Is Youth Unemployment Related to Domestic Terrorism?

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Abstract

The growing youth unemployment rate and population (youth bulge) in many countries raises concerns about their potential contributions to unrest and instability. In this article, we investigate the possible contributions of youth unemployment to domestic terrorism using a cross-country panel database. Our results show a positive relationship between youth unemployment and domestic terrorism, conditional upon different development factors, including corruption, government ineffectiveness and the absence of the rule of law. However, as expected, across countries, youth unemployment is not a significant predictor of transnational terrorism. We conclude by highlighting the need for deeper consideration of the role of unemployed youth in terrorism prevention strategies.

Keywords: grievances, recruitment, terrorism, youth, unemployment

Introduction

The youth bulge, a common phenomenon in many developing countries, is often attributed to a stage of development where a country's success in reducing infant mortality inadequately compensates for its persistently high fertility rate.[1] Without adequate development and job opportunities, a consequence of the youth bulge is high unemployment among youth who constitute a high percentage of the population.[2] Consequently, young workers are more likely than adults to be underemployed and living in poverty.[3] Youth unemployment potentially leads to despair, nonproductive labor-market trajectories, and stunted economic growth.[4]

The dire youth unemployment situation in less-developed countries (LDCs) is particularly troubling, especially in Sub-Saharan Africa (SSA) which faces the highest level (70 percent) of youth working poverty rate globally. [5] On average, of the 10 to 12 million youth entering the workforce, only 3.1 million jobs are created annually, leaving the vast majority unemployed.[6] For example, in Nigeria and Ghana, respectively 43 and 48 percent of youth aged 15–24 are unemployed or underemployed. Youth unemployment may also fuel youth out-migration from Africa, dependencies and stresses on adults, unrealized growth opportunities, youth restiveness and greater potential for radicalization and conflict.[7]

Many of the countries which are prone to political violence, especially terrorism, feature higher employment rates among the youth population than their adult population. For example, the Middle East and North Africa (MENA) region, which hosted around 40 percent of the total incidence of terrorist attacks in the 2011–2015 period, experienced a youth unemployment rate of 30 percent in 2019, double the global average.[8] The coincident increases in unrest and youth unemployment have raised questions about the possible link between youth unemployment, on the one hand, and conflict, political violence and even terrorism. Beehner (2007) contends that youth unemployment creates a large pool of disaffected youth who are more susceptible to recruitment into rebel or terrorist groups.[9] He also argued that countries with weak political institutions are most vulnerable to youth-bulge-related violence and social unrest.

Key global development organizations have highlighted these concerns, often with little empirical evidence. For example, the United Nations Security Council (2015), in a unanimous adoption of the resolution on threats posed by the radicalization of young people, identified the lack of employment among youth as a key driver of radicalization.[10] This claim was echoed by a World Bank study on ISIS, which found that even though 85% of the recruits had finished secondary school education, many of them were young, with low access to resources or employment.[11]

The limited credible empirical evidence on the link between youth unemployment (YU) and conflict, political violence or terrorism suggests the need for deeper empirical investigation. Several studies argue that a link

exists, but without empirical evidence. For example, Ajaegbu (2012) argues that because youth are less employed, they are more susceptible to a number of violent crimes in Nigeria.[12] In a study of fragile states by Okafor and Piesse (2018), they found that, in general, the youth unemployment rate is positively related to terrorism. However, they did not make a distinction between domestic terrorism (DT) and transnational terrorism (TT).[13]

We argue that a connection between youth unemployment and domestic terrorism makes more sense than with transnational terrorism. Because youth unemployment is a local issue, the expression of associated grievances is not likely to have transnational spillover effects. However, we do not discount the possibility that transnational terrorist groups and their local affiliates may exploit the local grievances to recruit operatives. Also, Okafor and Piesse (2018) did not empirically explore the interplay between youth unemployment and various other potential causal factors in terrorism that are alluded to in the literature, especially those that would seem to accentuate the grievances harbored by youth.[14] We also argue that evidence that adequately ties youth unemployment to domestic terrorism through the aggravating or moderating effect of grievances is potentially more useful in understanding the role of youth unemployment, in meeting the information needs of policies and programs directed at youth employment and in identifying potential hot spots of terrorism recruitment and activity.

The purpose of this article is to investigate the association between Youth Unemployment (YU) and Terrorism (T) across countries, with a focus on Domestic Terrorism (DT). We provide some rationale for this association by highlighting the role of youth unemployment in escalating grievances and facilitating the recruitment of young operatives, and explain how youth unemployment interacts with various institutional factors which the literature suggests are relevant, including corruption, government effectiveness and the rule of law. Using a cross-country panel data covering the 1996–2015 period, we also explore various forms of relationships between youth unemployment and domestic terrorism.

Review of Literature

In this section, we present preliminaries on youth population and unemployment issues in developing countries, review the literature which connects these two to conflict through the recruitment activities of terrorists, and highlight the distinction between domestic and transnational terrorism.

The United Nations defines "youth" as persons aged 15 to 24 years and "adults" as persons aged 25 years and over.[15] The UN defines the youth unemployment rate as the percentage of the youth population that is in the labor force (not as the percentage of the total population) [16] and states that its definition is only for statistical purposes and is without prejudice to other definitions.[17] Indeed, the definition of youth varies widely. For example, the African Union (AU) defines youth as persons aged 15–35.[18] However, for the purpose of this article, we adopt the UN and ILO definition of youth as persons in the age range of 15 and 24.

According to the United Nations (UN) Department of Economics and Social Affairs (DESA), there are 1.2 billion youth between 15 and 24 years worldwide, some of whom are in the labor force.[19] Most are largely concentrated in developing countries, with 226 million (19%) located in Africa alone. The African Development Bank (AfDB) projects that the population of youth in Africa will grow by 42 percent by 2030 and that by 2050, one in three of the world's youth between the ages of 10 and 24 will live in Africa.[20] The ILO also reports 64 million unemployed worldwide, and that 145 million working youth live in poverty.[21] By all definitions, both youth numbers and the youth unemployment rate are rising in most developing countries, especially in Sub-Saharan Africa, making tackling the youth bulge a key policy issue.

Some characteristics of youth and conditions in developing countries help explain the limited youth employment opportunities. From the standpoint of the supply-side of the youth labor market, on average, compared to the general population, youth in developing countries possess lower skills and education, have more-limited experience and are more dependent on their families for survival. A large proportion of employed youth are

engaged in the informal sector, which accounts for about 80 percent of jobs in some countries in Africa.[22] The above suggests a more serious and growing youth unemployment problem in Africa if adequate efforts are not implemented to increase the opportunities facing youth.

The general literature on youth and violence directly links youth unemployment to terrorism. It suggests that unemployed youth are typically more inclined to engage in such activities as cybercrime, armed robbery, kidnapping, hustling, petty theft, drugs (selling and using), prostitution and political violence.[23] Ajaegbu (2012) supports this notion by presenting similar reasons why youth are less employed and more susceptible to a number of violent crimes in Nigeria.[24] On average, youth are more energetic, rebellious, exploratory in nature, easily frustrated and have greater need to belong. Young people in developing countries today are more technologically advanced and use more modern methods of communication than youth in the past and other age groups in the present. For terrorist groups, this increases the number of ways in which radicalization and coercion can be achieved. For instance, al-Qaida's exploitation of the popularity of social media in the western world to indoctrinate youth is well documented.[25] These may suggest that they are easier to influence than other age groups and are more attractive to terrorist organizations.[26] The low opportunity cost from gainful employment in developing countries may imply greater ease of coopting unemployed or underemployed youth into terrorist activities. The combination of youth characteristics and the alarming statistics about youth above help to explain the growing global concern about the connection between youth unemployment and terrorism.

Some evidence from the literature indirectly support the notion that youth unemployment plays a role in terrorism. First, there is a growing indication that terrorist groups are targeting underserved youth for enlistment.[27] The relatively rapid growth in the youth population, especially in parts of Asia, Middle East and Africa, and the fact that the labor markets have not been able to fully absorb them, could present terrorist organizations with a growing potential recruitment pool. Second, previous studies have connected the unemployment rate with terrorism via the opportunity cost argument. Piazza (2006) provides empirical evidence to suggest that the stress caused by unfulfilled economic expectations could lead unemployed people to adopt political violence.[28] If this is true, the link between unemployment and political violence will be stronger for the youth. Finally, the growing economic and social inequality in developing countries is expected to lead to frustrations among young people. This collective anger can lead to terrorism in the presence of a terrorist organization, radical leadership, or a triggering incident. Political opportunists tend to exploit identity schisms and grievances to mobilize violent campaigns such as terrorism.

Because terrorism is motivated by political and ideological factors, grievances against social and political institutions which create unfavorable economic conditions could be catalysts for most forms of political violence. Especially, for youth who are 'outsiders' to the governance structures, their grievances may include holding those who they believe are responsible for their problems accountable. Terrorist organizations tend to exploit such resentment among young people by providing a violent platform to express their angst.[29] Young people who hold the political belief that their ethnicity, race or religion have roles to play in their current plight are particularly vulnerable to terrorist recruitments. For example, the revolts of the Arab Spring in 2011 were initiated by the frustrated angry youth who orchestrated them as a protest against political oppression and lack of economic opportunities.[30] While many of these protests did not directly lead to terrorism, they may have increased the likelihood of violent uprisings. If issues leading to mass grievances remain unsolved, some form of triggering incidents could turn it into violence. For instance, Boko Haram, one of the largest terrorist organisations in the world which was formed around 2002, was motivated by the economic and social backwardness of the northeastern region of Nigeria and the anger of people in that region against government corruption. The organization remained largely dormant in terms of violent activities until 2009, when security forces killed their leader, Ustaz Mohammed Yusuf.

In addition to youth-related factors, other economic factors have been shown to be related to terrorism. However, evidence on the role of economic factors in terrorism is unclear. For example, empirical studies investigating terrorism are divided in their findings regarding its relationship with economic variables. Krueger and Maleckova (2003) argue that economic conditions are not significant predictors of terrorist mobilizations. [31] However, Piazza (2011) argued that economic discrimination, especially among minority groups, will

lead to domestic terrorism.[32] Both studies were focused on domestic terrorism. No studies have compared the effects of youth unemployment on domestic and transnational terrorism. Because of the nature of youth, they are likely to perceive chronic unemployment as a form of economic and social discrimination, which are mostly domestic issues. The role of youth unemployment must therefore be examined in the context of other economic and social problems. It is also plausible that the role of youth unemployment is conditional on such factors.

Finally, we explore the few previous empirical investigations into the relationship between youth unemployment and conflict, unrest or terrorism. Using 1980–2014 data from 24 developing countries, Azeng and Yogo (2013) show that youth unemployment is significantly and positively related to the risk of political instability, but their study did not specifically address terrorism.[33] In investigating the relationship between the youth bulge and ethnic and nonethnic civil wars, Yair and Miodownic (2016) found that it contributes to the onset of nonethnic wars, but not ethnic wars. Again, this study did not directly evaluate terrorism.[34]

Caruso and Gavrilova (2012) suggest that the growth rate of youth unemployment positively affects the brutality and incidence of violence in the Palestinian context. However, their study did not explore terrorism specifically.[35] Urdal (2006) posits that the interaction between youth bulges, economic decline and expansion in higher education increases the risk of terrorism.[36] However, it too did not distinguish between domestic and transnational terrorism. In domestic terrorism, the victim and the perpetrator are both from the venue country. However, in transnational incidents, the nationality of one or more of the victims or perpetrators are not from the same country. For example, a terrorist attack in Iraq, by Iraqi terrorists, but on a British citizen, would be classified as a transnational event. Domestic terrorist incidents significantly outnumber transnational terrorist incidents. As argued above, youth unemployment seems more relevant in domestic terrorism, vis-à-vis, transnational. However, no study has directly examined the role of youth unemployment in terrorism, leaving a major gap in the literature on terrorism.

Conceptual Framework and Key Hypothesis

The standard economic modeling approach to explaining terrorism involves the opportunity cost argument. From this perspective, we argue that an unemployed young person faces a relatively lower opportunity cost of joining a terrorist organization, compared to his employed counterparts. Hence, marginal economic benefits provided by terrorist organizations could prove to be attractive for the unemployed youth. In a study of former al-Shabaab members, one-third of them revealed that the terrorist activities were a form of employment for them. According to them, the organization paid them well, with a salary ranging from $50 to $150, monthly, depending on the work.[37] On the contrary, an abundance of employment opportunities for potential recruits will imply more difficulties for terrorist organizations to recruit operatives. In this study, we argue that grievances held by unemployed youth are sufficient to escalate to terroristic violence, thereby increasing the incidence of terrorism in a country.

To formalize our empirical approach, we present the following conceptual model of the YU-T pathway based on the literature review above. From the supply side perspective of a terrorist organization, the production of terrorism can be generally represented as follows:

$$A = f(T, K) \tag{1}$$

where A is the total amount of terrorism produced (e.g., the number of attacks and number of fatalities), T is the youth recruitment pool available to the terrorist organization and K represents all other inputs such as financial resources, weapons, other strategic resources, adult operatives etc. Assume that A is increasing in both T and K. Given the amorphous nature of terrorist groups such as ISIS and Boko Haram, the relative ease of radicalization in recent times and the increase in 'lone-wolf terrorism' motivated by terror groups, T is entered directly into the production function. For example, many terrorist groups are comprised largely of young operatives, including suicide bombers. They also follow a decentralized, nonhierarchical structure to counter

anti-terrorism measures adopted by governments to ward off their recruitment activities. These include hidden cells which make their recruitment efforts very flexible. We assume that the effect of youth unemployment on terrorism production enters through T. In the rest of this section, we explain how decisions made by individual youth aggregate to form T, the recruitment pool, by building on the work of de Mesquita (2005).

Consider the case of the ith youth in a given country with n similar youth between the ages of 15 and 24 ($i =$ 1, 2, …, n). Assume that a terrorist group already exists which has a visible anti-government propaganda, capacity to meet some of the economic and ideological needs of the youth and the recruitment structure to lure the youth. The youth, therefore, has to decide between participating in normal productive economic activities, albeit dismal, and joining a terrorist group, which will apply his/her otherwise underutilized skills in destructive terrorism-related activities.

Each individual youth i possesses a utility function from engaging in the normal economic activities, represented by

$$U_i^e = f(\theta_i, \gamma), i = 1, 2, \ldots, n \tag{2}$$

where i denotes personal characteristics, and is the parameter that accounts for the general socioeconomic environment of the youth, such as youth employment. Note that i may include education, skills and experience. Also, note that it may include such factors as societal attitudes about youth, the general state of the economy, and the functioning of government. Now, we assume that $f(.)$ is increasing and concave in $_i$ so that the utility derived from engaging in productive employment is increasing in personal skills. Finally, $\frac{\delta f}{\delta \gamma} > 0$ for those conditions which improve the economy while $\frac{\delta f}{\delta \gamma} < 0$ for such conditions that reduce people's economic welfare.

The individual youth i's utility function from engaging in terrorist activities can be represented by

$$U_i^t = g(\theta_i, a_i(e_i, \gamma)) \tag{3}$$

where a_i is the total level of angst or grievances felt by the youth. We assume that these grievances are a function of mainly two factors. First factor, e_i, constitutes various religious, ethnic and ideological aspects unique to the individual while the second factor, γ arises from country-level socioeconomic conditions as previously discussed. These components will act independently and interactively to aggravate angst. Note that $g(.)$ is the utility from devoting full attention to terrorism. U_i^t, therefore, depends on $\theta_i, e_i,$ and γ.

We assume that $\frac{\delta g}{\delta \theta_i} > 0$. This means that the expected utility from success as a terrorist is an increasing function of his personal skills. One would expect $\frac{\delta g}{\delta a_i} > 0,$ meaning that as a youth feels more angst, his utility from terrorism increases. We also assume that $\frac{\delta a_i}{\delta e_i} > 0$, implying that the level of angst increases with negative feelings about marginalization on the basis of ethnicity, religion or any other sense of belonging. Hence, as the productive skill level of the ith youth increases, the utility derived from both economic and terrorist activities increase. This assumes that terrorists prefer skilled youth to under-skilled youth, ceteris paribus. The only difference is that terrorists apply the skills of youth differently than the economy does. Finally, we assume that $\frac{\delta a_i}{\delta \gamma} < 0$ for such economic conditions which improve the well-being of citizens while $\frac{\delta a_i}{\delta \gamma} > 0$ for conditions which reduce economic welfare.

Given the utility functions in equations (2) and (3), a young person will choose to join a terrorist organization when $U_i^t > U_i^e$. That is,

$$g(\theta_i, a_i(e_i, \gamma) > f(\theta_i, \gamma) \tag{4}$$

In other words, the youth's net payoff, T_i, if he decides to get involved in terrorist activities, is

$$T_i = g(\theta_i, a_i(e_i, \gamma) - f(\theta_i, \gamma) > 0 \tag{5}$$

For the sake of simplicity and to motivate the ensuing empirical analysis, we assume that γ denotes the youth unemployment rate. Taking the derivative of T_i with respect to youth unemployment rate (γ) yields:

$$\frac{\delta T_i}{\delta \gamma} = \frac{\delta g}{\delta a_i} \cdot \frac{\delta a_i}{\delta \gamma} - \frac{\delta f}{\delta \gamma} \tag{6}$$

Equation (6) suggests that a change in youth unemployment rate affects a potential recruit's payoff via two components: $\frac{\delta g}{\delta a_i} \cdot \frac{\delta a_i}{\delta \gamma}$ and $\frac{\delta f}{\delta \gamma}$. The first term represents how an increase in youth unemployment rate affects terrorist payoff through grievances against the authorities. The second term shows how an increase in youth unemployment rate affects potential terrorist payoff through a reduction in the opportunity cost involved. Both terms have positive signs based on the discussions above. Hence, the net effect of an increase in youth unemployment rate on the payoff from terrorist activities is positive.

Whether a given youth makes himself available to a terrorist organization, or not, is expressed as follows:

$$\alpha_i = \begin{cases} 1, if\ g(\theta_i, a_i\ (e_i, \gamma) - f(\theta_i, \gamma) > 0 \\ \\ 0, otherwise \end{cases} \tag{7}$$

where α_i is a binary choice variable ($\alpha_i = 1$ if available, and $\alpha_i = 0$ if not available). The total number of potential recruits available to a terrorist organization is therefore:

$$T = \sum_{i=1}^{n} \alpha_i = \sum_{i=1}^{n} \alpha_i\ (\theta_i, e_i, \gamma) = T\ (\bar{\theta}, \bar{e}, \gamma). \tag{8}$$

where $\bar{\theta}$ and $\bar{e}$ represents average values of θ_i and e_i of the recruit pool. From Equation (7) and (8), an implication of growing youth unemployment is that more youth are likely to choose terrorism. In empirical analysis, potential measures of A include indicators of terrorism activities such as terrorist attacks and fatalities, while potential measures of youth unemployment include youth unemployment numbers and youth unemployment rates (see Equations 1 and 8). From the above, we hypothesize that increased youth unemployment results in greater incidence of terrorism and that the impact is enhanced by increases in the level of angst.

Empirical Framework

In this article, our goal is to explain how variations across countries in different factors, including youth unemployment, may explain variations in measures of terrorism, especially domestic terrorism. We use data from 126 countries from the period 1996 to 2015, based on the availability of data on independent variables (see Appendix for the list of countries). The dependent variables include the number of terrorist attacks and the number of casualties. Because these variables are count measures, which take on nonnegative integer values, a natural choice of modeling would be a Poisson regression technique. However, a Poisson regression model assumes that the mean and the variance are equal for the dependent variable, which is an implausible assumption to make in our case. On the other hand, negative binomial regression techniques provide more flexibility in modeling by allowing separate parameters for the mean and the variance. Hence, we adopt a more flexible negative binomial model, which is a popular technique in studying the determinants of terrorism.[38]

It is standard to use country level fixed effects to control for the unobserved heterogeneity between countries. However, given the nature of our analysis, we avoid using country fixed effects and instead use regional and time dummies. The two main reasons for the omission of country fixed effects are as follows. First, for our primary independent variable, the youth unemployment rate, between-country variance accounts for a significant proportion of the total variation (70 percent), compared to the within-country variance. As in most large sample cross-country studies, between-country variation is very important and hence applying country level fixed effects would mean ignoring a large amount of variation in the analysis. Second, we use time invariant variables such as ethnic fractionalization which are important for our analysis. Applying fixed effects would mean dropping those variables from the analysis. However, we use both regional and time dummies to control for spatial and temporal heterogeneity. We also use country-clustered standard errors which are robust to autocorrelation and heteroskedasticity. The inclusion of per capita income controls for the varying income levels across countries, vis-à-vis others.

Our empirical model is as follows:

$$Terrorist\ attacks_{it} = \alpha + \beta_1 (Youth\ U)_{it} + \beta_2 (governance)_{it}$$
$$+\beta_3 (Youth\ U * governance)_{it} + \gamma X_{it} + \tau_t + \mu_r + \epsilon_{it}, \tag{9}$$

where i denotes i^{th} country; τ_t represents year dummies; μ_r represents regional dummies; and ϵ_{it} represents the error term. $Youth\ U$ represents the youth unemployment rate or the absolute number of unemployed youth. γ represents the coefficient vector of control variables and X_{it} denotes the vector of control variables. To operationalize the model, the key dependent variable, $Terrorist\ attacks_{it}$ is the annual number of terrorist attacks for a given country in each year. In addition, we use the number of attacks with casualties ($Attacks\ with\ casualties_{it}$) and the total number of casualties ($Casualties_{it}$) as dependent variables to measure incidence and virulence. For the three above-mentioned dependent variables, we make a domestic-transnational distinction in our analysis. For transnational attacks, one can construct the dependent variables based on venue, victim or terrorist nationality. However, we restrict our analysis to attacks based on country venue, as they are more relevant to our conceptual discussion.

We use the Global Terrorism Database (GTD) from the National Consortium for the Study of Terrorism and Responses to Terrorism (START) in this study.[39] The GTD codes information compiled from media articles into variables such as incidents location, target/victim information, terrorist group information and casualty. However, GTD does not record information about the perpetrator. Hence, a straightforward classification of terrorist incidents into domestic and transnational incidents is not possible. To correct for this deficiency, we use Enders et al. (2011) classification of GTD incidents. They categorize terrorist incidents into domestic, transnational and ambiguous events, based on victim's nationalities, target entities and some other factors.[40]

The primary explanatory variable, the youth unemployment rate, is the ILO estimate of the total number of unemployed people aged 15–24 as a percentage of total labor force in the same age category. Note that the ILO as well as other agencies of UN defines youth as persons between the age of 15–24. So, our definition of youth is consistent with definitions used by most international agencies. We also consider the absolute number of total unemployed youth as an alternative measure of youth unemployment. The approaches to the measure of youth unemployment rate variable vary across countries and hence, cross-country comparisons involving the variable are not free from flaws. However, ILO estimates are the best available cross-country measure of youth unemployment used in the literature. The ILO coordinates with national statistical systems, especially central statistical agencies and ministries responsible for labor issues, and with statistics offices of other international organizations in producing these statistics.

Based on our review of literature, we hypothesize that the role of youth unemployment on terrorism is amplified by the level of angst felt among groups due to ineffective governance. To measure quality of governance, we use *Govt. effectiveness*, *Rule of law*, and *Corruption* variables taken from Worldwide Governance Indicators (WGI) of the World Bank. WGI compiles country-level information about the nature of governance from 32 existing

data sources, which record perspectives of a representative sample of citizens, entrepreneurs, and experts from various sectors. The *Govt. effectiveness* variable is an assessment of the quality of the government institutions and consistency in implementation of policy decisions. The *Rule of law* variable represents independence of judicial system and corruption variable is the measure of red tapism and the likelihood of encountering corrupt officials.[41]

We use standard controls, including GDP per capita and population. Both are obtained from World Development Indicators (WDI) of the World Bank.[42] Terrorists seek attention and publicity for their activities through media coverage and, hence, we include a variable measuring *Freedom of Press* in the regressions. We try to control for the influence of *international war*s by including a dummy variable for whether the country was experiencing an international war during that given year. Regime characteristics are likely to influence incidents of terrorism. Hence, *polity* scores are also included as controls. The *polity score*, which is an aggregate index measuring the democratic nature of governments, varies from -10 for strongly autocratic to +10 for strongly democratic.[43] The index of *ethnic fractionalization* is included to reflect the probability that two randomly selected individuals from a given country will not belong to the same ethnic group.[44] This index ranges between 0 and 1, with higher values reflecting greater fractionalization.

Empirical Results

Tables 1 to 4 [see Appendix] present the negative binomial regression results for the different measures of domestic terrorism. Tables 5 and 6 [also in Appendix] show the results for transnational terrorism and total terrorism, respectively. Table 1 reports the parameter estimates associated with six different models relating the number of domestic terrorist attacks to hypothesized explanatory variables. These different regressions allow the exploration of multiple relationship structures and the concept that angst factors amplify the effects of unemployment among the youth on terrorism.

The coefficients of the YU rate and the log number of unemployed youth are statistically significant and have the expected positive signs in all relevant models. This suggests that youth unemployment contributes to terrorism. The coefficients of the corruption, rule of law, and government effectiveness variables are significant, but only when regressed along with the log of youth unemployment. The interpretation of the main effects of these variables, when interacted with other continuous variables as we did, are not straightforward and will be discussed in more detail below. All interaction terms are statistically significant and have the expected negative signs. Since high values of the WGI variables represent low levels of angst, a critical finding of our analysis is that the effect of youth unemployment on domestic terrorism is amplified at high levels of angst or grievances. This basic result is consistent with our expectations and lends support to current thinking in policy circles that youth unemployment contributes to terrorism attacks. As we will discuss next, it further highlights the aggravating roles of angst factors in the YU-T pathway.

Now, we examine the coefficients of the control variables. In all the models except 4, the coefficients of the population variable are statistically significant and have the expected positive signs. Enders et al. (2016) suggest a nonlinear relationship between country's national income and the amount of terrorism produced. Hence, we include a quadratic GDP per capita term.[45] A negative sign for the linear term and a positive sign for the quadratic term in models 4 to 6 indicate that as absolute level of GDP per capita increases, the negative effect of GDP on domestic terrorism diminishes. The estimated positive coefficients of the polity variable across all six models in table 1 indicate that domestic terrorism increases with improved polity scores. This result suggests that autocratic societies are better at containing terrorist activities gaining a large audience because of government-controlled media and other forms of oppression. Such countries have strong control over media and use other forms of control and oppression to make sure the terrorists do not get a large audience.

In regressions involving interaction terms, note that the coefficients of the youth unemployment rate show the impacts on terrorism when the values of WGI indicators equal zero. Since these indicators range from -2.5 to 2.5 in value (higher values indicate better governance), a zero value does not mean much. Therefore, we

generate Table 2, which shows the effect of the youth unemployment rate on terrorism at different levels of WGI indicators. We divide each WGI indicators into percentiles, and for values corresponding to each percentile, we report the effect of youth unemployment rate on domestic terrorism and their associated significance levels. As evident from the table, youth unemployment is estimated to have a significant impact on domestic terrorism when corruption is high, government effectiveness is low, and people's confidence in the judiciary is low. This result provides evidence to support our initial argument that grievances against government and authorities aggravate the impact of youth unemployment on terrorism.

Youth unemployment rate and WGI indicators could be endogenous in the empirical model because these variables, being indicators of economic and social well-being, are also influenced by the extent of terrorism in a host country. To test for the endogeneity of these variables, we use a version of the Hausman test utilized in some previous terrorism studies.[46] This method requires two major steps. First, we estimate a reduced-form equation for both endogenous variables using the exogenous variables used in the original regression model used to predict terrorism. Second, the residuals obtained from the first step are included as a control variable in the negative binomial model predicting terrorism to mitigate the endogeneity bias. As shown in Appendix tables C and D, our main results hold when we control for the endogeneity bias. The extent of human casualties from terrorist attacks show the lethality of terrorist organizations and recklessness of involved operatives. For transnational terrorist incidents, after 1997, there has been a significant increase in the number of casualties, indicating the lethal nature of religious fundamentalist terrorists, compared to left-wing extremists.[47] Also, certain terrorist attacks are more aimed at generating resources for future operations than to inflict casualties (e.g., hostage-taking for ransoms, attacks on agricultural land and warehouses). Hence, to capture the deadliness of attacks, we use two other dependent variables: the total number of terrorist attacks with casualties (Table 3), and the total number of casualties (Table 4).

In Table 3, the absolute number of unemployed youth remains a significant predictor of terrorism casualties. The youth unemployment rate is insignificant in all models except in model 3, where it is significant only at the 10% level. For models 4–6, GDP per capita is significant with a negative sign for the linear term and a positive sign for the quadratic term. This suggests that as the GDP increases, the number of attacks with casualties decreases at a slowing rate. The estimated positive polity score coefficient reiterates results from Table 1 regressions that it is harder for domestic terrorism to flourish in relatively autocratic societies. The population variable maintains the expected positive signs.

Now, we examine the results related to the total number of casualties (Table 4). The results are similar to attacks with casualties and attacks in general. The youth unemployment level maintains its positive effect on the total number of casualties whereas there is no evidence of the youth unemployment rate affecting the number of casualties. The GDP per capita and population variables follow similar patterns as in Table 3.

In Table 5, we explain the results pertaining to transnational terrorist attacks from a location perspective. In these models, we did not account for the effects of youth unemployment on terrorism related to the WGIs. The youth unemployment rate and number of unemployment youth are not statistically significant, except for model 2 where it is positively related. These results demand some explanation. Transnational terrorist attacks involve different nationalities vis-à-vis location, victims and the perpetrators. Hence, economic and political factors corresponding to the venue country may not explain the underlying root causes. So, it is not surprising that transnational terrorist incidents are not explained by youth unemployment rate in the venue country. The coefficients of other control variables are similar to the ones for domestic attacks.

Finally, we examine the association between all terrorist attacks and youth unemployment (Table 6). The results are similar to those of domestic terrorism, with both youth unemployment rate and youth unemployment levels significant across all models. Statistically significant, negative coefficients for interaction terms, including WGI variables, indicate that the effect of youth unemployment on total terrorism is amplified at high levels of angst or grievances. These results are not surprising given the fact that in our sample, domestic terrorist attacks accounts for around 80% of total attacks.

Conclusion and Policy Implications

Globally, youth unemployment is growing both in rate and levels. Along with many other social and economic consequences, these increases have been largely interpreted by policy makers as security threats. Several programs and initiatives around the globe have therefore focused on addressing the potential impacts of the youth bulge and the growing youth unemployment rates on the likelihoods of unrest. Examples include youth skills acquisition programs, youth employment and entrepreneurial schemes and other policy interventions designed to counter violent extremism and curb unrest through youth development and empowerment.

The literature on terrorism has long recognized the important role of grievances in spurring violence and in luring people to violence and unrest. The literature has also recognized the role of adverse economic conditions in terrorism, violence and unrest. Young people tend to possess low skills, earn lower incomes and face fewer employment opportunities than their adult counterparts. We expect unemployed, underserved, low-income youth to be particularly vulnerable to terrorism, especially those that have high levels of angst.

Knowing that young people are particularly vulnerable, significant attention to curbing youth unemployment may be justified, especially considering the growing incidence around the globe. Our analysis suggests that youth unemployment may contribute positively to the incidence of terrorism as we look across countries. This contribution is expected to be channeled by facilitating the recruitment of young operatives. However, we also find that the role of youth unemployment is further amplified by greater incidence of corruption, public perceptions of government ineffectiveness and absence of a strong rule of law. The finding that the impact of youth unemployment on terrorism increases with the level of grievances suggests that countries facing significant unemployed youth population and ineffective governance are more prone to terrorist activities. Given the increasing proportion of youth in the population of Africa, we expect that this factor alone will result in increased security problems. Hence, efforts to better manage youth unemployment should be considered alongside other policies to address national security problems such as improved governance, deradicalization, socioeconomic inclusion and improved transparency. The recent emergence of the COVID-19 pandemic has further worsened the unemployment rates in many parts of the world, including many countries in Africa. This means that managing grievances of disgruntled populations will remain a challenging task in years to come.

Our contribution is noteworthy for the following reasons. First, we expand on the rationale for expecting youth unemployment to lead to a surge in domestic terrorist activities by highlighting its role in escalating grievances and facilitating the recruitment of young operatives. Second, in our empirical analysis, we make a distinction between domestic and transnational terrorism. Third, our empirical analysis allows us to explain how youth unemployment interacts with various institutional factors which the literature suggests are relevant, including corruption, government effectiveness and the rule of law. Finally, we use a variety of dependent variable measures such as number of attacks, number of attacks with casualties and number of casualties, allowing us to look at both the frequency and lethality of terrorism and its relationship with youth unemployment.

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Appendix: Tables 1 – 6

Table 1: Negative Binomial Regression Results for Domestic Attacks

Independent variables	Dependent variable: Total number of domestic attacks					
	(1)	(2)	(3)	(4)	(5)	(6)
Youth unemp. rate	0.025**	0.024**	0.036***			
	(0.01)	(0.01)	(0.01)			
Log (Unemp. youth)				0.627***	0.444**	0.599***
				(0.19)	(0.19)	(0.19)
Corruption	0.038			2.138**		
	(0.30)			(1.03)		
Rule of law		-0.360			3.312***	
		(0.28)			(1.07)	
Govt. effectiveness			0.394			4.391***
			(0.33)			(1.16)
Youth Unemp. Rate × Corruption	-0.028**					
	(0.01)					
Youth unemp. rate × Rule of law		-0.026**				
		(0.01)				
Youth unemp. rate × Govt. effect			-0.032**			
			(0.02)			
Log (Unemp. youth) × Corruption				-0.253***		
				(0.09)		
Log (Unemp. youth) × Rule of law					-0.363***	
					(0.09)	
Log (Unemp. youth) × Govt. effect						-0.408***
						(0.10)
Log Population	1.029***	1.026***	1.103***	0.308	0.534***	0.497**
	(0.09)	(0.08)	(0.08)	(0.20)	(0.20)	(0.21)
Log GDP per capita	-1.696	-2.342	-2.397	-5.333***	-5.413***	-5.488***
	(1.53)	(1.59)	(1.59)	(1.89)	(1.84)	(1.88)
(Log GDP per capita)^2	0.104	0.152*	0.131	0.324***	0.332***	0.316***
	(0.08)	(0.09)	(0.09)	(0.11)	(0.10)	(0.10)

Table 1 (Continued): Negative Binomial Regression Results for Domestic Attacks

Independent variables	Dependent variable: Total number of domestic attacks					
	(1)	(2)	(3)	(4)	(5)	(6)
Ethnic frac.	0.530	0.285	0.793	-1.729***	-1.706***	-1.167*
	(0.62)	(0.60)	(0.62)	(0.66)	(0.61)	(0.65)
Polity	0.101***	0.112***	0.098***	0.113***	0.134***	0.112***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Freedom of press	0.327	0.532*	0.276	-0.076	-0.012	-0.271
	(0.32)	(0.31)	(0.32)	(0.34)	(0.34)	(0.34)
International wars	-0.312	-0.392	-0.325	-20.986***	-18.916***	-15.207***
	(0.56)	(0.54)	(0.57)	(0.70)	(0.70)	(0.71)
Constant	-11.572*	-9.764	-9.082	8.305	6.589	7.450
	(6.48)	(6.74)	(6.73)	(8.28)	(7.98)	(7.99)
Wald χ^2	851.565	1004.147	827.445	2551.116	2395.581	1703.916

Table 2: Marginal Effects of Youth Unemployment Rate on Domestic Terrorism
(at varying levels of WGIs)

Percentile	Corruption	Rule of law	Government effectiveness
Tenth	5.206**	5.953***	5.796**
	(2.16)	(2.28)	(2.32)
Twentieth	4.324**	4.636***	5.034**
	(1.81)	(1.78)	(2.02)
Thirtieth	3.678**	3.808**	4.577**
	(1.57)	(1.49)	(1.85)
Fortieth	3.012**	2.972**	4.067**
	(1.34)	(1.20)	(1.68)
Fiftieth	2.419**	2.345**	3.558**
	(1.16)	(0.99)	(1.52)
Sixtieth	1.840*	1.357**	3.022**
	(1.01)	(0.68)	(1.38)
Seventieth	1.085	0.660	2.025
	(0.90)	(0.50)	(1.23)
Eightieth	0.038	0.009	0.193
	(1.04)	(0.45)	(1.68)
Ninetieth	-0.843	-0.330	-1.594
	(1.52)	(0.51)	(2.97)

Table 3: Negative Binomial Regression Results for Domestic Attacks with Casualties

Independent variables	Dependent variable: Total number of domestic attacks with casualties					
	(1)	(2)	(3)	(4)	(5)	(6)
Youth unemp. rate	0.007 (0.01)	0.001 (0.01)	0.020* (0.01)			
Log (Unemp. youth)				0.555*** (0.19)	0.236 (0.20)	0.518** (0.20)
Corruption	0.833** (0.38)			3.463*** (1.32)		
Rule of law		-0.049 (0.33)			4.488*** (1.18)	
Govt. effectiveness			1.043*** (0.38)			5.329*** (1.43)
Youth Unemp. Rate × Corruption	-0.067*** (0.02)					
Youth unemp. rate × Rule of law		-0.052*** (0.01)				
Youth unemp. rate × Govt. effect			-0.069*** (0.02)			
Log (Unemp. youth) × Corruption				-0.333*** (0.11)		
Log (Unemp. youth) × Rule of law					-0.461*** (0.10)	
Log (Unemp. youth) × Govt. effect						-0.470*** (0.12)
Log Population	1.156*** (0.12)	1.038*** (0.10)	1.182*** (0.11)	0.438* (0.22)	0.737*** (0.23)	0.591** (0.24)
Log GDP per capita	-0.317 (1.84)	-0.691 (1.77)	-1.647 (1.75)	-3.435** (1.75)	-3.339** (1.69)	-3.712** (1.83)

Table 3 (Continued): Negative Binomial Regression Results for Domestic Attacks with Casualties

Independent variables	Dependent variable: Total number of domestic attacks with casualties					
	(1)	(2)	(3)	(4)	(5)	(6)
(Log GDP per capita)$_2$	0.022	0.062	0.085	0.196**	0.205**	0.201**
	(0.10)	(0.09)	(0.09)	(0.10)	(0.09)	(0.10)
Ethnic frac.	0.959	0.272	0.758	-1.290*	-1.702***	-1.055
	(0.67)	(0.60)	(0.64)	(0.72)	(0.64)	(0.67)
Polity	0.081***	0.090***	0.080***	0.087***	0.115***	0.087***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Freedom of press	-0.637*	-0.258	-0.657*	-0.906***	-0.769**	-1.163***
	(0.36)	(0.33)	(0.34)	(0.34)	(0.34)	(0.35)
International wars	-17.945***	-17.986***	-18.847***	-17.981***	-19.440***	-20.740***
	(0.87)	(0.90)	(0.90)	(0.89)	(0.87)	(0.88)
Constant	-20.080***	-17.839**	-13.935*	-0.654	-3.336	-0.235
	(7.62)	(7.48)	(7.33)	(7.62)	(7.46)	(7.82)
Wald χ_2	1383.038	1577.660	1401.788	1673.258	2087.502	1932.942

Table 4: Negative Binomial Regression Results for Total Number of Casualties in Domestic Attacks

Independent variables	Dependent variable: Total number of casualties in domestic attacks					
	(1)	(2)	(3)	(4)	(5)	(6)
Youth unemp. rate	0.015	0.002	0.026*			
	(0.02)	(0.01)	(0.01)			
Log (Unemp. youth)				1.150***	0.623**	1.066***
				(0.24)	(0.26)	(0.24)
Corruption	1.642***			6.574***		
	(0.45)			(1.72)		
Rule of law		0.718*			8.922***	
		(0.43)			(1.63)	
Govt. effectiveness			1.865***			9.259***
			(0.46)			(1.82)
Youth Unemp. Rate × Corruption	-0.100***					
	(0.02)					
Youth unemp. rate × Rule of law		-0.097***				
		(0.02)				
Youth unemp. rate × Govt. effect			-0.117***			
			(0.02)			
Log (Unemp. youth) × Corruption				-0.583***		
				(0.15)		
Log (Unemp. youth) × Rule of law					-0.830***	
					(0.14)	
Log (Unemp. youth) × Govt. effect						-0.797***
						(0.16)
Log Population	1.624***	1.514***	1.627***	0.315	0.729***	0.540**
	(0.17)	(0.14)	(0.14)	(0.25)	(0.26)	(0.25)
Log GDP per capita	-2.980	-3.630	-4.248**	-10.731***	-10.754***	-10.962***
	(2.07)	(2.23)	(2.00)	(2.67)	(2.43)	(2.37)

Table 4 (Continued): Negative Binomial Regression Results for Total Number of Casualties in Domestic Attacks

Independent variables	Dependent variable: Total number of casualties in domestic attacks					
	(1)	(2)	(3)	(4)	(5)	(6)
(Log GDP per capita)^2	0.176	0.231*	0.232**	0.622***	0.641***	0.631***
	(0.12)	(0.13)	(0.11)	(0.16)	(0.14)	(0.14)
Ethnic frac.	-0.059	-1.246	-0.877	-2.868***	-3.539***	-2.948***
	(0.91)	(0.79)	(0.80)	(0.92)	(0.80)	(0.86)
Polity	0.026	0.046	0.036	0.036	0.073**	0.031
	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Freedom of press	-0.448	0.147	-0.200	-1.567**	-1.704***	-1.899***
	(0.63)	(0.55)	(0.56)	(0.65)	(0.63)	(0.67)
International wars	-17.813***	-20.420***	-21.933***	-17.917***	-19.241***	-19.024***
	(0.90)	(0.98)	(1.04)	(0.90)	(0.87)	(0.89)
Constant	-15.753*	-12.360	-9.224	26.044**	25.041**	25.325**
	(8.30)	(9.63)	(8.27)	(12.15)	(10.97)	(10.41)
Wald χ^2	1292.348	1471.142	1422.315	1521.794	1784.551	1702.017

Table 5: Negative Binomial Regression Results for Transnational Terrorism: Total Number of Attacks, Attacks with Casualties, and Casualties

Independent variables	Attacks (1)	Attacks (2)	Attacks with casualties (3)	Attacks with casualties (4)	No. of casualties (5)	No. of casualties (6)
Youth unemp. rate	0.010		-0.002		-0.008	
	(0.01)		(0.01)		(0.01)	
Log (Unemp. youth)		0.420***		0.182		0.189
		(0.14)		(0.17)		(0.24)
Log Population	0.678***	0.188	0.690***	0.454**	1.219***	1.059***
	(0.06)	(0.15)	(0.07)	(0.19)	(0.11)	(0.24)
Log GDP per capita	-1.897	-3.192**	-0.780	-1.606	1.476	-0.174
	(1.18)	(1.27)	(1.22)	(1.36)	(1.74)	(2.02)
(Log GDP per capita)^2	0.106*	0.185***	0.046	0.096	-0.052	0.049
	(0.06)	(0.07)	(0.07)	(0.07)	(0.10)	(0.11)
Ethnic frac.	0.656	0.273	1.193**	1.495**	1.977***	2.378***
	(0.45)	(0.52)	(0.54)	(0.71)	(0.68)	(0.78)
Polity	0.075***	0.075***	0.052***	0.046***	0.086***	0.064**
	(0.01)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Freedom of press	-0.163	-0.326	-0.882***	-0.858***	-1.634***	-1.765***
	(0.22)	(0.25)	(0.22)	(0.25)	(0.36)	(0.43)
International wars	-2.371***	-2.340***	-2.207***	-2.289***	-4.042***	-4.649***
	(0.41)	(0.39)	(0.37)	(0.39)	(0.65)	(0.74)
Constant	-3.432	5.066	-10.242*	-4.890	-30.511***	-23.634**
	(5.10)	(5.92)	(5.28)	(6.56)	(7.49)	(9.33)
Wald χ^2	551.450	496.806	460.359	475.232	494.925	437.497

Table 6: Negative Binomial Regression Results for All Terrorist Attacks (Domestic + Transnational)

Independent variables	Dependent variable: Total number of attacks (domestic + transnational)					
	(1)	(2)	(3)	(4)	(5)	(6)
Youth unemp. rate	0.027***	0.026***	0.035***			
	(0.01)	(0.01)	(0.01)			
Log (Unemp. youth)				0.664***	0.527***	0.623***
				(0.18)	(0.19)	(0.18)
Corruption	-0.068			1.585		
	(0.29)			(1.03)		
Rule of law		-0.473*			2.243**	
		(0.27)			(1.05)	
Govt. effectiveness			0.173			3.233***
			(0.31)			(1.17)
Youth Unemp. Rate × Corruption	-0.023*					
	(0.01)					
Youth unemp. rate × Rule of law		-0.020*				
		(0.01)				
Youth unemp. rate × Govt. effect			-0.026*			
			(0.01)			
Log (Unemp. youth) × Corruption				-0.207**		
				(0.09)		
Log (Unemp. youth) × Rule of law					-0.275***	
					(0.09)	
Log (Unemp. youth) × Govt. effect						-0.317***
						(0.10)
Log Population	0.996***	1.001***	1.065***	0.239	0.427**	0.421**
	(0.08)	(0.08)	(0.08)	(0.19)	(0.19)	(0.20)
Log GDP per capita	-2.113	-2.559*	-2.754*	-5.535***	-5.443***	-5.531***
	(1.52)	(1.55)	(1.59)	(1.87)	(1.81)	(1.88)

Table 6 (Continued): Negative Binomial Regression Results for All Terrorist Attacks (Domestic + Transnational)

Independent variables	Dependent variable: Total number of attacks (domestic + transnational)					
	(1)	(2)	(3)	(4)	(5)	(6)
$(Log\ GDP\ per\ capita)^2$	0.176	0.231*	0.232**	0.622***	0.641***	0.631***
	(0.12)	(0.13)	(0.11)	(0.16)	(0.14)	(0.14)
Ethnic frac.	-0.059	-1.246	-0.877	-2.868***	-3.539***	-2.948***
	(0.91)	(0.79)	(0.80)	(0.92)	(0.80)	(0.86)
Polity	0.026	0.046	0.036	0.036	0.073**	0.031
	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Freedom of press	-0.448	0.147	-0.200	-1.567**	-1.704***	-1.899***
	(0.63)	(0.55)	(0.56)	(0.65)	(0.63)	(0.67)
International wars	-17.813***	-20.420***	-21.933***	-17.917***	-19.241***	-19.024***
	(0.90)	(0.98)	(1.04)	(0.90)	(0.87)	(0.89)
Constant	-15.753*	-12.360	-9.224	26.044**	25.041**	25.325**
	(8.30)	(9.63)	(8.27)	(12.15)	(10.97)	(10.41)
Wald χ^2	869.131	1034.951	853.241	2224.94	2309.016	1485.155

Notes

[1] Justin Yifu Lin, (2012) "Youth bulge: A demographic dividend or a demographic bomb in developing countries?", World Bank Blog, 2012.

[2] Jennifer Gidley and Sohail Inayatullah, (2002) Youth futures: Comparative research and transformative visions. Westport, CT: Praeger.

[3] ILO, (2011b) "Youth unemployment in the Arab world is a major cause for rebellion", Geneva: International Labor Organization.

[4] Jennifer Gidley and Sohail Inayatullah, (2002) op. cit.

[5] ILO, (2011a) "World employment and social outlook: Trends", Geneva: International Labor Organization.

[6] The AfDB cites the following additional demand-side reason for youth unemployment in Africa: (a) the investment climate is hardly conducive to the creation of productive jobs, especially in the informal sector where the bulk of the youth is condemned to precarious jobs; (b) the low potential for job creation for the youth due to heavy dependence on primary commodity exports by African countries; and (c) the weak institutional capacity and infrastructure, especially in the rural areas.

[7] Mains, Daniel, (2011) "Hope Is Cut: Youth, Unemployment, and the Future in Urban Ethiopia." Philadelphia: Temple University Press, 2011. muse.jhu.edu/book/12828.

[8] Anthony H. Cordesman, (2017) "Tracking the Trends and Numbers: Islam, Terrorism, Stability, and Conflict in the Middle East", Washington, DC: Center for Strategic & International Studies.

[9] Lionel Beehner, (2007) "The effects of the youth bulge on civil conflicts", Council of Foreign Relations: New York.

[10] United Nations Security Council, (2015) "Unanimously Adopting Resolution 2250 Urges Member States to Increase Representation of Youth in Decision-Making at All Levels", New York: UN.

[11] Bethan McKernan, (2016) "Secret ISIS files reveal fighters are relatively educated and well-off but unemployed." Independent; URL: https://www.independent.co.uk/news/world/middle-east/isis-secret-files-fighters-soldiers-who-are-they-educated-wealthy-unemployed-a7350366.html.

Diego Gambetta and Steffen Hertog, (2016) "Engineers of Jihad: The curious connection between violent extremism and education." Princeton, NJ: Princeton University Press.

[12] Okechukwu Odinaka Ajaegbu, (2012) "Rising youth unemployment and violent crime in Nigeria", American Journal of Social Issues & Humanities, 2 (5): pp. 315–321.

[13] Okafor, Godwin and Jenifer Piesse, (2018) "Empirical Investigation into the Determinants of Terrorism: Evidence from Fragile States", Defence and Peace Economics 29 (6): pp. 697–711.

[14] Ibid.

[15] United Nations Department of Economic and Social Affairs, (2015). "Youth population trends and sustainable development", UN-DESA, New York.

[16] It is important to note that due to the lack of consistent data across countries, the ILO numbers are only estimates.

[17] ILO, (2011a), op. cit.

[18] AfDB, (2015) "Jobs for youth in Africa: Catalyzing youth opportunities across Africa", African Development Bank: Abidjan.

[19] United Nations Department of Economic and Social Affairs, (2015), op. cit.

[20] AfDB, (2015), op. cit.

[21] ILO, (2019) "World Employment Social Outlook", Geneva: International Labor Organization.

[22] Ibid.

[23] See for example, Chesler L. Britt, (1994) "Crime and unemployment among youths in the United States, 1958–1990: A Time Series Analysis", The American Journal of Economics and Sociology, 10 (1), pp. 99–109.

[24] Okechukwu Odinaka Ajaegbu, (2012), op. cit.

[25] Thompson, Robin, (2011), "Radicalization and the Use of Social Media", Journal of Strategic Security, 4 (4), pp. 161–190.

[26] See for example, Scott Gates, (2002), "Recruitment and allegiance: The microfoundations of rebellion", Journal of Conflict Resolution, 46 (1), pp. 111–130.

[27] Daniel Hart, Robert Atkins and James Youniss, (2005) "Knowledge, youth bulges, and rebellion.", Psychological Science, 16 (8), pp. 661–662.

[28] James A. Piazza, (2006) "Rooted in Poverty?: Terrorism, poor economic development, and social cleavages", Terrorism and Political Violence, 18 (1), pp. 159–177.

[29] ILO, (2011b), op. cit.

[30] ILO, (2011b), op. cit.

[31] Alan B. Krueger and Jitka Maleckova J., (2003), "Education, poverty and terrorism: Is there a casual connection?", Journal of Economic Perspectives, 17 (4), pp. 119–144.

[32] James A. Piazza, (2011) "Poverty, minority economic discrimination and domestic terrorism", Journal of Peace Research, 48 (3), pp. 339–353.

[33] Therese F. Azeng and Thierry U. Yogo, (2013) "Youth unemployment and political instability in selected developing countries", working Paper Series No. 171. African Development Bank: Abidjan.

[34] Omer Yair and Dan Miodownik, (2016), "Youth bulge and civil war: Why a country's share of young adults explains only non-ethnic wars", Conflict Management and Peace Science, 33 (1), pp. 5–44.

[35] Raul Caruso and Evelina Gavrilova, (2012) ,"Youth unemployment, terrorism and political violence: Evidence from the Israeli/ Palestinian conflict", Peace Economics, Peace Science and Public Policy, 18, pp. 1–35.

[36] Henrik Urdal, (2006) "A clash of generations? Youth bulges and political violence", International Studies Quarterly, 50, pp. 607–629.

[37] Muhsin Hassan, (2012) "Understanding Drivers of Violent Extremism: The Case of al-Shabab and Somali Youth", Combating Terrorism Center: New York.

[38] Javed Younas and Todd Sandler, (2017) "Gender Imbalance and Terrorism in developing countries", Journal of Conflict Resolution, 61 (3), pp. 483–510.

[39] START (National Consortium for the Study of Terrorism and Responses to Terrorism), (2017). Global Terrorism Database. Accessed September 8, 2017; URL: https://www.start.umd.edu.

[40] Walter Enders and Todd Sandler and Khusrav Gaibulloev, (2011) "Domestic versus transnational terrorism: Data, decomposition, and dynamics", Journal of Peace Research 48 (3), pp. 319–337.

[41] Daniel Kaufmann, Aart Kraay and Massimo Mastruzzi, (2009) "Governance Matters VIII: Aggregate and Individual Governance Indicators, 1996–2008", Policy Research Working Paper, no. 4978, Washington, DC: World Bank.

[42] World Bank, (2017) "World Development Indicators (WDI)", Accessed March 12, 2017. URL: https://data.worldbank.org/data-catalog/world-development-indicators/wdi-2016.

[43] Monty G. Marshall, Ted Robert Gurr and Keith Jaggers (2014) "Polity IV Project, Political Regime Characteristics and Transitions." Center for Systemic Peace: Vienna, VA.

[44] Alberto Alesina Arnaud Devleeschauwer, William Easterly, Sergio Kurlat, and Romain Wacziarq, (2003) "Fractionalization", Journal of Economic Growth 8 (2), pp. 155–194.

[45] Walter Enders, Gary A. Hoover and Todd Sandler, (2016) "The changing non-linear relationship between income and terrorism." Journal of Conflict Resolution 60 (2), pp. 195–225.

[46] Jean-Paul and Veronique Thelen, (2008) "The role of foreign aid and education in the war on terror", Public Choice 135 (3–4), pp. 375–397.

[47] Walter Enders and Todd Sandler, (2000) "Is transnational terrorism becoming more threatening? A time-series investigation", Journal of Conflict Resolution 44 (3), pp. 307–332.