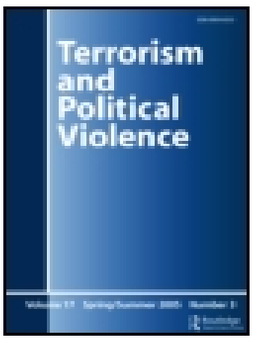

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# Who Becomes a Foreign Fighter? Characteristics of the Islamic State's Soldiers

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# Who Becomes a Foreign Fighter? Characteristics of the Islamic State's Soldiers

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**ABSTRACT**

Contemporary conflicts are becoming increasingly transnational in nature. In particular, individuals are leaving their homelands to participate in foreign conflicts at an unprecedented rate. This paper analyzes the foreign fighter phenomenon in the context of the Islamic State. Using primary source data on individual ISIS members from the Middle East, this paper contributes to the literature with two key findings. The first affirms previous work on terrorist participants and finds that those who join the Islamic State are more educated and younger than others from the same country. Second, other characteristics that are thought to correlate with joining a terrorist organization, such as prior occupation and marital status, have an inconsistent association and vary by country. Specifically, individuals with a university education and who also hold an unskilled job have the highest likelihood of joining ISIS. Overall, the results suggest that relative deprivation drives participation in foreign fighting.

**KEYWORDS**

Terrorist participation; islamic State; foreign fighter; transnational conflict

## Introduction

During the past few decades, foreign fighters have entered armed conflicts in the Muslim world at an unparalleled rate.[1] Islamist militant organizations have had much success in transnational recruitment by "framing local wars as extensions of a global conflict threatening the future of the global Islamic community."[2] The entry of foreign fighters affects the nature of the conflict at hand. It complicates conflict resolution and encourages the ideological radicalization of insurgent groups.[3] For example, in Iraq after 2003, foreign fighters promoted sectarian violence and indiscriminate tactics.[4] As such, foreign fighters play a critical role in transnational Islamist militancy.

While transnational militants have participated in several conflicts throughout history, the issue has accelerated since 2012 to become a serious global concern and a threat to security and stability.[5] However, academic research on this topic has fixated on Western foreign fighters.[6] But only 20 percent of foreign soldiers involved with Sunni militant organizations in Syria came from Western regions.[7] Instead, countries in the Middle East and North Africa have exported the largest numbers of foreign fighters to Syria. This leads us to an important question: who are these (predominately non-Western) foreign fighters who travel to another country to engage in global jihad?

A profile of a foreign fighters involved in transnational jihad settings does not yet exist.[8] However, we can use existing terrorist research as a baseline hypothesis. Several papers examine the individual characteristics of domestic terrorist operatives. They conclude that men who join terrorist organizations are young, single, well-educated individuals who are less likely to be impoverished than others from the same country.[9] This paper puts these findings to the test using a novel dataset on Islamic State foreign militants and asks two questions. Do Islamic State foreign fighters exhibit the same characteristics that we would expect of a terrorist? Also, do these foreign fighters have a consistent profile across countries?

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The Islamic State of Iraq and Syria (ISIS) provides an important application to establish a profile of foreign militants. The Islamic State focused a large portion of its effort into recruiting foreign fighters.[10] Since 2012, more than 38,000 foreign fighters from more than 120 countries traveled to Iraq and Syria.[11] This number is much higher than the number of foreign fighters who traveled to Afghanistan during the Soviet invasion in the 1980s, and to Iraq post-2003.[12] The entry of foreign soldiers into conflicts abroad is expected to increase in the future due to globalization, the internet,[13] and international travel becoming easier and more accessible.

This study conducts a large-N analysis to examine the individual traits of ISIS foreign fighters. By contrast, other work on ISIS members examines conditions at the country level.[14] Using a dataset on the personnel records of members of the Islamic State, I compare ISIS foreign fighters to non-combatants from the same country. Consistent with the terrorism literature, I find that ISIS members are younger and more educated than their counterparts drawn from the same society. The significance of other variables that are commonly associated with joining a terrorist organization, such as prior occupation and marital status, is country dependent. In particular, the findings show that Egyptian and Turkish men with a university education that hold an unskilled job have the highest likelihood of joining the Islamic State. Overall, the results provide evidence that socio-economic grievances drive participation in foreign fighting, and also show that a university education is that strongest predictor of participation in conflicts abroad.

This finding is particularly important because many claim that economic grievances do not explain participation in the Islamic State, as foreign fighters come from wealthier countries.[15] Consequently, my results suggest that policies aimed at reducing economic inequality may be more effective at preventing foreign participation in conflict than previously thought. By focusing on country-level variables, previous studies do not pick up on essential sub-national variation that drives participation in foreign fighting. Furthermore, the conclusions of this analysis are consistent with qualitative research done by other scholars, such as Masbah[16] and Speckhard and Ellenberg,[17] who conducted interviews with former ISIS foreign fighters and find supporting evidence for the economic marginalization argument.

## Theoretical expectations for ISIS foreign fighters

A profile of non-Western, foreign ISIS fighters has not yet been developed. Consequently, this is one of the first statistical analyses of the individual traits of foreign fighters.[18] Section 2.1 reviews past work on the determinants of terrorist participants. Section 2.2 discusses how the Islamic State's recruitment style could influence the profile of its members.

### *Characteristics of terrorist participants*

Previous research on the characteristics of terrorist participants provides four consistent empirical findings to ground our theoretical expectations. Studies that analyze the characteristics of terrorists include Krueger and Maleckova[19] for Hezbollah in Lebanon, Berrebi[20] for Hamas and the Palestinian Islamic Jihad in Palestine, Lee[21] with Bangladeshi terrorists, and Kavanagh[22] for deceased Hezbollah members. This section summarizes their findings.

First, it is an empirical regularity that terrorists are well-educated.[23] For instance, engineers made up a disproportionate share of Islamic radicals in groups such as Hamas, Islamic Jihad, Jemaah Islamiyah, and al-Takfir wal-Hijra.[24] Similarly, Sageman[25] discovers that Al Qaeda members were well-educated, predominately belonging to scientific or technical fields.

Second, as economic status is often correlated with education, it follows that the men who join terrorist organizations are often wealthier than the average male from the societies where they originate. Impoverished men are less likely to join terrorist groups.[26] Poor people are less attentive to militant struggles and wealth enables individuals to act on their desires.[27] Research on the characteristics of terrorist participants conclude that they often are party to a high socio-economic status.[28] For example, Palestinian terrorists came from relatively wealthy family backgrounds and were educated.[29]

Third, other studies on the individual characteristics of terrorists discuss relative deprivation.[30] Many terrorists are educated but struggle economically.[31] Terrorist group participation is more likely for highly educated, but impoverished individuals.[32] Similarly, Lee[33] finds that Bengali terrorists are less wealthy than non-violent political activists, but still are part of the upper strata of society. Moreover, unemployment among educated individuals increases their probability of radicalization.[34]

Finally, it is also a fairly standard finding throughout terrorist research that men who join terrorist organizations are single.[35] Marriage significantly reduces the probability of participation in terrorist activities.[36] Having a wife and children might dispel an individual from entering a dangerous lifestyle. An additional, well-supported finding about terrorists is that they are young.[37] A multitude of explanations accompany this finding, such as the physical necessities for engaging in terrorism, and that young men are unlikely to have high opportunity costs for joining terror organizations.

If these past empirical findings on terrorists apply to foreign fighters, the analysis should find that Islamic State members are wealthier, more educated, younger, and more likely to be unmarried and without children than the population from which they are drawn.

### *ISIS recruitment*

The Islamic State of Iraq and Syria is a Salafi-Jihadist militant organization operating in Syria. In its heyday, it attracted foreign fighters from around the world. In June 2014, the Islamic State declared itself a caliphate, and soon after, gathered international condemnation due to its rapid seizure of large swaths of territory in Syria and Iraq. It is recognized for its extreme brutality and has claimed responsibility for numerous terrorist attacks in Syria and other countries. By the end of 2018, ISIS had lost most of the territory it once held.

Unlike other terrorist organizations, the Islamic State controlled a significant amount of territory at its height. Indeed, it operated similarly to how a state with a conventional army would.[38] The Islamic State collected taxes, regulated prices, ran courts, and maintained a strong bureaucracy and administrative system. As such, it is theoretically unclear if the profile of ISIS foreign fighters will match the archetype of other terrorist operatives. When these individuals entered ISIS territory, they joined a terrorist organization. But also entered a state, and committed to much more than conventional terrorist roles. Although the day-to-day tasks varied, all men that joined the Islamic State were considered to be "fighters." However, the Islamic State also needed judges, policemen, engineers, and bureaucrats to run its day-to-day operations. Theoretically, this implies that we could expect to see men with a higher job status joining the Islamic State at a higher rate than other terrorist groups, as well as men with wives and children. In this case, unlike other radical organizations, ideology or economic grievances might not be the driving force for all Islamic State foreign entrants.

In addition, the journey itself to Syria to join ISIS indicates several traits of these foreign fighters. Access to social media and the internet for recruitment, and ability to travel internationally (which indicates a certain level of wealth), are necessary in order to get to Syria. Prospective foreign fighters had to pay their own way to join the Islamic State.[39] This implies that the average ISIS member may have more economic resources than what we would expect of the average terrorist.

On the other hand, poverty could be a motivator for some to join ISIS. The Islamic State paid a wage to its members and also provided other material incentives, such as housing and an arranged marriage. Since the Islamic State paid a wage to its members, economic gain may be a contributing factor for joining the organization. ISIS even provided a larger wage to its foreign fighters than local recruits. Because of this, the Islamic State might attract poorer foreign recruits compared to other militant groups.

Furthermore, ISIS is less selective of its members, particularly with regard to foreigners. Compared to other Salafi-Jihadist groups, the Islamic State's recruitment efforts were much broader and it sought a diverse range of men (and women), not just those of fighting age.[40] [41] ISIS seemingly welcomed anyone who arrived.[42] This includes men that did not speak Arabic, and who lacked military training or religious knowledge.[43] While Al Qaeda tried to keep out new converts to Islam, opportunists,

sadists, and those seeking adventure,[44] the Islamic State accepted them.[45] Perhaps this could be because they needed its members to fulfill a variety of roles, ranging from administrators to cannon fodder. Running a state requires extensive manpower.

Additionally, ISIS's recruitment style lies in stark contrast to Ahrar al-Sham, the Syrian military rebel movement. Ahrar al-Sham requires its foreign fighters to personally cover costs for their own stay (about $50 USD per month) and to also pay for their own weapons ($1,500 USD).[46] This stipulation would screen out poorer foreign fighters. Furthermore, Syrian rebel unit, Jabhat al-Nusra, is much more selective in its recruitment of foreign fighters than ISIS. It prefers to hand-pick its fighters and depends on its member's social networks for foreign recruitment.[47]

Because there are several competing arguments about the potential profile of ISIS foreign fighters, it is unclear what to expect. The characteristics of these men are important to investigate because both,[48] using ISIS foreign fighters, and Hegghammer,[49] explaining Muslim foreign soldiers in general, reject the economic grievance argument. In addition, education's positive correlation with participation in terrorism is a consistent finding in the terrorism literature, but it is more mixed with respect to foreign fighters. For example, Morris finds that education levels differ with respect to which incoming roles foreign fighters chose upon arrival to ISIS territory.[50] In addition, there is still a belief, particularly with regard to Moroccans, that foreign fighters are uneducated.[51] Tezcür and Besaw find no evidence that Turkish jihadists are less educated than other segments of society.[52] To disentangle these differing perspectives, this paper seeks to establish a profile of ISIS foreign fighters and determine if there is any variation by country in their traits.

## Methodology

This analysis uses a choice based sampling scheme (also known as a case-control or endogenous stratified research design). This research design has similar features to previous work on the individual characteristics of terrorist operatives, such as Krueger and Maleckova,[53] Berrebi,[54] and Kavanagh.[55] I combined demographic census data on adult males from three countries with information on Islamic State foreign fighters. In the analysis, I study Morocco, Egypt, and Turkey. These are the Middle Eastern countries for which individual level census data was available and they provide a diverse profile of ISIS members. Because the oldest foreign fighter in my data is fifty-four and the youngest is fifteen, the sample consists of males aged between fifteen and fifty-four.[56]

Middle Eastern, Central Asian, and North African countries exported the largest numbers of foreign ISIS fighters. The three countries used in the analysis, Morocco, Egypt, and Turkey, rep-resent a range of ISIS fighters. Morocco represents foreign fighters from the Maghreb. Egyptian foreign fighters are more alike to ISIS recruits from the Levant than North Africa.[57] Lastly, Turkey's historical, political, and socio-economic traits make it as a least likely case of jihadi foreign fighter mobilization,[58] but its proximity to Syria makes it strategically relevant. Also, Turkish foreign fighters may be more like Islamic State members from the Middle East and Central Asia than the other two countries.

### *Data on Islamic state foreign fighters*

The Islamic State completed registration forms for its recruits upon entry into its territory in Syria and Iraq. A former member of the Islamic State leaked those documents.[59] In early 2016 he became disillusioned, defected, and fled to Turkey, taking with him a flash drive containing the personnel records of thousands of men who crossed the Syria-Turkish border to join the Islamic State in 2013 and 2014.[60] The documents were leaked to several newspapers, including Syrian newspaper *Zaman al-Wasl*.[61] Since then, a handful of different versions of the documents have spread.[62] Several government sources have verified seemingly similar versions of the data.[63] The documents are described as "the largest cache of primary source documents produced by the Islamic State."[64] Figure 7 in the Online Appendix provides an image of a sample arrival form. Using the leaked forms, I translated the responses from Arabic and constructed a cross-sectional dataset of ISIS foreign fighters.

**Table 1.** Number of observations

| Country | Estimated # Joined ISIS | Number of Recruits | Census Size |
|---|---|---|---|
| Morocco | 1,500 | 288 (19 percent) | 419,913 |
| Egypt | 600 | 190 (32 percent) | 2,179,256 |
| Turkey | 2,100 | 216 (10 percent) | 1,057,677 |

Estimated Join is the number of individuals from that country that are believed to have joined ISIS. Number of Recruits is the number of ISIS members from that country that appear in my dataset. Sources for Estimated Join: Barrett et al.,[69] Masbah,[70] Benmelech and Klor,[71] Lang and Al Wari,[72] and Winter.[73]

Compared to previous work that investigates the correlates that distinguish terrorists from the general population, the documents provide two key benefits. First, the entry forms ask each recruit for demographic information such as his age, marital status, education level, address, country of birth, and job he held prior to entering the Islamic State. Due to this, the forms eliminate the need to infer individual traits of known terrorists from biographical or secondary sources, a data collection method used in Krueger and Maleckova,[65] Berrebi,[66] Kavanagh,[67] and Benmelech, Berrebi and Klor.[68] Finally, the entry forms encompass a diverse range of recruits spanning across multiple countries. Up until this point, our knowledge of the characteristics of terrorist participants are taken from studies that examine one country. The Islamic State attracts recruits globally. This provides a unique opportunity to determine whether the archetype of a foreign fighter transcends borders.

However, the data faces inherent limitations. It is a convenience sample and does not provide a conclusive examination of all individuals who chose to join the Islamic State. Rather, it grants us with a snapshot of the characteristics of these men. Although impossible to verify, the raw data does not appear to be systematically manipulated or intentionally leaked by ISIS. Additionally, the information reflects the characteristics of the foreign jihadists who joined the Islamic State at the height of its recruitment in 2013 and 2014. It is possible that the profile of ISIS foreign fighters may vary depending on ISIS's battlefield successes or failures. While this is a drawback, the data cache provides incredibly detailed information about the Islamic State's foreign fighters.

From among the entry forms, I selected the countries that have large numbers of recruits (Morocco, Egypt, and Turkey) and combined it with individual demographic information on non-terrorists. Russia, Saudi Arabia, Tunisia, and Libya also had large numbers of Islamic State entrants, but I was unable to acquire census data for those countries. The original dataset contained 694 recruits from Morocco, Egypt, and Turkey. However, many were missing information. After eliminating incomplete forms, 467 remain of which 205 are from Morocco, 144 from Egypt, and 118 from Turkey. Table 1 displays the number of recruits each country has, an estimated number of total individuals who have joined ISIS from each country, and the number of males taken from the census.

### *Census data*

To assess the similarity (or differences) between Islamic State foreign fighters and non-ISIS members, I combined census data with the Islamic State foreign fighter cross-sectional dataset. I acquired individual demographic information on adult males. The census data is from Turkey (2000), Morocco (2004), and Egypt (2006).[74] Using comparison data older than the ISIS foreign fighter information raises the possibility of bias due to demographic changes over time. However, significant demographic changes in the populations such as birth rate, age, or marriage rate is unlikely to occur over a decade. Potential issues such as country specific or time invariant differences between countries are accounted for with country fixed effects in several of the statistical models and by conducting regression models separately by country.

**Table 2.** Descriptive statistics

| | ISIS Members | Number of Observations | Non-ISIS Males | Number of Observations |
|---|---|---|---|---|
| | (%) | 467 | (%) | 3,405,445 |
| Occupation | | | | |
| Unemployed | 6.4 | 30 | 9.3 | 315,925 |
| Unskilled | 29.6 | 138 | 17.0 | 580,495 |
| Student | 9.0 | 42 | 15.3 | 521,529 |
| Skilled | 55.0 | 257 | 58.4 | 1,987,496 |
| Education | | | | |
| None | 2.1 | 10 | 23.0 | 784,866 |
| Primary | 20.1 | 94 | 18.8 | 641,645 |
| Secondary | 43.9 | 205 | 44.9 | 1,527,487 |
| University | 33.8 | 158 | 13.3 | 451,447 |
| Marital Status | | | | |
| Single | 58.9 | 275 | 44.4 | 1,511,454 |
| Married | 41.1 | 192 | 55.6 | 1,893,991 |
| Children | | | | |
| No | 67.2 | 314 | 53.7 | 1,827,094 |
| Yes | 32.8 | 153 | 46.3 | 1,578,351 |
| Age | | | | |
| 15–19 | 9.9 | 46 | 19.5 | 662,432 |
| 20–29 | 52.9 | 247 | 31.6 | 1,076,978 |
| 30–39 | 31.9 | 149 | 23.8 | 810,780 |
| 40–49 | 4.1 | 19 | 18.7 | 637,985 |
| 50–54 | 1.3 | 6 | 6.4 | 217,270 |

Calculations do not include missing values.

However, it is important to note that merging the two samples assumes that there are no significant time-varying covariates that make the ISIS and non-ISIS samples from each country fundamentally different. Although the pooled dataset is not ideal, the general similarity in the demographics appears to sufficiently justify merging the two populations and the use of this combined sample to examine the relationship between individual traits and foreign fighting. The two samples appear to be broadly comparable. Descriptive statistics in Table 2 demonstrate that ISIS foreign fighters are more likely to hold unskilled jobs, despite having been recorded in a later time period than the census data. The non-ISIS individuals are even more likely to be full-time students than the ISIS foreign fighters. The biggest difference between the two samples is the proportion of those with university education. One-third of the ISIS foreign fighters attended college, compared to 13 percent of the non-ISIS sample.

## *Choice based samples*

The research design uses a contaminated sampling scheme.[75] The non-ISIS members (controls) were drawn from whole populations rather than observations for which $Y = 0$. The potential problem here is that the controls could have joined ISIS after their census interview was conducted. Typically for case-control studies with contaminated sampling schemes, generalized method of moments (GMM) is used to address possible contamination.[76] However, the GMM estimator has convergence problems when $q$ (the marginal probability of $Y = 1$ in the population) is unknown, particularly when the true value of $q$ is close to 0.[77] This is to be expected "because when $q$ is close to 0 the sampling is close to pure choice-based [case-control] sampling."[78] In the context of this analysis, $q$, the probability that an individual will join the Islamic State in the population (the possibility of contamination), is extremely close to 0 (less than 0.001 percent). That is, an individual joining the Islamic State is a rare occurrence in any population. For example, it is estimated that 1,500 men have left Morocco to join ISIS. There are over 8 million Moroccan males under the age of fifty-four, which puts the probability of one of those men joining the Islamic State to be 0.0002 percent ($\frac{1500}{8410626}$). Thus, pure choice-based sampling methods are used in most of the statistical models (i.e. standard logistic regression models).

Furthermore, in the data amassed for this project, there are thousands of fewer ones (foreign fighters) than zeros (non-ISIS males). To deal with this, I utilize the rare events logistic regression introduced in King and Zeng.[79] I use rare events logistic models because standard logistic regression analysis underestimates the probability of rare events.[80] In addition, Krueger and Maleckova,[81] Berrebi,[82] and Kavanagh[83] use weighted logistic regression analysis in their studies on terrorist participants. The weights reflect the estimated frequencies of the groups in the population relative to their frequencies in the sample. Similarly, rare events logistic regression analysis corrects the estimates based on the fraction of ones in the population and on the observed fraction of ones in the sample. Specifically, rare events logistic regressions with prior correction for the intercept (Section A.1) and weighting with bias correction (Section A.2) are conducted for the statistical analysis in Table 1.[84] The derivation of the sampling weights is shown in Section B of the Online Appendix.

### Demographic information

This section introduces the individual characteristics used in the analysis. *Join ISIS* indicates which individuals joined the Islamic State and it serves as the binary dependent variable. The individuals listed in the Islamic State recruitment forms are labeled as a one and the men taken from the census data are a zero.

The explanatory variables capture established correlates of terrorist participation. Table 2 provides descriptive statistics for the variables used in the analysis. *Occupation* captures the job each recruit held before joining the Islamic State, or for the individuals from the census data, the job they held when their interview was conducted. It is measured as a four point scale ranging from unemployment, unskilled labor, a student, and skilled work.[85] *Occupation* can be interpreted as a proxy for economic status or standard of living. Looking at Table 2, ISIS seems to attract a more unskilled laborers relative to the population demographics. Also, more than half of the Islamic State recruits are skilled workers. I maintain student as its own category because universities can often serve as a recruitment pool. For example, the majority of Al Qaeda in Iraq's foreign fighters were students.[86]

*Education* is a four tier scale ranging from having received no formal education, primary school, secondary school, or having gained at least some university experience. Consistent with previous findings about the characteristics of terrorists, many of the men who joined the Islamic State received a secondary or university education. As a whole, the recruits are well-educated when compared with the other males in the census. Approximately 33 percent of the Islamic State foreign fighters attended university, whereas about 13 percent of men from the same countries went to college. Furthermore, 23 percent of non-ISIS males received no education, whereas only 2 percent of the ISIS foreign fighters are uneducated.

*Marital Status* is a binary variable indicating which individuals are married. *Children* indicates whether the individual has children.[87] Although *Children* has not been measured in other statistical studies on the characteristics of terrorists, it can reflect an individual's inclination to join a militant organization. According to the population statistics in Table 2, men who join the Islamic State are more likely to be single and without children. More than two-thirds of ISIS members in the data are childless while about 54 percent of males in the census data do not have children. For marriage, 59 percent of ISIS members are single whereas about 44 percent of the non-terrorist males are unmarried.

Lastly, *Age* captures how old the recruits were when they entered ISIS territory or during the time of their census interview. The oldest entrant from the ISIS sample is fifty-four years old. More than half (53 percent) of the ISIS foreign fighters are in their twenties. This is consistent with other work on terrorists, such as Tezcür and Besaw[88] which examines jihadist foreign fighters and Benmelech, Berrebi and Klor[89] where the majority of Palestinian terrorists in their dataset are of similar age.

I also coded the administrative division each individual is from using the addresses the foreign fighters provided in their entry form or the respective sampling unit from the census data. Descriptive statistics for the regions are provided in Tables 5-8 in the Online Appendix.

## Empirical analysis

This section presents statistical models that determine the correlates of ISIS foreign fighters. Two important traits measured here, *Occupation* and *Education*, are ordinal variables. There is debate among scholars regarding whether ordinal explanatory variables should be treated as continuous (interval/ ratio) or categorical data.[90] For ease of exposition, I conduct both methods. I use the interval variable approach in Section 4.1. Section 4.2 presents logistic regression models and predicted probability plots where *Occupation* and *Education* are entered as categorical variables. The results are consistent across both approaches.

### *Pooled sample*

Table 3 reports logistic regression models estimating *Join ISIS* using *Occupation, Education, Marital Status, Children*, and *Age*. Model 1 is a conditional logit with country fixed effects, Model 2 is a standard logit, and Models 3 and 4 are rare events logistic regression models. *Education* and *Age* have a statistically significant association with *Join ISIS* in every model in Table 4. Men who join the Islamic State are younger and more educated than the population on average. Holding all other variables at a fixed value, the odds an individual joined ISIS are 116 percent higher for a one-unit increase in *Education*, such as attending secondary school after receiving a primary education. This result is statistically significant at the 1 percent level.

*Age* has a negative, statistically significant association with *Join ISIS*. For every additional year of age, the odds an individual joins the Islamic State decreases by 2 percent. This finding is consistent with previous work on terrorist participants.[91] Contrary to Berrebi,[92] *Marital Status* has no correlation with joining the Islamic State. In addition, *Children* has no association as well. Compared to *Education, Occupation* has a less consistent relationship with *Join ISIS*. In the conditional logit model with country fixed effects, the coefficient for *Occupation* is positive and statistically significant. This suggests its association is country dependent. This correlation is further explored in the next section.

**Table 3.** Pooled sample regression estimates

| | Dependent variable: Join ISIS | | | |
|---|---|---|---|---|
| | | | Rare Events | |
| | Conditional Logistic (1) | Logit (2) | Prior Correction (3) | Weighting (4) |
| Occupation | 0.121** | −0.029 | 0.03 | 0.03 |
| | (0.049) | (0.046) | (0.05) | (0.06) |
| Education | 0.925*** | 0.776*** | 0.77*** | 0.77*** |
| | (0.062) | (0.061) | (0.06) | (0.08) |
| Marital Status | 0.03 | −0.19 | −0.19 | −0.18 |
| | (0.186) | (0.185) | (0.18) | (0.25) |
| Children | 0.134 | 0.008 | 0.00 | 0.00 |
| | (0.182) | (0.180) | (0.18) | (0.25) |
| Age | −0.035*** | −0.021*** | −0.02** | −0.02* |
| | (0.007) | (0.007) | (0.01) | (0.01) |
| Constant | | −10.138*** | −10.78*** | −10.78*** |
| | | (0.287) | (0.29) | (0.40) |
| Country FE | X | | | |
| Observations | 3,610,405 | 3,610,405 | 3,610,405 | 3,610,405 |
| Log Likelihood | −6,224.227 | −4,518.637 | −4,518.64 | −4,596.44 |

*p < .1; **p < .05; ***p < .01

Note: This table presents logistic models estimating *Join ISIS* using *Occupation, Education, Marital Status, Children*, and *Age*. Column (1) is a conditional logit models with country fixed effects. Column (2) is a standard logit. Columns (3) and (4) are rare events logit models with prior correction and weighting respectively.

**Table 4.** Logistic regression estimates.

| | Dependent variable: Join ISIS | | |
|---|---|---|---|
| | Morocco | Egypt | Turkey |
| | (1) | (2) | (3) |
| Occupation: | | | |
| Unskilled | 1.313*** | 0.783* | 1.338*** |
| | (0.342) | (0.406) | (0.367) |
| Student | −1.030** | 0.320 | −1.042* |
| | (0.498) | (0.404) | (0.533) |
| Skilled | 1.677*** | 0.448 | 0.741** |
| | (0.339) | (0.348) | (0.360) |
| Education: | | | |
| Secondary | 1.129*** | 2.313*** | 0.664*** |
| | (0.173) | (0.734) | (0.206) |
| University | 1.816*** | 4.788*** | 0.759** |
| | (0.221) | (0.717) | (0.340) |
| Marital Status | 0.380 | 0.336 | −1.490*** |
| | (0.255) | (0.329) | (0.448) |
| Children | −0.368 | 0.025 | 1.048** |
| | (0.265) | (0.320) | (0.456) |
| Age | −0.044*** | −0.062*** | −0.058*** |
| | (0.011) | (0.016) | (0.018) |
| Constant | −8.708*** | −11.905*** | −6.746*** |
| | (0.469) | (0.874) | (0.620) |
| Observations | 408,923 | 2,001,688 | 995,268 |
| Log Likelihood | −1,548.401 | −1,249.689 | −1,131.087 |

*p < .1; **p < .05; ***p < .01
This table reports logistic models estimating *Join ISIS* using *Occupation, Education, Marital Status, Children*, and *Age* for Moroccan, Egyptian, and Turkish men.

### *Disaggregated by Country*

We can disaggregate the regression models by country to identify the country specific correlates with *Join ISIS*. Figure 1 plots the coefficients for logistic regression models from Table 9 that estimate the effects of changing *Occupation, Education, Marital Status, Children*, and *Age* on the log-odds of *Join ISIS*.

In the individual country rare events logistic regression models (Section C.1 in the Online Appendix), *Education* and *Age* have a statistically significant correlation with *Join ISIS* for Morocco, Egypt, and Turkey as in the pooled models. This indicates that men who journey to Syria to join the Islamic State are younger and more educated than the population on average. A one unit increase in *Education* in Morocco makes the odds of joining ISIS almost twice as likely. For the Turkey specific regression, holding all other variables at a fixed value, the odds of joining the Islamic State for a one unit increase in *Education* increases by 38 percent. For Egypt, the correlation of *Education* with *Join ISIS* is much larger. A unit increase in *Education*, for example receiving a secondary education instead of only attending primary school, increases the odds of joining the Islamic State by almost twelve times.

*Occupation* has a statistically significant, positive relationship with *Join ISIS* only for Morocco, further highlighting its inconsistency as a significant predictor variable. Holding all other variables at a fixed value, the odds of joining the Islamic State increases by 35 percent for a one unit increase in *Occupation* for Morocco. This result suggests that there is variation in the profile of ISIS foreign fighters at the country level.

*Children* has no relationship with *Join ISIS* for Moroccan and Egyptian foreign fighters. For Turkey, having children increases the odds an individual joined the Islamic State by 153 percent. Furthermore, *Marital Status* has a positive relationship with *Join ISIS* in Morocco, a negative correlation in Turkey, and no association for Egypt. In Morocco, marriage increases the odds an individual joins the Islamic

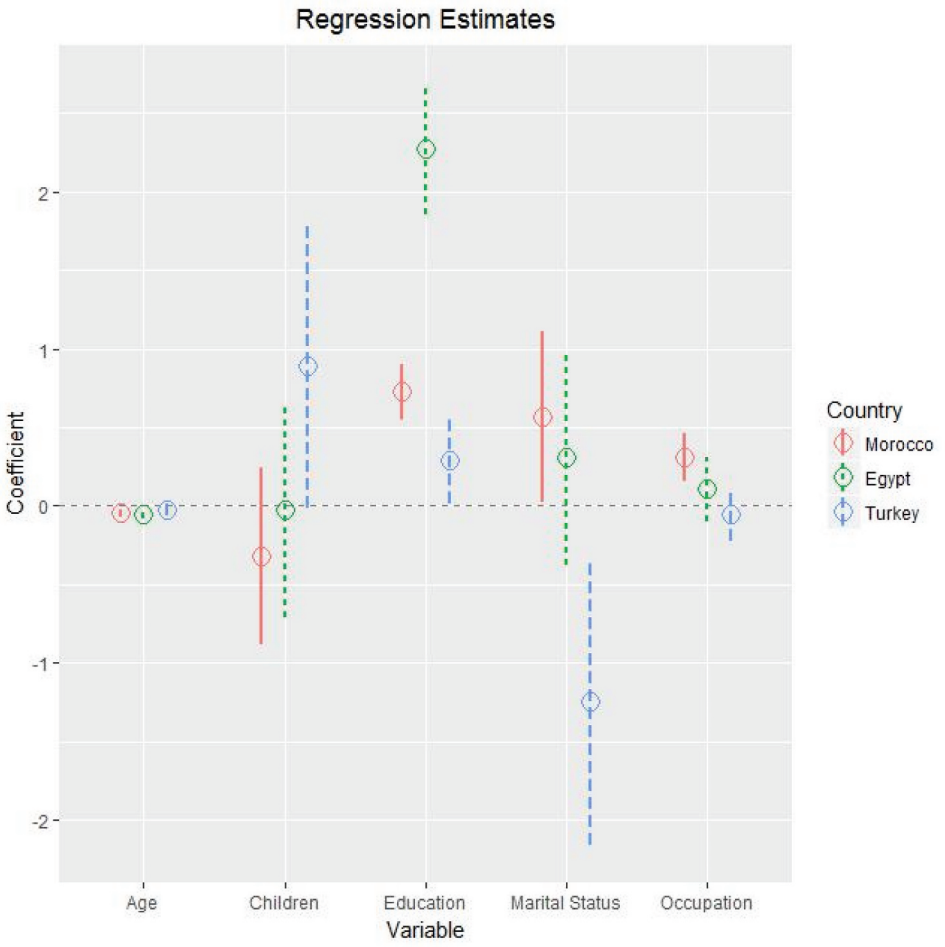


**Figure 1.** Logistic regression estimates by country. *Education* and *Age* are statistically significant for all countries. *Occupation* is significant for Morocco. *Marital Status* is statistically significant for Morocco and Turkey. *Children* is statistically significant in Turkey.

State by 73 percent. With Turkey, marriage decreases the odds an individual joins the Islamic State by 75 percent.

As the statistical significance of the explanatory variables differs by country, the association of the different categories of *Education* and *Occupation* may vary as well. To determine this, I entered *Education* and *Occupation* as categorical measures instead of continuous in Table 4.[93] The base for *Occupation* is unemployment and the baseline category for *Education* is primary school. In these models, all levels of education and unskilled work have a positive, statistically significant correlation with *Join ISIS* relative to the baseline. For Morocco and Turkey, skilled work has a positive, statically significant relationship with *Join ISIS* and being a student has a negative, statically significant association with *Join ISIS* compared to the respective reference category. Predicted probability plots for *Education* and *Occupation* are provided.

The predicted probability plots visualize several notable findings. Both sets of plots reaffirm the finding that those with a college education are most likely to join the Islamic State. Figure 2 plots the predicted probabilities for *Education* for each country while varying the value of *Occupation*.[94] In all countries, a man with university education has the highest likelihood of joining the Islamic State, though the exact magnitude varies by country. To determine if there is a statistically significant difference between a secondary and university education, I changed the reference category from primary school to

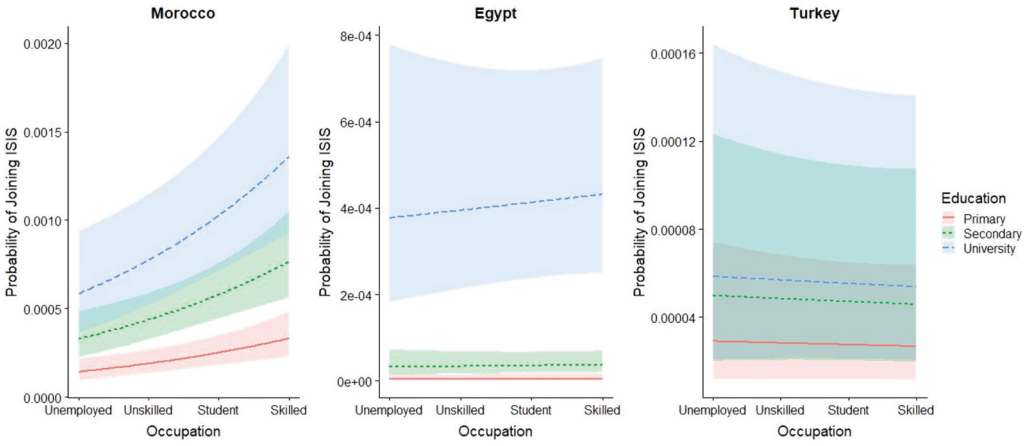


**Figure 2.** Predicted probabilities for *Education*. This figure displays the predicted probabilities for *Join ISIS* on *Education* for each country, using logistic models, varying the value of *Occupation*, and holding all other variables fixed at their median. *Join ISIS* takes a value of 1 if the individual joined the Islamic State and 0 otherwise. The shaded regions capture the 95 percent confidence intervals.

secondary. For Morocco and Egypt, there is a sizable, positive, and statistically significant difference. In those countries, a university education instead of only a secondary one increases the likelihood of joining ISIS. For Turkey, a college education is not significant when compared to the secondary school reference class, which is why the secondary and university lines are so close in Figure 2. Additionally, it is interesting to note that while all levels of *Education* have a significant, positive association with the dependent variable compared to the base category of primary school, the individuals that are current students in Morocco and Turkey are less likely to join the Islamic State. Furthermore, the primary school category may be acting as a proxy for poverty or for those residing in a rural location. Both of those factors have been shown to decrease the likelihood of joining a terrorist group.

Figure 3 depicts the predicted probabilities for *Occupation* for each country while varying the value of *Education*. In all countries, students and those who are unemployed have the lowest likelihood of joining the Islamic State. Moroccan males with skilled jobs are more likely to join the Islamic State, compared to other occupations. On the other hand, in Egypt and Turkey, men with unskilled jobs, but a university education, have the highest likelihood of joining the Islamic State. This provides support in favor of relative deprivation as a determinant of terrorist participation. As with terrorists in other groups, educated men that struggle to find good jobs are at risk of radicalization. This social and economic discontent drives foreign fighting, as well as domestic terrorist participation.

## Robustness

Additional regression models are in Section C of the Online Appendix. The supplemental models include individual country logits and rare events logistic regressions. Also, because *Age* is a single peaked distribution, the models in Table 12 integrate its square term as well.

To highlight that the foreign fighter and non-ISIS groups have different levels of education, I conducted several independent sample t-tests. The Welch Two Sample t-test is an adaption of Student's t-test used for when two pools have unequal variances and unequal sample sizes.[95] As the two groups are non-overlapping, and there are much fewer individuals who join the Islamic State then those that do not, Welch's t-test is appropriate. *Education* is statistically significant at the 0.01 level for Morocco, Egypt, and Turkey. This shows that there is a statistically significant difference between the average level of education between men who join the Islamic State and other males from the same country.[96] I also conducted t-tests for the other determinants. Notably, the average job rank for Egyptian and Turkish foreign fighters is about the same as the non-ISIS males. ISIS foreign fighters are

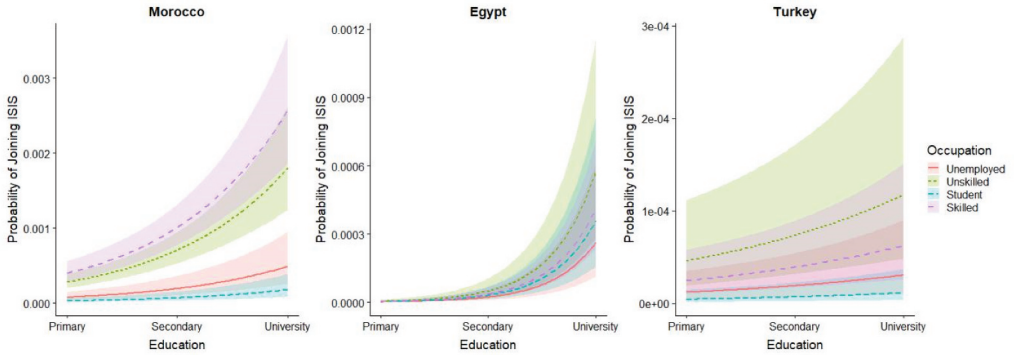


**Figure 3.** Predicted probabilities for *Occupation*. This figure displays the predicted probabilities for *Join ISIS* on *Occupation* for each country, using logistic models, varying the value of *Education*, and holding all other variables fixed at their median. *Join ISIS* takes a value of 1 if the individual joined the Islamic State and 0 otherwise. The shaded regions capture the 95 percent confidence intervals.

more likely to be childless than other men from the same country. Also, on average, Turkish foreign fighters are approximately three years younger than Moroccan and Egyptian fighters. Section C.2 in the Online Appendix reports the difference in means between the two groups for the explanatory variables.

## Discussion

The empirical analysis suggests that education and relative deprivation are factors that motivate foreign fighting. Combining this, with the fact that ISIS dominated the recruitment of foreign fighters compared to other Salafi-jihadist groups operating at the same time in the same region, a key contribution of this study is the conclusion that ISIS filled a gap in the bleak socio-economic system for many of its members. The Islamic State provided an accessible way of achieving wealth and social status. As a result of its statehood, ISIS offered personal power, a community, and primitive gratifications that appealed to young, Muslim men in MENA countries.[97] In interviews with ISIS foreign fighters, Speckhard and Ellenberg[98] find evidence that the possibility of an arranged marriage was a motivating factor. Moreover, unlike Europe and other Western countries, Syria is much easier to travel to, due to the low cost (less than $1,000 USD from other MENA countries), the reluctance of state authorities to stop them, and the recruitment efforts of ISIS and other groups.[99]

These quantitative findings provide evidence that socio-economic grievances, marginalization, and frustrated personal ambition contribute to radicalization, and are supported by qualitative analyses conducted by others. For example, Speckhard and Ellenberg[100] conducted interviews with over two hundred ISIS members and found that unemployment or underemployment was common among the male foreign fighters. This meant that they had fewer opportunities, and were vulnerable to ISIS's promises of work and wealth.[101] Quantum Communications, a Lebanon-based research firm, conducted a psycho-contextual analysis of the personal testimonies of forty-nine ISIS fighters that were aired on television.[102] The study found that 77 percent of the Syrian and Iraqi ISIS fighters are status seekers. That is, they joined ISIS to improve their social standing and were motivated by money, employment, and social recognition from others around them. Furthermore, Masbah[103] finds additional evidence to support this theory. He conducted fieldwork with twenty Moroccan foreign fighters and found that in addition to ideology, altruism and a desire to achieve greater social status were motivators.[104]

Lastly in Figures 4, 5 and 6, I plot the spatial distribution of ISIS foreign fighters by administrative district in their respective country of origin. Examining the sub-national distribution of foreign fighters allows us to consider local context that can be relevant. Terrorists, at least from Hamas and the Palestinian Islamic Jihad, tended to originate from urban areas.[105] The same seems to hold true for

the Islamic State's foreign fighters. For example, capital cities, like Cairo, Egypt and Istanbul, Turkey, where youth unemployment is high, exported many fighters to ISIS.

In terms of jihadi foreign fighter mobilization, Morocco is a peculiar case. It had a strong security apparatus, relatively stable political system, and effective border management.[106] Regardless, it was one of the largest exporters of foreign fighter to Syria.[107] Many of Morocco's foreign ISIS fighters came from its poorer, less integrated northern regions that have suffered from years of economic marginalization.[108] The Tangier-Tetouan division has the greatest number of recruits (eighty). The next highest region, Fez-Boulemaine, has forty ISIS recruits in the data. The cities of Tangiers and Tetouan exported more foreign fighters than the cities of Casablanca and Fez combined, even though those latter cities have three times the population.[109] Almost one-third of Moroccan foreign fighters in the dataset are from Tanger and Tetouan, whereas 8 percent of the general population resides in that administrative division. Contraband is the main economic activity in Morocco's northern cities.[110] Also, as with many cities, unemployment among urban youth is high. Additionally, many citizens of the northern divisions have passports that allow them access to Ceuta and Melilla, two Spanish controlled cities, which facilities potential travel to Syria to join ISIS.[111]

For Egypt, a weak security presence, economic underdevelopment, and rough terrain in the North Sinai governorate fosters a hub for extremism. A relatively small amount of Egyptian foreign fighters in the dataset originated from the North Sinai governorate (4 percent; seven individuals). However, that is a fairly large amount considering less than 1 percent of the Egyptian population actually lives in

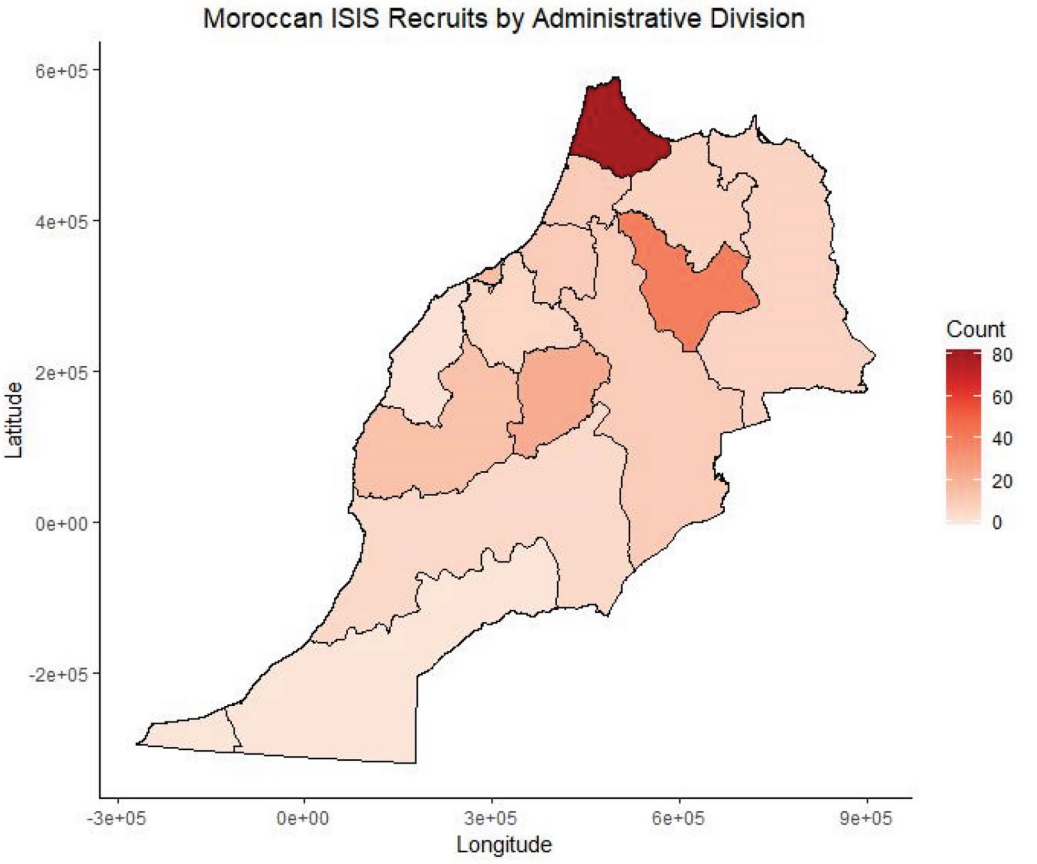


**Figure 4.** Morocco's ISIS foreign fighters. This map captures the divisions where Morocco's foreign fighters originated.

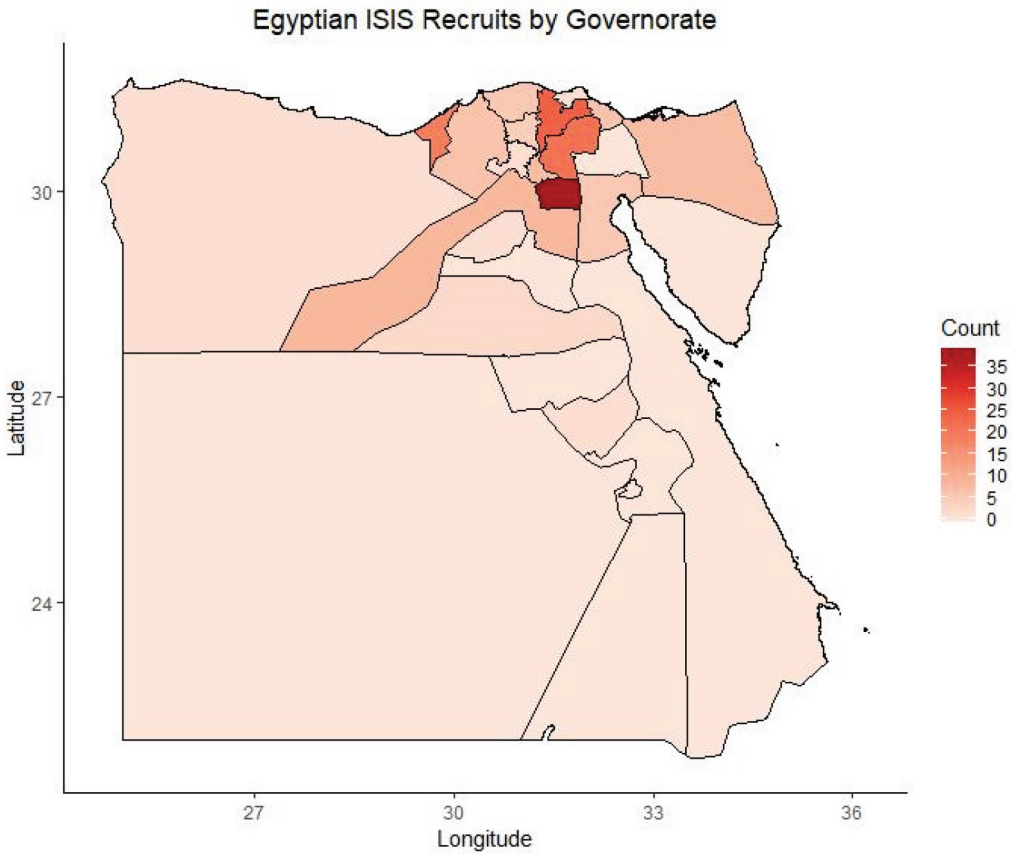


**Figure 5.** Egypt's ISIS foreign fighters. Darker governorates have the most foreign fighters.

North Sinai (Table 6 in the Online Appendix). Aside from that, most of Egypt's foreign fighters came from urban cities, such as Cairo and Online Alexandria.

Unlike Egypt and Morocco, Turkey stands out due to its proximity to Syria, as well as its strong Western cultural influence. Its history and socio-political traits make jihadi foreign fighter mobilization less likely.[112] Like Egypt, many Turkish foreign fighters came from cities. More than one-quarter of Turkish foreign fighters originated from Istanbul. Turning to Turkey in Figure 6, Ghazientab, a province on the border with Syria, has the most ISIS foreign fighters than any other province. About one-third of Turkish foreign fighters are from Ghazientab, despite 5 percent of the general population residing there.

Lastly, social networks may contribute to both the national variation and sub-national spatial clustering (particularly, in cities where networks are likely to be strongest). Because people tend to associate with others similar to themselves, this means that the characteristics of these foreign fighters are not entirely independent. Several papers discuss the importance of social networks in foreign fighter recruitment. Masbah[113] finds that Moroccan foreign fighters had established relational ties, either from a family, neighborhood, or business.[114] Additionally, Al Qaeda in Iraq employed similar recruitment tactics and recruited groups of friends.[115] While this does not fundamentally alter the results, it is a necessary dimension to take into consideration.

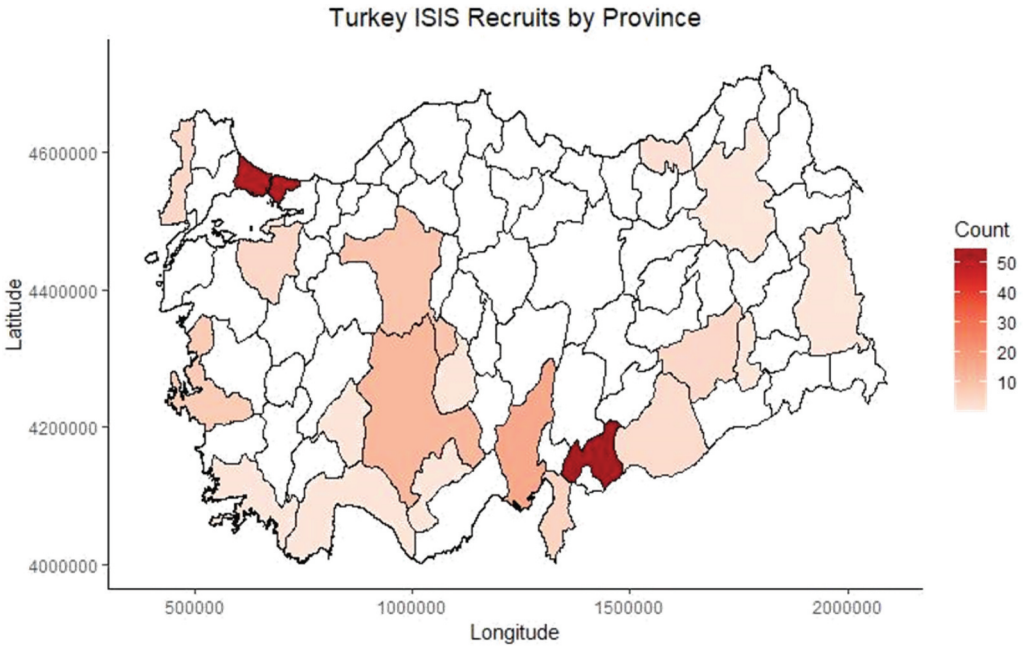


**Figure 6.** Turkey's ISIS foreign fighters. Provinces in white do not have any foreign fighters.

## Conclusion

In this article, I show that the foreign fighters who joined the Islamic State exhibit certain characteristics similar to those found in previous studies of other terrorist groups. Despite the difference in space and time, ISIS foreign fighters have a similar profile to members of Hamas, Hezbollah, the Palestinian Islamic Jihad, and even violent political activists in Bengal.[116] The men in all these samples are predominately male, well-educated, urban, unmarried, and young.

However, one important difference between ISIS foreign fighters and members of other extremist groups is that the Islamic State attracted both unskilled and skilled workers. The Islamic State's wages and the opportunity to improve the livelihood of its members can explain the large presence of unskilled workers. Furthermore, *Age* has a much smaller correlation that what we would expect. Compared to other terrorist organizations, there is a much broader age range of ISIS recruits. For example, the oldest ISIS foreign fighter in this sample is fifty-four, compared to thirty-eight for Hezbollah.[117] By far, a university education is the strongest correlate of joining a terrorist organization.

Understanding the supply of foreign recruits for terrorist organizations allows researchers to better predict its capabilities. This analysis has identified several distinguishing characteristics of foreign fighters. A common theme is that education may make certain individuals more prone to join a militant organization. The findings here demonstrate that those with a university education, but an unskilled job, are most likely to join the Islamic State. Thus, instead of focusing on access to education to reduce extremism, policy makers should develop global solutions aimed at reducing underemployment and on improving economic conditions. Future work should examine the impact of socio-economic grievances and participation in foreign fighting.

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## Disclosure statement

No potential conflict of interest was reported by the author(s).

## Notes on contributor

***Andrea Michelle Morris*** studies civil conflict, political violence, and terrorist recruitment. She was a Post-Doctoral Research Fellow at Washington University in St. Louis and received a PhD in Political Science from the University of Rochester in 2019.

## Notes

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82. Berrebi, "Evidence About the Link Between Education, Poverty and Terrorism Among Palestinians."
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84. See note 79 above.
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93. No education induces perfect separation for Morocco, so in the categorical models, *Education* is measured as a three-point scale.
94. The confidence intervals for Turkey are large because there are only twelve observations of Turkish foreign fighters with a university education (compared to over one hundred for Egypt and about fifty for Morocco).
95. See Barry K. Moser and Gary R. Stevens, "Homogeneity of Variance in the Two-Sample Means Test," *The American Statistician* 46, no. 1 (1992): 19–21; Graeme D. Ruxton, "The Unequal Variance T-Test is an Underused Alternative to Student's T-Test and the Mann–Whitney U Test," *Behavioral Ecology* 17, no. 4 (2006): 688–90.
96. Formally, this supports the alternative hypothesis that the "true difference in means is not equal to 0."
97. See note 38 above.
98. See note 17 above.
99. See note 5 above.
100. See note 17 above.
101. Ibid.
102. Jean-Pierre Katrib, "Understanding Jihadists in their Own Words," White Paper, https://www.maisondufutur.org/documents/pdf_manager/Jean-Pierre-Katrib.pdf.
103. See note 5 above.
104. Ibid.
105. Berrebi, "Evidence About the Link Between Education, Poverty and Terrorism Among Palestinians."
106. See note 5 above.
107. Ibid.
108. See note 57 above.
109. See note 5 above.
110. Ibid.
111. Ibid.
112. See note 58 above.
113. See note 5 above.
114. Ibid.
115. See note 86 above.
116. See note 19 above; Berrebi, "Evidence About the Link Between Education, Poverty and Terrorism Among Palestinians"; See note 22 above; See note 21 above.
117. See note 19 above.