



Economic underpinnings of violent extremism: A cross country exploration of repeated survey data

Ramya M. Vijaya*, Anthony Wilent, Jessica Cathcart, Ryan Fiorellini

Stockton University, NJ, United States



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ABSTRACT

This paper attempts to identify the economic underpinnings of the support for acts of violent extremism (VE). We explore some demographic and economic characteristics of individuals who express support for acts of violent extremism (VE) by using an extensive cross-country multi-year survey dataset ranging from 2007 to 2014. A growing body of empirical research has focused on examining the various socio-economic underpinnings of violent extremism. The results have been inconclusive, at times contradictory and often based on limited set of case studies or smaller single time period cross-section datasets. In this study we use information on a little over forty-eight thousand individuals in 12 countries to evaluate the connections between socio-economic status and support for extremism. While the impact of the socio-economic characteristics on support for violence remains inconclusive in this analysis, we do find interesting and significant results when we interact individual economic status variables with the overall economic growth of the country. Unemployment status and having lower levels of education have significant impacts on the likelihood of support for VE when interacted with country level growth rate. We conclude that inequality or a feeling of being left out-being unemployed, in higher growth countries might be the key to understanding the economic underpinnings of violent extremism.

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1. Introduction

The threat of extremist violence has become one of the primary focus areas of foreign policy in many countries particularly since September 11th, 2001. Though a consensus on the precise definition of extremist violence remains elusive due to the contentious issues involved in defining the intentions of the violent actors. As Krueger and Maleckova (2002) note, one man's freedom fighter is often another man's terrorist. In addition, some forms of extremist violence have also been state sponsored. However, for the purposes of empirical research into factors that sustain support for violent extremism among the larger populace, the focus is more on non-state actors. There is also a further distinction to be made between actual incidence of extremist violence and the ideology of violent extremism. The former is often referred to as acts or terror or terrorism. A general guiding definition used by the United States Department of State defines terrorism as

Premeditated, politically motivated violence perpetrated against noncombatant targets by subnational groups or clandestine agents,

usually intended to influence an audience United States Department of State, 2016

Different from the actual perpetration of violence is the ideology of violence or violent extremism. As Striegher's (2015) clarifies, the latter is pure ideology or a belief system about the use of violence for achieving goals that are generally political or religious in nature. However violent extremism (VE) is not the act of violence itself. It could lead some proponents to perpetrate actual violence or terrorist acts to further their political ideology. Though some others who adhere to VE may not never commit any violence. Given this distinction, there has been some debate about whether those who adhere to the political goals of extremism but are largely not violent can be viewed as non-violent extremists. However, Schmid (2014) has argued this distinction is not really a valid one. Those who adhere to the goals of advancing a particular extremist religious or political ideology to the exclusion of all other perspectives can become violent based on the context.

In the post 9/11 era extremist violence and violent extremism has been most often studied at a cross-country level within the context of Islam. Increasingly there has been a discussion of the failure of current policies in disrupting the growth of and support for terrorist organizations in the Middle East (Intriligator, 2010) and in other countries with a sizeable Muslim population. The long

* Corresponding author at: 101 Vera King Farris Dr, Galloway, NJ 08205, USA.
E-mail address: ramya.vijaya@stockton.edu (R.M. Vijaya).

standing focus on purely military strategies have not succeeded in removing the threat of violence. It is also debatable whether it has succeeded in reducing the support for VE. This has sparked interest in understanding other deeper frustrations that drive both the violence and the larger ideology of violent extremism beyond the immediate stated political or religious message. One area of increasing research focus is the economic underpinnings of support for VE. The perception that such violence and particularly the violent actors often originate from less developed nations has led to policy interest in understanding the connections between economic deprivation and the support for and participation in acts of extremist violence. The empirical evidence for linking extremist violence and VE to economic deprivation however remains inconclusive. In this literature terrorism or the acts of violence and the ideology of VE are at times looked at interchangeably. Early research studies like [Krueger and Maleckova \(2002\)](#) looked at case studies related to specific incidence of violence, particularly in the Middle East. They forcefully concluded that economic factors do not have a role to play in motivating acts of terror. Looking at case studies from the West Bank, Gaza Strip and Lebanon, they in fact find that violent actors tend to be educated and more often than not belong to relatively higher economic strata. Based on this, they argue that it is not economic frustrations but more political repression and long standing feelings of indignity that are the basis of both terrorism and VE.

In a later study the same author ([Krueger & Laitin, 2008](#)) finds that there is no significant relationship between incidence of violence and Gross Domestic Product (GDP) in a cross-country macro level analysis. This leads them to conclude once again that political frustrations rather than economic disaffection are the basis for VE. [Abadie \(2006\)](#) also reach similar conclusions in a cross-country macro level evaluation of 156 countries. Other macro studies however have found that GDP, particularly among less developed countries, has a statistically significant negative impact on the rates of extremist violence ([Blomberg, Hess, 2008](#); [Blomberg, Hess, & Weerapana, 2004](#); [Enders & Hoover, 2012](#); [Freytag, Krüger, Meierrieks, & Schneider, 2011](#)). These macro level studies suggest that among low and middle income countries, higher levels of GDP are associated with lower incidence of violence. They also find that inequality measured by gini-coefficient had a statistically significant impact, with higher levels of inequality associated with higher incidence of violence. Given these diverse findings, a definitive link between economic factors and the incidence of extremist violence is yet to be established at least at the macro level.

At the micro level, besides the individual case studies, primarily of countries in the middle-east, there are not many cross-country studies. These micro-level country specific studies tend to focus on the larger ideological context of VE rather than merely acts of violence. [Haddad \(2004\)](#) examine survey data from Lebanon to assess public views about suicide bombings and find that support for such attacks is more prevalent among people with lower-incomes and those facing economic hardships. However, using survey data from Pakistan [Blair, Fair, Malhotra, and Shapiro \(2013\)](#) find that the reverse is true. They find that poorer Pakistani's are more likely to have a negative view of terrorist attacks since they are more likely to be exposed to the negative consequences of those attacks. [Benmelech, Claude and Estaban \(2010\)](#) look at biographical information of Palestinian Suicide Bombers on Israelis targets between 2000 and 2006. They find that though the violent actors themselves were educated and came from higher socio-economic backgrounds, the prevailing weak economic conditions made it easier to recruitment. That is, they found that the overall recessionary economic circumstances of a region had an impact on promoting VE even if this is not reflected in the economic circumstances of the individual actors. [Fair and Shepherd \(2006\)](#) use data from the [Pew Global Research Center Global Attitudes](#)

[and Trends Survey](#) to analyze support for VE in a cross-section of 14 countries. Their primary focus is on a particular question in the Pew data set regarding support for VE. The specific question is:

“Some people think that suicide bombing and other forms of violence against civilian targets are justified in order to defend Islam from its enemies. Other people believe that, no matter what the reason, this kind of violence is never justified. Do you personally feel that this kind of violence is often justified to defend Islam, sometimes justified, rarely justified, or never justified?”

As the authors acknowledge the way the question is phrased limits the context of VE to Islam. However, it allows them to study individual level information from a cross-section of 14 different countries. The level of variation among the individuals in such large cross-country surveys can provide more detailed information about larger trends that might be missed in the previous case-study oriented micro studies or the macro level studies. The study once again does not find very conclusive evidence for linking socio-economic status variables to support for violence. This study uses data from only a single year (2002) of the Pew data survey. So far we have found only one micro level cross-country study that examines the economic underpinnings of support for VE across several years. [Kiendrebeogo and Ianchovichina \(2016\)](#) use several years of Gallup survey data to examine attitudes towards violence in a cross-section of countries. Contrary to some of the others, these authors find that support for contention that violent extremism is more common among the young, unemployed and relatively uneducated. Since these findings currently are one of a kind, we feel it is useful to contrast them with an analysis of the repeated years of the Pew Global Attitudes data. As mentioned before, the Fair and Shephard only use one year of the Pew data. The combined dataset from the different years we feel can contribute useful additional perspective on the so far inconclusive question of whether there are economic underpinnings to VE.

In this study we are able to pool together several years of the Pew Global Attitudes and Trends survey to generate a large sample of over 48,000 individuals across 12 countries. This expanded dataset provides a large amount of individual level variability to explore the social economic status of those who express support for VE and compare it to those who do not support VE. We do not find support for the hypothesis that lower socio-economic status might be associated with a higher likelihood of support for VE. A person's unemployment status, level of education and difficulty in accessing food are not statistically significant predictors of support for VE. However, we are able to see a more nuanced link between economic factors and support for VE. It is the relative economic status of an individual, that is an individual's status compared to the overall economic performance of the country, that has the strongest link to support for VE. When individual economic status variables are interacted with the economic growth rate of the country, we find that the unemployed are more likely to support VE in the higher growth rate countries. Similarly, in the interaction models, individuals with lower levels of education are more likely to support VE in high growth rate countries. This suggests that it is economic inequality that is the primary driver of support for VE rather than merely over all economic performance of a country or income levels of individuals. While some macro level studies have shown a link between higher inequality and incidence of violent extremism, here we are able to establish a specific link between an individual's relative deprivation in education and unemployment status and support for VE. These findings have important policy implications in emphasizing the importance of not just overall economic growth but more equitable growth. It also suggests that pockets of support for VE might exist and in fact

become exacerbated even in more developed or high growth economies if such growth leads to more concentration of wealth and greater marginalization of certain groups of individuals.

2. Data and methodology

This analysis is based on combined data from several rounds of the [Pew Global Research Center Global Attitudes and Trends Survey](#) conducted by the Pew Research Center. The survey is administered annually sometime during the spring in a cross-section of countries. In most of the countries, the survey aims to have a nationally representative sample of adults over the age of 18. However, Pew Research indicates some constraints in specific years and countries in obtaining national samples. As they note, “The center strives for samples that cover as much of the adult population as possible, given logistical, security and other constraints.” The earliest publically available survey data is from 2001. The latest available year at the time of this research is 2014. The yearly surveys are independent of each other, with a unique sample each time. While combining the available years for different countries produces a large representative data, it is not a panel data of individuals over the years. Moreover, while some of the survey questions are repeated over the years, all questions are not necessarily repeated in every year. Some questions were only asked in a few select years. The wordings and the response options for some questions also vary over the years. In combining the data from the different survey years and countries to create as large a representative sample as possible, we also aimed to maintain consistency by focusing on questions asked most often and in a similar manner over the years.

For the purposes of this analysis our list of countries is limited to countries where there is a sizeable Muslim population. It is only

in this group of countries, labelled ‘Muslim Countries’ in the surveys, that the primary question of interest to this study regarding the justification for violence against civilian targets is asked. As discussed earlier this does limit our study, like several other studies noted in the literature review, to extremist violence in the context of Islam. More specifically, the support for violent extremism question is asked only of ‘Muslims in Muslim countries.’ The question is included in the survey consistently beginning 2004 and each year after that with the exception of 2012. The question does not appear in the 2012 survey at all. We identified a group of 12 countries in which the VE question is asked in at least two years or more. The answers to the VE question are based on a 4-point scale 1 = often justified 2 = Sometimes Justified 3 = Rarely justified and 4 = Never justified (with 8 and 9 indicating ‘don’t know’ and ‘refused’ respectively). Following Fair and Shephard, we recoded the VE question into a binary variable with 0 representing Never Justified (4) and 1 representing Ever Justified (1, 2, 3). The don’t know or refused are converted into missing values.

For the covariates, we focused on identifying questions that represent some of the demographic and economic status characteristics that have been discussed in the previous literature. Age and gender of the individual respondents are recorded in each survey year. Previous studies have found that support for extremism is more prevalent among younger age groups (Fair & Shepherd, 2006; Kiendrebeogo & Ianchovichina, 2016; Krueger & Maleckova, 2002). In the case of gender there is less consistency in the findings. Fair and Shepherd find that women are more likely to be supportive of VE. However, Kiendrebeogo and Ianchovichina find that gender does not have a significant impact on attitudes towards extremism.

For indicators of the individual’s socio-economic status, we explored a few different questions that were consistently asked over the different survey years. It was not possible to obtain consis-

Table 1
Variable information table.

Variable	Survey question	Manipulation
Violent extremism	“Some think that suicide bombing and other forms of violence against civilian targets are justified in order to defend Islam from its enemies. Others believe that, no matter what the reason, this kind of violence is never justified. Do you personally feel that this kind of violence is (1) often justified to defend Islam, (2) sometimes justified, (3) rarely justified, or (4) never justified?”	0 = Never justified (Formerly 4) 1 = Justified (Formerly 1, 2, or 3) →Excluded refuse/Don’t know
Gender	Not always asked, generally recorded by interviewer	1 = Male 2 = Female
Age	“How old were you at your last birthday?”	Categorized
Employment	“How would you describe your current employment situation?”	1 = Unemployed 0 = Everyone else (Full Time, Part Time, Pensioner and Employed, Self Employed, Pensioner and Not Employed, No Job Other Government Assistance, Not employed (e.g. housewife houseman student), farmer →Excluded refuse/Don’t know
Country satisfaction	“Now thinking about our economic situation, how would you describe the current economic situation in (survey country)?”	1 = Very good 2 = somewhat good 3 = Somewhat bad 4 = Very bad →Excluded refuse/Don’t know
Economic perception	“Now thinking about our economic situation, how would you describe it the current economic situation in (Survey country) – Is it very good, somewhat good, somewhat bad or very bad?”	1 = Very good 2 = Somewhat good 3 = Somewhat bad 4 = Very bad →Excluded refuse/Don’t know
Food	“How easy or difficult is it for you and your family to afford food – Very easy, somewhat easy, somewhat difficult or very difficult?”	0 = Very easy/Somewhat easy 1 = Very difficult/Somewhat difficult →Excluded refuse/Don’t know
GDP growth	GDP growth for each year from World Bank World Development Indicators	

tently measured individual level income information from the repeated surveys. Income information was recorded differently in different years and countries. In some years or countries, respondents were asked to pick from defined income categories; in other years or countries the actual amount was recorded in the local currency unit. Given this lack of a consistent pattern and the difficulty of converting incomes from different currency units, we explored other indicators of socio-economic status. Following Fair and Shephard, we identified a question relating to the individuals' ability to buy food for the family. Respondents are asked to rate the level of difficulty in affording food for the family on a four-point scale (variable coding specified in Table 1). The ability to afford the basic need of food, we expect can be an indicator of the poverty status of the individual. For other measures of socio-economic status, we looked at the education level and the employment status of the individual. The Pew survey records the highest level of education achieved by the respondents. There are slight differences in the classification of educational categories in different countries and survey years. To maintain consistency, we recoded the education variable in each year and each country to broadly conform to a five-point scale with 1 indicating no formal education and 5 indicating completed university level education. We expect higher levels of education to be associated with higher socio-economic status. For the employment question, the available answer categories differentiated between the employed, unemployed and broad 'out of the labor force' options such as 'retired, those on disability, students and house wives.' For this study we focus on the unemployment status of the individual. It is the frustration associated with not finding a job that might usually be associated with disaffection and inclination towards support for violent political upheaval. We therefore recode the employment variable as 0 indicating employed or out of the labor force and 1 indicating unemployed.

In addition to the above indicators of individual socio-economic status, we also take advantage of additional questions in the Pew Survey that convey individual perceptions about the overall status of the country and more specifically about the economic situation of the country. Individuals indicated whether they are 'satisfied' or 'dissatisfied' with the way things are going in their country. More specifically they are also asked to rate the economic situation of the country on a 4-point scale ranging from very good to very bad. These perception questions could provide more nuanced information on the individuals' economic concerns and the way it influences their justification of VE. Perceptions about the economic situation of the country might not necessarily follow a consistent pattern with the individuals' economic circumstances. While we could expect poorer individuals to be more dissatisfied with the overall and economic situation of the country, it is also possible that individuals with higher economic status might have more information or might have more to lose and therefore might be more dissatisfied with the country's overall or economic situation. Additionally, while individual economic circumstances could lead to frustrations that foster support for VE, greater affinity towards violence might also result in conditions that are not conducive to improvements in an individual's economic circumstances. Separating economic perception from personal economic circumstance might be useful in accounting for this endogeneity between the latter and support for VE. In general, if we are looking at possible economic underpinnings of violent extremism we might expect that people who have negative perceptions about the general and economic situation of the country might be more inclined to despair and therefore justify violence.

Given the lack of panel data, and the appropriate control variables this might generate, we are not able to fully address issues of endogeneity. However, we follow the approach taken in Kiendrebeogo and Ianchovichina (2016), with the inclusion of

country-level Gross Domestic Product (GDP) growth data as interaction terms with our survey data. Interacting individual employment status, education level and food affordability with the actual country level economic conditions can provide more of a relative or comparative measure of individual status. The GDP growth data for each year is acquired from the World Bank [World Development Indicators](#).

While combining the survey data from the different years we found that in the years 2004–2006, the numbers of countries where the justification for violence question and a majority of our covariate questions are asked is extremely limited. It is only from the survey year 2007 that a majority of the countries and questions become consistency available. Our final dataset therefore consists of data from the survey years 2007–14. As indicated before the data includes information from 12 countries. This leaves us with a dataset of a little over sixty-six thousand (66,440) individuals. With the omission of those individuals who have a non-response to the justification for violence question ('don't know' or 'refused'), the final useable dataset includes 48,432 individuals. Table 1 provides further information about the variable coding.

To summarize our empirical model, we are examining the economic underpinnings of VE by exploring if an individual's socio-economic status impacts their support for VE. Given the previous literature on this issue, we are looking to explore if individuals from a lower socio-economic status are more prone to express support for VE. Based on this question and the variables identified to evaluate socio-economic status in our data, we examine the following hypotheses: Those who are unemployed are will have a higher likelihood of expressing support for VE; Individuals with lower levels of education will have a higher likelihood of expressing support for VE; Individuals who indicate difficulty in affording food will have a higher likelihood of supporting VE and finally individuals who express negative perceptions about the economic and overall situation of their country will have a higher likelihood of expressing support for VE. Additionally, we also examine whether the relative deprivation of an individual in comparison to the overall economic performance of the country has an impact on the likelihood of expressing support for VE. Some macro studies have identified a link between the gini-coefficient and the incidence of violence, where higher levels of inequality are correlated with higher levels of violence. Here we explore the implications of inequality at the individual level by exploring the following hypothesis: Individuals who are unemployed in higher growth economies are more likely to support VE. Similarly individuals with lower level of education in higher growth economies are more likely to support VE.

3. Results

We begin the analysis by looking at some broad descriptive statistics. In Table 2 we see the changes in the support for violence during the different survey years for each of the 12 countries. While in Nigeria and Pakistan we see a noticeable decline in support for VE over the years, in a majority of the other countries the level of support either remains constant or has seen sizeable increases like for example in Bangladesh, Tanzania and Turkey. This pattern emphasizes the continued relevance of efforts to understand the underpinnings of violent extremism and the support for VE.

We next disaggregated the support for VE by gender across all the countries. In Fig. 1 we see a greater proportion of men among those who indicate any support for VE and conversely a greater proportion of women among those who indicated no support for VE. A chi-square test confirmed that this difference is a statistically significant at the 95 percent confidence level.

Table 2
Percentage indicating any support for violent extremism (N = Any Support + Never Support).

	2007	2008	2009	2010	2011	2013	2014
Bangladesh (N)	27.1% (858)	N/A	N/A	N/A	N/A	N/A	72.9% (872)
Egypt (N)	13.9% (859)	14.0% (863)	10.3% (841)	14.5% (936)	16.9% (930)	15.3% (883)	15.5% (887)
Indonesia (N)	13.2% (913)	13.9% (894)	19.9% (912)	16.9% (880)	12.1% (865)	10.5% (913)	13.6% (925)
Israel (N)	N/A	N/A	26.8% (366)	N/A	27.3% (260)	17.4% (290)	28.5% (294)
Jordan (N)	15.6% (887)	17.1% (918)	11.8% (901)	14.3% (958)	13.8% (951)	13.8% (937)	13.7% (949)
Lebanon (N)	15.8% (619)	13.8% (610)	14.0% (656)	14.7% (554)	14.4% (551)	14.0% (542)	13.2% (561)
Malaysia (n)	32.3% (425)	N/A	N/A	N/A	N/A	33.8% (507)	33.9% (604)
Nigeria (N)	26.4% (563)	15.3% (396)	27.6% (516)	19.3% (418)	N/A	5.1% (408)	6.2% (322)
Pakistan (N)	28.4% (1747)	14.0% (1123)	8.0% (1130)	22.2% (1747)	10.4% (1799)	9.4% (1101)	7.6% (987)
Senegal (N)	29.7% (649)	N/A	N/A	N/A	N/A	31.8% (612)	38.6% (811)
Tanzania (N)	18.7% (232)	19.4% (230)	N/A	N/A	N/A	N/A	61.9% (348)
Turkey (N)	18.2% (762)	7.1% (897)	6.6% (815)	7.3% (845)	15.6% (797)	27.8% (858)	22.5% (826)

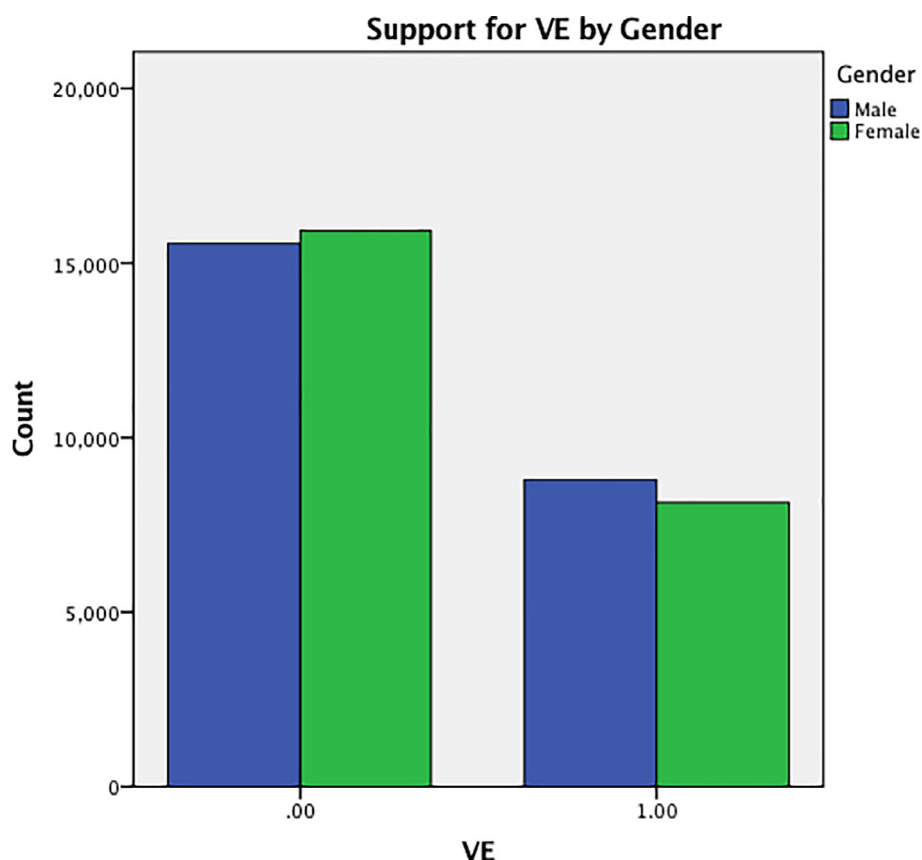


Fig. 1. Support for VE and gender. (1 = Any Support for VE 0 = NO Support).

Comparing the support for VE among the unemployed versus others in Fig. 2, we do not see much of a difference in the pattern. The chi-square test also indicated that there is no statistically significant difference between those who support VE and those who do not in terms of the unemployment pattern.

To explore this further, we looked at the disaggregation by country. In Table 3, we find that there is a statistically significant difference in the unemployed versus employed ratio for those who express support and those who do not support VE in 5 of the 12 countries. In Bangladesh and Turkey there is a greater pro-

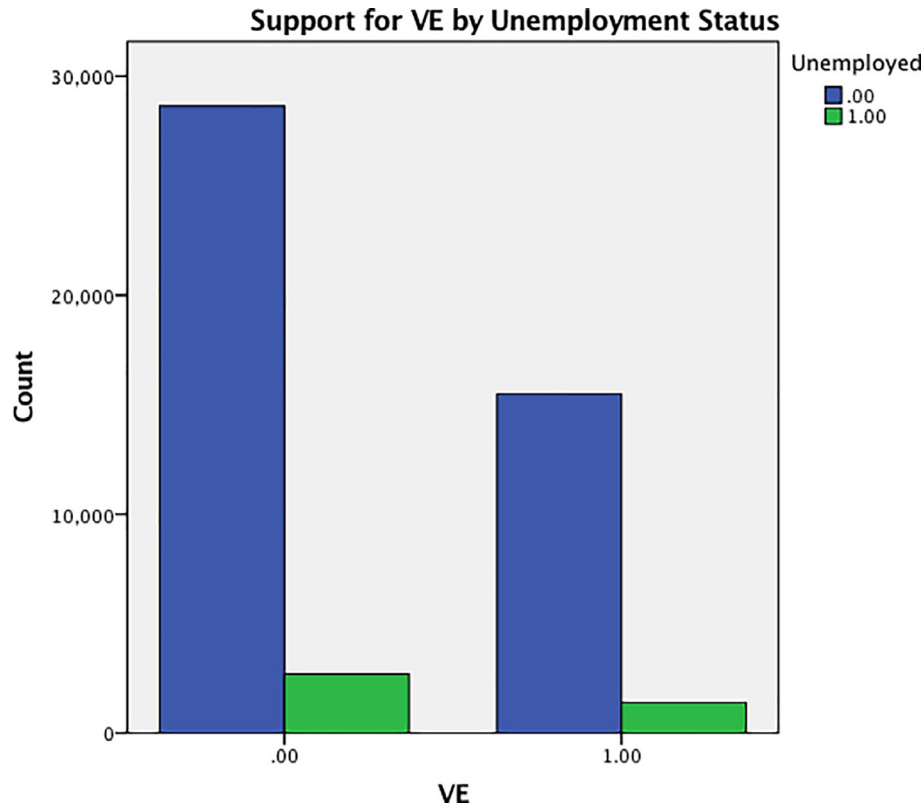


Fig. 2. Support for VE and unemployment status. (1 = Unemployed 0 = Others) (1 = Any Support for VE 0 = NO Support).

Table 3
Support for VE and unemployment status (Chi-SQR test of independence).

Country	Others	Unemployed	p-value
Bangladesh			
No support	87.40%	12.60%	0.0*
Any support	74.00%	26.00%	N = 1729
Egypt			
No support	92.60%	7.40%	0.13
Any Support	93.30%	6.70%	N = 6196
Indonesia			
No support	92.30%	7.70%	0.35
Any support	92.60%	7.40%	N = 6282
Israel			
No support	89.40%	10.60%	0.11
Any support	91.70%	8.30%	N = 1196
Jordan			
No support	91.60%	8.40%	0.02*
Any support	92.90%	7.10%	N = 6490
Lebanon			
No support	95.20%	4.80%	0.21
Any support	94.60%	5.40%	N = 4003
Malaysia			
No support	85.10%	14.90%	0.0*
Any support	90.30%	9.70%	N = 1533
Nigeria			
No support	92.10%	7.90%	0.31
Any support	92.70%	7.30%	N = 2598
Pakistan			
No support	91.20%	8.80%	0.0*
Any support	93.40%	6.60%	N = 9545
Senegal			
No support	80.20%	19.80%	0.0*
Any support	84.60%	15.40%	N = 2072
Tanzania			
No support	89.00%	11.00%	0.16
Any support	86.40%	13.60%	N = 811
Turkey			
No support	94.20%	5.80%	0.03*
Any support	92.70%	7.30%	N = 5767

portion of unemployed among those who support VE when compared to those who do not support VE. This might support the argument that the unemployed are more disaffected and prone to supporting VE. However, in three other countries – Jordan, Malaysia and Pakistan we find the opposite pattern. That is, the proportion of unemployed is more among those who do not support VE when compared to those who support VE. In summary therefore we do not see a consistent link between unemployment and support for VE in this descriptive analysis.

When we compare education levels, we see a statistically significant differences in 5 countries. In Bangladesh, Lebanon, Nigeria, Senegal and Turkey we do see a slightly larger proportion of college degree holders among those who do not support VE. However, there is no significant difference in the 6 other countries (Table 4).

We finally look at some of the perception variables. Here, while there is see a clear pattern emerging, it is contrary to what we might expect. The proportion of people describing the economic situation of the country as being very bad is higher among those who do not support violent extremism that among those who do support VE (Fig. 3). Mirroring this, the proportion of people describing the economic situation as either very good or somewhat good is actually higher among those who do support VE. This difference is also statistically significant. This suggests that economic worries are not the primary drivers of support of VE (Fig. 4 and Table 6).

Similarly, when we look at the rating of overall satisfaction with the country situation, we see that the proportion of people who are dissatisfied is more among those do not support violent extremism (Fig. 4).

To summarize the descriptive statistics, there is no clear pattern in the correlations between support for VE and individual socio-economic status variables like education and unemployment. In this descriptive analysis we are not able to find support for the

Table 4
Support for VE and level of education by country (Chi-SQR Test of independence).

Country	No formal education	Completed secondary education	Completed university degree	p-value
Bangladesh				
No support	27.40%	21.30%	7.10%	0.0*
Any support	23.30%	32.30%	4.60%	N = 1709
Egypt				
No support	32.30%	17.00%	10.10%	0.107
Any support	32.10%	16.50%	8.60%	N = 6095
Indonesia				
No support	9.00%	46.80%	3.70%	0.939
Any support	8.60%	46.90%	3.30%	N = 6298
Israel				
No support	3.80%	43.50%	24.90%	0.489
Any support	5.40%	39.70%	25.40%	N = 1185
Jordan				
No support	35.40%	23.20%	9.40%	0.763
Any support	34.20%	22.80%	9.50%	N = 6388
Lebanon				
No support	12.30%	25.40%	21.00%	0.015*
Any support	15.40%	26.40%	17.80%	N = 3855
Malaysia				
No support	11.40%	33.90%	3.70%	0.073
Any support	11.90%	38.40%	3.10%	N = 1533
Nigeria				
No support	19.50%	37.90%	8.10%	0.005*
Any support	20.80%	38.40%	6.80%	N = 2487
Pakistan				
No support	41.00%	18.60%	7.70%	0.228
Any support	43.00%	17.50%	9.10%	N = 9609
Senegal				
No support	31.30%	10.40%	5.40%	0.005*
Any support	40.20%	9.30%	4.60%	N = 1713
Tanzania				
No support	40.20%	9.30%	4.60%	0.367
Any support	24.60%	10.10%	0.70%	N = 800
Turkey				
No support	6.10%	27.00%	8.20%	0.0*
Any support	10.00%	25.90%	7.60%	N = 5787

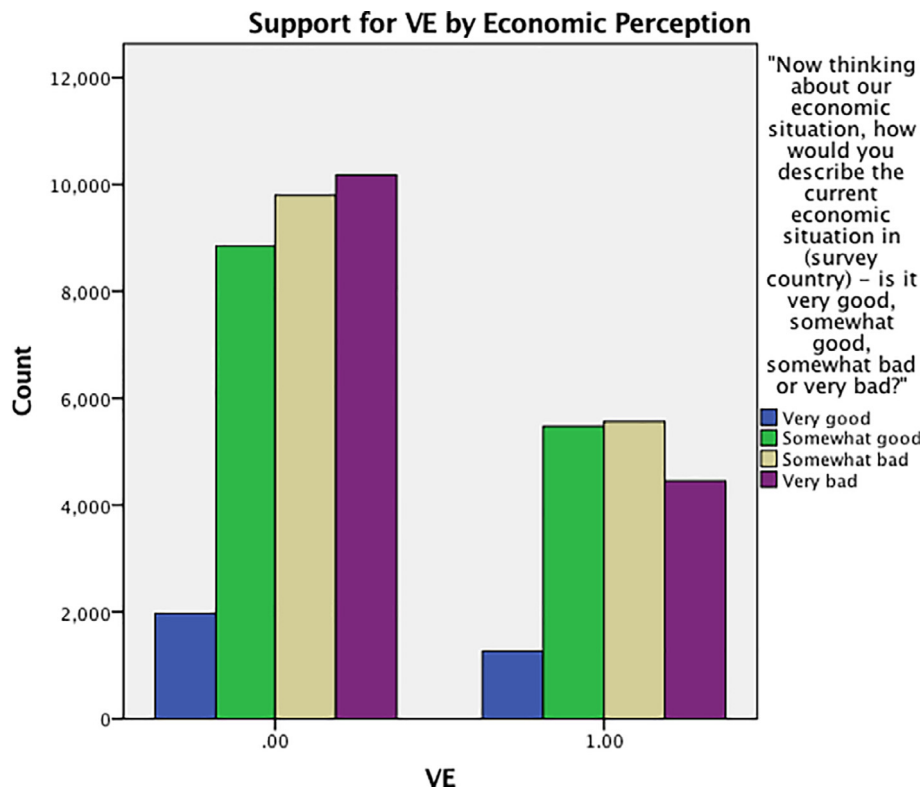


Fig. 3. Support for VE and perception of economic situation.

Table 5
Support for VE and economic perception (Chi-SQR test of independence).

	Very good	Somewhat good	Somewhat bad	Very bad	p-value Chi-SQR test of independence
No support	6.4%	28.7%	31.8%	33.3%	0.0 [*]
Any support	7.5%	32.7%	33.2%	26.6%	N = 47537

Statistically significant at the 95% confidence level.

Table 6
Support for VE and country perception (Chi-SQR test of independence).

	Satisfied	Dissatisfied	p-value Chi-SQR test of independence
No support	31.4%	68.6%	0.0 [*]
Any support	36.9%	63.1%	N = 47342

Statistically significant at the 95% confidence level.

hypothesis that those are lower levels of education or those who are unemployed will be more likely to express support for VE. Perceptions about the overall and economic situation of the country did produce a statistically significant pattern in the opposite direction of what we might expect. Contrary to our hypothesis, it is those who express positive perceptions about the economic and overall situation of their country who have a higher likelihood of expressing support for VE. This seems to suggest that, overall the economic concerns are not the major focus of those who express support for VE. To investigate these trends further, we now turn to a multivariate analysis.

Given the binary nature of the dependent variable, support for VE, we report results from a logistic regression in the tables below.

Country and year dummies were included in each model to capture country and year effects. In addition, we also report standard errors clustered by country since responses of individuals within a country might be correlated and the number of available years and respondents within each country are also different. The tables report the results in terms of the odds ratios derived from the logistic regression model. In Table 7 we have two different specifications. Model 1 excludes the food variable. The food variable is not available in all the survey years under consideration. This model therefore represents the largest possible sample size. Gender and perceptions about the economic situation of the country are the two statistically significant variables here. According to the odds ratio, the probability of supporting VE increases by 10 percent if the respondent is male. Perception about the country's economic situation follows the pattern we saw in the descriptive analysis. The odds ratios here are compared to the omitted condition 'very bad'. The probability of supporting VE is higher for those who answer Very Good, Somewhat Good or Somewhat Bad in comparison to those who express that the economic situation is Very Bad. The highest probability is associated with those who indicate that the economic situation is Very Good.

Age and unemployment status do not have a statistically significant impact here. In the case of the education variable, there is a

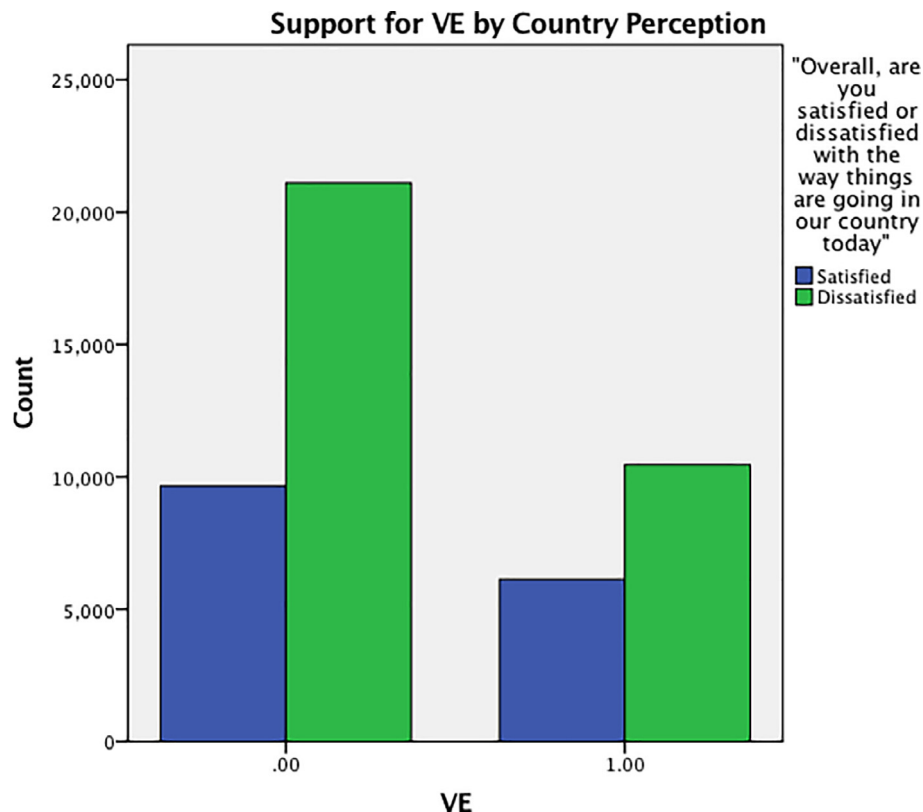


Fig. 4. Support for VE and overall satisfaction with country situation.

Table 7
Determinants of support for VE, logistic regression.^{***}

	I	II
<i>Odds ratio (P-value)</i>		
Age	0.99(0.08)	1.00(0.91)
Gender (Male)	1.10(0.00) [†]	1.13(0.00) [†]
Unemployed	1.02(0.77)	1.08(0.35)
Education		
No formal	1.03(0.50)	1.00(0.89)
Primary	1.05(0.21)	1.07(0.15)
Secondary	1.06(0.16)	1.07(0.15)
Some university	1.09(0.09) ^{**}	1.11(0.09) ^{**}
Economic situation		
Very good	1.66(0.00) [†]	1.89(0.00) [†]
Somewhat good	1.59(0.00) [†]	1.74(0.00) [†]
Somewhat bad	1.27(0.00) [†]	1.36(0.00) [†]
Country situation (satisfied)	0.99(0.10)	0.98(0.56)
Food		
Very easy		0.88(0.62)
Somewhat easy		0.73(0.24)
Somewhat difficult		1.10(0.98)
Bangladesh	2.28(0.00) [†]	1.49(0.00) [†]
Egypt	4.68(0.00) [†]	3.97(0.00) [†]
Indonesia	1.09(0.05) [†]	0.85(0.00) [†]
Israel	2.65(0.00) [†]	2.19(0.00) [†]
Jordan	3.15(0.00) [†]	2.53(0.00) [†]
Lebanon	5.19(0.00) [†]	4.52(0.00) [†]
Malaysia	1.89(0.00) [†]	1.6(0.00) [†]
Nigeria	3.07(0.00) [†]	2.27(0.00) [†]
Pakistan	0.49(0.00) [†]	0.37(0.00) [†]
Senegal	1.87(0.00) [†]	1.54(0.00) [†]
Tanzania	1.51(0.00) [†]	1.29(0.00) [†]
2007	0.90(0.00) [†]	1.00(0.96)
2008	0.83(0.00) [†]	0.82(0.00) [†]
2009	0.75(0.00) [†]	0.91(0.06)
2010	0.88(0.00) [†]	0.88(0.00) [†]
2011	0.83(0.00) [†]	0.91(0.61)
2013	0.82(0.00) [†]	0.90(0.59)
Pseudo R sq.	0.17	0.16
Number of observations	45,623	30,835

[†] Statistically significant at the 95% significance level.

^{**} Statistically significant at the 90% significance level.

^{***} Standard errors are clustered at the country level.

statistically significant difference between those who have some university level education and those who have a completed university degree. The former group has a higher likelihood of supporting VE. In general, we see that those with a completed university degree (omitted condition in the table) have the lowest likelihood of supporting VE compared to the other groups. This might suggest support for the hypothesis that those with lower levels of education are more likely to support VE. However other than the odds ratio for some university education, there are no statistically significant results for the other levels of education. The impact of education level on VE therefore remains inconclusive.

We also see quite a bit of statistically significant country level variation in the country dummy variables. The odds ratio for each country is relative to Turkey which is the omitted case. For example, the likelihood of individuals from Senegal expressing support for VE is 87 percent higher than individuals from Turkey. Individuals from Pakistan on the other hand have a lower likelihood of expressing support in comparison to respondents from Turkey. In general, these country level comparisons seem to match the descriptive data about support for VE presented in Table 2. While Turkey has seen a substantial increase in support for VE in the last two years of the data, in previous years it had very low support relative to most other countries. Therefore, most of the other countries have a higher likelihood ratio of support for VE in comparison to Turkey.

In the second model, we introduce the food variable which indicates the level of difficulty in being able to afford food for the family. The sample size is now reduced. However, food does not have a significant impact on VE. At the same time, the other variables do not change very much. Gender and perception about the economic situation remain statistically significant with similar odds ratio to the first, indicating the robustness of these impacts. Age and unemployment continue to not have a statistically significant impact. The education variable continues to present the inconclusive pattern we discussed above. These results reiterate the findings of the descriptive analysis that there is not much evidence to support the hypothesis that economic exigencies may play a role in fostering support for VE.

In the above results we see that the sample size is greatly reduced from our original dataset of 66,440 individual respondents. As we have noted before the non-response rate for the VE question is fairly large and this leads to the lower sample size. The size of the non-response for this particular question could be due to the sensitivity of the topic. The non-response might be an issue for this analysis if there is any particular systematic difference between those who responded and those who choose not to respond. We therefore explored the correlations between non-response and the some of the same socio-economic status variables included in our analysis. The details of these correlations are presented in Appendix 1. We found that non-response tends to be higher for women compared to men. This difference is statistically significant. However, the magnitude of the difference is fairly small at a little over 1 percent. Similarly, there is a statistically significant difference between the responders and the non-responders in terms of employment status. The rate of non-response is lower for the unemployed. At the same time, the magnitude of this difference is once again quite small, at less than 2 percent. We therefore do not expect non-response to have greatly influenced the relationship between either gender and VE or unemployment and VE in our multivariate analysis. However, we see statistically significant differences in non-response among people with different levels of education that are also of a relatively large magnitude. Those with no formal education are the most likely to respond to the VE question, with a relatively small non-response rate of 18 percent. Non-response becomes higher as the level of education increases. The highest non-response rate, at 42 percent, occurs among those with a completed university level education. This substantial difference could have implications for interpreting our results. In Table 5 we saw that the likelihood of support for VE is lowest among those with a completed university degree. Given that those with a college degree are also far less likely to respond, we cannot make a strong conclusion that higher levels of education are associated with smaller likelihood of support for VE. This reiterates our assertion above that the link between education and VE remains inconclusive.

In summary the results of our multivariate analysis do not support the hypothesis that those of lower socio-economic status will be more likely to express support for VE. Similarly, contrary to our original hypothesis, those who express negative perceptions about the economic and overall situation of their country do not have a higher likelihood of expressing support for VE. In fact, the reverse is true, those who express positive perceptions about the economic and overall situation of the country have a higher likelihood of expressing support for VE. So far we have focused on individual indicators of socio-economic status. We now turn to more relative measures of economic status. Some previous macro level studies have indicated that the country level inequality measure tends to have statistically significant relationship to incidence of VE. Higher levels of inequality are associated with more violence. Here we want to examine how such inequality affects individuals support

Table 8
Determinants of support for VE, logistic regression.***

	I	II	III
Odds ratio (P-value)			
Age	1.00(0.87)	1.00(0.88)	1.00(0.89)
Gender (Male)	1.12(0.00) [*]	1.12(0.00) [*]	1.12(0.00) [*]
Unemployed	1.40(0.09) ^{**}	1.41(0.08) ^{**}	1.41(0.08) ^{**}
Education			
No formal	1.03(0.59)	1.03(0.67)	1.19(0.05) [*]
Primary	1.09(0.07) ^{**}	1.08(0.08) ^{**}	1.21(0.00) [*]
Secondary	1.08(0.13)	1.08(0.14)	1.15(0.02) [*]
Some university	1.10(0.10) ^{**}	1.10(0.10) ^{**}	1.15(0.03) [*]
Economic situation			
Very good	1.85(0.00) [*]	1.85(0.00) [*]	1.84(0.00) [*]
Somewhat good	1.72(0.00) [*]	1.72(0.00) [*]	1.71(0.00) [*]
Somewhat bad	1.35(0.00) [*]	1.35(0.00) [*]	1.36(0.00) [*]
Country situation (Satisfied)	0.98(0.51)	0.98(0.56)	0.98(0.53)
Food			
Very easy	0.94(0.81)	0.87(0.62)	0.74(0.30)
Somewhat easy	0.81(0.43)	0.77(0.34)	0.68(0.18)
Somewhat difficult	1.00(0.98)	0.98(0.94)	0.91(0.76)
Employment * Growth	1.06(0.10) ^{**}	1.06(0.10) ^{**}	1.06(0.10) ^{**}
Food * Growth		1.00(0.02) [*]	1.00(0.03) [*]
Education * Growth			1.00(0.04) [*]
Bangladesh	1.49(0.00) [*]	1.52(0.00) [*]	1.49(0.00) [*]
Egypt	3.97(0.00) [*]	4.00(0.00) [*]	4.00(0.00) [*]
Indonesia	0.85(0.00) [*]	0.86(0.01) [*]	0.86(0.01) [*]
Israel	2.20(0.00) [*]	2.21(0.00) [*]	2.23(0.00) [*]
Jordan	2.52(0.00) [*]	2.56(0.00) [*]	2.56(0.00) [*]
Lebanon	4.51(0.00) [*]	4.61(0.00) [*]	4.56(0.00) [*]
Malaysia	1.6(0.00) [*]	1.62(0.00) [*]	1.62(0.00) [*]
Nigeria	2.26(0.00) [*]	2.31(0.00) [*]	2.28(0.00) [*]
Pakistan	0.37(0.00) [*]	0.37(0.00) [*]	0.37(0.00) [*]
Senegal	1.54(0.00) [*]	1.56(0.00) [*]	1.54(0.00) [*]
Tanzania	1.28(0.00) [*]	1.31(0.01) [*]	1.30(0.00) [*]
2007	0.99(0.98)	1.01(0.72)	1.01(0.81)
2008	0.82(0.00) [*]	0.83(0.00) [*]	0.82(0.00) [*]
2009	0.91(0.07) ^{**}	0.90(0.05) [*]	0.89(0.03) [*]
2010	0.88(0.00) [*]	0.989(0.01) [*]	0.87(0.00) [*]
2011	1.11(0.00) [*]	1.12(0.00) [*]	1.12(0.00) [*]
2013	1.00(0.87)	1.00(0.88)	1.00(0.89)
Pseudo R sq.	0.16	0.17	0.17
Number of observations	30,835	30,835	30,835

^{*} Statistically significant at the 95% significance level.

^{**} Statistically significant at the 90% significance level.

^{***} Standard errors are clustered at the country level.

for VE. Our hypothesis is that individuals who experience unemployment in higher growth economies are more likely to support VE. Similarly, individuals with lower level of education in higher growth economies are more likely to support VE. To evaluate this, we now turn to models where we look at the links between relative deprivation and support for VE. Here we interact the three indicators of an individual's socio-economic status – unemployment, education and food affordability, with the country level growth variable (GDP growth for each corresponding year).

In Table 8 we work with our smallest sample size which includes the food affordability variable. In the first model we include the interaction of unemployment status with the growth rate of the country. Here we find a change from the previous results. With the inclusion of the interaction term, the unemployment variable now becomes statistically significant. Being unemployed increases the probability of indicating support for VE by 40 percent compared to the others. The interaction term is also statistically significant indicating that being unemployed in a high growth country increases the probability of choosing support for VE by 6 percent. Gender and perception about the economic situation of the country continue to be statistically significant as in the previous non-interacted models. We also once again see that the

likelihood of supporting VE is lowest for those with a completed college degree (omitted condition). Here those with either a primary level education or some university level education both have statistically significant higher odds ratio in comparison to those with a completed university education.

In the next two models we add the interaction terms for food affordability and education one at a time. In the second model the addition of the food affordability interacted with the growth variable does not alter the results much. Food affordability variable continues to remain not statistically significant and the interaction terms while significant is close to one indicating that there is no real difference in the likelihood ratio. The unemployment variable continues to remain statistically significant. In the final model we include the final interaction term- education level interacted with the growth variable. Here we see the strongest result suggesting that those with a college degree have the lowest likelihood of supporting VE. In comparison, individuals with no formal education, a primary level, secondary or some university level education all have statistically significant higher likelihood of supporting VE. However as discussed previously the fact that those with college degrees have higher non-response rates qualify these results. In all the three models presented here we see that the unemployment variable and the interaction of unemployment with growth remains statistically significant. It is here that we see the strongest results linking relative economic status to support for VE. Confirming our hypothesis, we find that unemployed are more likely to choose VE in the higher growth rate countries. Similarly, in these relative deprivation models, those with lower levels of education in higher growth countries are more likely to support VE. These results therefore suggest that it is economic inequality that is key to understanding the economic underpinnings of support for VE.

4. Conclusion

In this analysis we find mixed support for the idea that socio-economic circumstances in themselves might push individual's towards supporting violent extremism. The level of education, unemployment status and food affordability on their own do not have significant impacts on the support for VE. This is not dissimilar to the results found in previous studies. Fair and Shepherd (2006) also find no significant impact of socio-economic variables like food affordability on support for VE. Krueger and Maleckova (2002) in fact find that those who support VE and more specifically those who are directly involved in extremist acts do not necessarily come from the lower socio-economic backgrounds and are often from the ranks of the well-to-do. Krueger and Laitin (2008) also find that at the macro level there is no link between GDP and the generation of violent actors. These authors therefore argue that violence is not rooted in economic factors but in political repression and frustration. Indeed, we also find that those who indicate that the economic situation in the country is good or very good are more likely to indicate support for VE compared to those indicate that the situation is very bad once again suggesting that VE is rooted in non-economic, possibly political factors.

However, in this study we also explore the impact of the individual socio-economic status relative to the overall country level economic performance. Interacting individual level information with the overall country level economic performance, we are able to compare individuals with low economic status in relatively higher growth countries versus individuals with low economic status in lower economic growth countries. When we include this macro level interaction we do consistently see that those who are unemployed are more likely to report support for VE. More

specifically, it is the interaction of being unemployed with higher growth rates that shows increased likelihood of support for VE. This indicates that inequality rather than just the socio-economic status might be the key to understanding the economic underpinnings of VE. This is not an uncommon finding. Previous macro level studies have shown that inequality measures like the gini-coefficient (Blomberg & Hess, 2008; Enders & Hoover, 2012) have a significant impact on incidence of terrorism in cross-country studies even when GDP itself does not have a consistently significant impact. Here for the first time we are able to show support for this inequality hypothesis at the micro level using a large cross-country dataset from 2007 to 14. Inequality in terms of being left out of employment opportunities at times of overall economic growth seems to make people more susceptible to supporting VE. We also see that those with lower levels of education tend to have a higher likelihood of supporting VE in higher growth countries. However, this result is qualified by the higher non-response rate among those with higher levels of education. Nonetheless these findings represent a crucial way to reconcile the differing and sometimes inconclusive findings in the previous literature. While some country specific studies find evidence linking socio-economic status to VE, others have found no such link in different groups of countries. The latter groups of studies have tended to strongly reject the economic basis of VE and suggest that the support for VE is rooted primarily in political oppression. Our findings suggest that political oppression might be reflected in relative deprivations of certain groups. So while overall economic circumstances of the country or an individual might not necessarily motivate VE, a sense of being marginalized socio-economically in comparison to more dominant or privileged groups might be the key to understanding support for VE.

From a policy perspective this also points to the insufficiency of focusing primarily on economic or income growth as one of the strategies to counter VE. Growth in income without a corresponding reduction in inequality might in fact be counter productive. Moreover, relative deprivation can be more multidimensional in nature such as the lack of productive employment or educational opportunities and not merely related to lack of income. This multidimensionality of relative deprivation and its links to VE can be explored further in future research. In this analysis we are limited by the small number of socio-economic status variables available in the dataset. Additionally, though this study represents a wider range of countries than some previous studies, we were still limited to primarily middle to lower income countries. Given the findings relating to relative deprivation it would also be useful for future research to focus on available data in higher income countries to test the impact of marginalization on support for VE.

5. Conflict of interest statement

There are no conflicts of interest that could unduly influence this work.

Acknowledgement

We would like to thank the anonymous reviewers for their very insightful comments on an initial draft of the paper.

Appendix 1

See Tables 9–11.

Table 9
Non-response to support for VE question by gender (Chi-SQR test of independence).

	Male	Female	p-value Chi-SQR test of independence
Response	73.6%	72.1%	0.0*
Non-response	26.4%	27.9%	

Statistically significant at the 95% confidence level.

Table 10
Non-response to support for VE question by employment status (Chi-SQR test of independence).

	No formal education	Unemployed	p-value Chi-SQR test of independence
Response	72.8%	74.3%	0.01*
Non-Response	27.2%	25.7%	

Statistically significant at the 95% confidence level.

Table 11
Non-response to support for VE question by education level status (Chi-SQR test of independence).

	No formal education	Completed primary	Secondary education	Some college	Completed university	p-value Chi-SQR test of independence
Response	81.7%	77.3%	69.2%	68%	58%	0.01*
Non-Response	18.3%	22.7%	30.8%	32%	42%	

Statistically significant at the 95% confidence level.

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