)	–0.223 (–1.54)	–0.223 (–1.54)					
Male	–0.146 (–1.14)	–0.145 (–1.13)	–0.152 (–1.18)	–0.151 (–1.18)	–0.140 (–1.10)				
Proud of nationality	0.064 (0.62)	0.064 (0.62)	0.058 (0.56)	0.059 (0.57)	0.054 (0.53)	0.054 (0.52)			
Religious person	0.068 (0.36)	0.070 (0.37)	0.074 (0.39)	0.082 (0.43)	0.063 (0.33)	0.084 (0.44)	0.103 (0.55)		
Interest in politics	0.087 (1.10)	0.086 (1.09)	0.093 (1.18)	0.092 (1.17)	0.092 (1.18)	0.090 (1.16)	0.090 (1.16)	0.099 (1.29)	

(Continues)

TABLE A1 (Continued)

Dependent variable: Strong defense as first choice of country ( <i>DEFENSE</i> )									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Willing to fight for country	0.468** (2.32)	0.468** (2.32)	0.476** (2.36)	0.477** (2.36)	0.469** (2.33)	0.457** (2.27)	0.481** (2.44)	0.538*** (2.79)	0.568*** (2.97)
Observations	2085	2085	2094	2,100	2,106	2,132	2,135	2,209	2,217
Wald $\chi^2$	32.16	32.15	32.82	32.81	31.19	29.65	31.22	33.08	31.15
Prob > $\chi^2$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Log pseudo-likelihood	-825.02	-825.03	-827.92	-828.72	-830.81	-835.40	-838.81	-863.14	-865.29

Notes: Estimation method is logit. Robust *t*-statistics are in parentheses. \*, \*\*, and \*\*\* denote significance at 10%, 5%, and 1% levels, respectively.