Terrorism and Women's Employment in Afghanistan[1]

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Abstract

Afghanistan is one of the most dangerous countries for women and has the sixth lowest women's employment rate globally. The low participation rate represents a large loss of potential economic activity and raising it could have large effects on growth. Security concerns are a key underlying barrier preventing women from working, but there is little work estimating the magnitude of a mechanism behind these effects. We address this gap in the literature by estimating the relationship between terrorism and women's employment. We link a representative household survey, the 2015 Demographic and Health Survey (DHS), to the Global Terrorism Database (GTD), which catalogues terrorist attacks, locations, and fatalities. We find that the number of attacks per month in a given province is negatively associated in the following month to both men's and women's employment, yet the relative magnitude is larger for women due to their low employment rate. Conversely, we find that fatalities from these attacks are positively associated with women's employment in non-agricultural sector in rural areas. This research illuminates a potential link between women's employment and terrorism, thus adding to the ever-increasing knowledge of the costs of conflict.

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1. Introduction

Examining a broad swath of economic and political indicators on women in Afghanistan paints a dismal picture. Female labor force participation (FLFP) in Afghanistan is the sixth lowest in the world at 19% (ILO, 2016). Afghanistan also ranks last on the Women, Peace and Security Index, which measures a woman's well-being at home, in her community, and in the broader society (GIWPS, 2018). Mired in a decades-long war, it is reasonable to hypothesize that violence and low female labor force participation are linked. Alongside, research shows that security concerns are a key factor inhibiting FLFP in Afghanistan (Desai and Li, 2016). Empowering women to participate in the labor force could make monumental improvements for Afghanistan's economy, and improving security is likely a part of the solution (Elborgh-Woytek et al., 2013; Powell, 2014; Desai and Li, 2016).

We investigate the relationship between violence and women's employment with a focus on two primary questions: first, is the number of terrorist attacks and casualties positively associated with women's employment?; and second, is that relationship with attacks different for men's employment? We show that the number of attacks in a given province in the previous month is negatively associated with women's employment, while in some cases casualties have a positive relationship to employment. We hypothesized that the relationship between terrorism and employment would be stronger for women, but our study shows that a one standard deviation increase in attacks, approximately 4 attacks, corresponds to an approximately equal 0.1 percentage point reduction in *both* male and female employment, though the result is less robust for men. This negative relationship is disproportionate against the male and female labor force populations as a whole, since the overall women's employment rate is one eighth of men's employment. We find a positive relationship between casualties and employment (controlling for the number of attacks) where a province with one standard deviation more terrorist attack deaths

(25 casualties) is associated with 0.05 percentage points higher women's employment. This effect is only apparent in rural areas and particularly in the non-agricultural sector.

This study contributes to the literature on women's economic empowerment, focusing on women's economic participation in the face of violence, insecurity, and broader social norms that limit mobility and decision-making (e.g. Lenze & Klasen, 2017; Field, Jayachandran & Pande, 2010; Desai & Li, 2016; Fletcher, Pande, & Troyer-Moore, 2019) as well as a large literature on the vast costs of war (e.g. Becker, 2010; Robinson, 2010; Trani et al., 2011; Bove and Gavrilova, 2014; Lutz and Desai, 2014; Berrebi and Ostwald, 2016; Salman, 2015; and Desai and Li, 2016). To our knowledge, Desai and Li (2016) is the only study that directly analyzes the relationship between violence and FLFP in Afghanistan. Desai and Li (2016) use time-invariant measures of the number of violent incidences in a province and district measures of beliefs on security concerns about land mines and explosives. They show a negative relationship between the number of violent attacks at the province level and FLFP. They also find evidence to suggest this is driven by security concerns for women by both the women themselves and their husbands, as both men's and women's willingness for women to leave their homes is lower in regions with more violence. Finally, Desai and Li (2016) also show in a simple cross-country analysis that women's employment, but not men's, is related to security.

We differentiate our work from Desai and Li (2016) by using temporal variation at the province level in terrorist attacks to estimate the relationship between attacks and employment, while Desai and Li (2016) use a time-invariant province level measure of attacks. Using a time-variant measure of attacks at the province levels allows for the inclusion of province-level fixed effects that control for any time-invariant factors that might influence both violence and women's employment within a province. We also include time-variant controls including month

fixed effects and province-level trends. Our work also separately estimates the relationship for men and women and part of our contribution is showing the similarities between the two. We also add to Desai and Li (2016) by using both the number of attacks and the number of casualties, which is important in our analysis of rural areas where women are more likely to become employed when causalities increase.

Examining women's labor force participation through the lens of autonomy in decision-making and restricted mobility as a result of concerns about women's safety provides a potential mechanisms for widespread insecurity to affect FLFP. It also calls to mind various types of violence women face (intimate partner, domestic violence, societal-level discrimination and violence, etc.) and their effects on women's labor market decisions. The evidence on how interpersonal violence (in the form of intimate partner violence) affects FLFP is mixed (Lenze and Klasen, 2017), as would theoretically be the effect of terrorist attacks on FLFP. Institutional factors such as laws limiting employment to certain shifts or total hours (Fletcher, Pande, & Troyer-Moore, 2019) can reduce women's employment, but are also reflective of wider aims to limit female mobility and may reflect societal norms or perceptions of acceptable female behavior. Inasmuch as terrorist attacks are used as a tool to reinforce social norms that women do not or should not work, the literature on intimate partner violence provides a theoretical framework for examining the effects of terrorist attacks on FLFP, and specially points to the endogeneity issues that arise and the potential for male backlash.

2. Literature Review

How FLFP responds to violence connects to the literature examining violence against women at interpersonal and societal levels. Population-level attacks designed to instill fear could decrease FLFP if women, or others making decisions for them, perceive increasing security concerns as a reason to stay home. From a security standpoint, both macro and micro studies show that insecurity is often, but not always, negatively related to FLFP. In studies using the Global Terrorism Database, the same database used in this paper, terrorist attacks have been shown to be negatively correlated with FLFP using cross-country regression analysis (Becker, 2010; Berrebi and Ostwald, 2016). Individual country studies of conflict in a wide variety of conflict contexts (e.g. Colombia, Tajikistan, Bosnia, and South Sudan) showed that increased conflict was associated with lower female employment (Fernandez et al., 2014; Shemyakina, 2015; Kondylis, 2010; Hudock et al., 2016). On the other hand, terrorist attacks could increase FLFP due to opportunities that arise for women to replace men who are casualties (Hudock et al., 2016). Menon and Rodgers (2015) find that a woman in Nepal is more likely to work due to conflict-induced impacts, such as her husband dying as a result of the Maoist insurgency, than due to an economic shock, such as her husband losing his job. This finding suggests that women's employment may bolster household resiliency in times of crisis, but also that conflict may adjust perceptions of acceptable or normal behavior for women. Indirectly, insecurity also could reduce women's access to labor market opportunities as firms reduce their presence in affected districts following attacks (Blumenstock et al., 2018). In Afghanistan, a 2007 World Bank IFC report claimed that many more women were working as a result of the conflict and lack of male breadwinner, but were unable to find stable employment due to low levels of literacy. In Afghanistan in 2011, the latest year for which information is available, only 18% of women were considered literate, compared to 45% of men (World Bank, 2019).

An enduring issue with understanding the effect of conflict on FLFP is reverse causality. A significant literature shows that equality or female labor force participation can decrease terrorism, and a companion literature examines male backlash in the face of women's heightened empowerment. Salman (2015) finds that gender equality has a significant and negative impact on terrorism, and Robinson (2010) finds a negative relationship between FLFP and terrorism, which could suggest that women are violence-averse and work to mitigate acts of violence. Empirical works have shown a positive relationship between gender equality and several relevant measures. Harris and Milton (2016) find women's rights are negatively associated with terrorism. Increased female equality has been shown to have a pacifying effect on state government (Caprioli, 2000) and is associated with lower intrastate conflict (Caprioli, 2005; Melander, 2005), which could be influenced indirectly through gender equality's positive relationship to good governance (Bussmann, 2007)

Countries in the Middle East and North Africa have some of the lowest rates of female labor force participation in the world, a phenomenon that has been ascribed to traditional notions of gender roles in Islam as well as largely unexplored elements of Arab culture (Korotayev, Issaev, & Shiskina, 2015). One explanation for this relationship rests on the Islamic notion of purdah, which dictates that women be separated from men. In places where purdah is practiced, we would expect lower levels of female labor force participation (e.g. Korotayev, 2004). Even in families where it is not practiced, restricting women's mobility may become part of a social norm, resulting in restrictions on women's mobility. To what extent these are heightened in war remains largely unexplained in the literature, to our knowledge. Bayanpourtehrani and Sylwester (2013) find that FLFP is lower in Muslim countries, but when controls are added to the regression, Islam has a similar relationship with FLFP as other

religions. Specific to Afghanistan, Trani et al. (2011) explain that Afghan women are subjected to cultural seclusion and restricted movement in public spaces which can translate into limitations on attending school, working, or socializing with others. In Bangladesh, also a predominantly Muslim country, Heintz et al. (2018) find that norms limit a woman's prospects in the formal economy and put women at risk of patriarchal dependence. Similarly, there may be a lack of 'suitable jobs.' In a space where widows and other women without a male household head were denied labor market opportunities, an increase in the number of widows left a labor force with lower experience and lacking the capital to create sustainable jobs or careers for themselves or others (Moghadam, 2005).

3. Data and Descriptive Statistics

This paper links two datasets, Afghanistan's 2015 Demographic and Health Survey (DHS) and the Global Terrorism Database (GTD), to measure employment and attacks. Employment is measured using the 2015 DHS from the Central Statistic Organization and the Afghan Ministry of Public Health. The survey is representative of the population at the national and provincial levels, and for urban and rural areas (CSO, 2017). The DHS interviewed women who had been married aged 15 to 49 years old in selected households across all 34 provinces. Thus, the sample lacks data on women who have never married or those outside of that age range.[2] We restrict our analysis to only the women designated as a wife to the head of household,

[2] In the survey only 2.5% of women were windowed and 0.3% divorced/separated. Unfortunately, the DHS data only allows the analysis of the roughly 70% of women in age range of 15-49 were married as of 2010 CSO and UNICEF (2012). Fewer than 1% of households in the DHS were headed by women.

resulting in 18,813 women, in order to establish a foundation for measures of bargaining power in relation to the male head of the household. Analyzing only married women leverages the assumption that bargaining power between a married couple within a household plays a role in the decision-making that leads to a woman working or not working.

Of these married women, 11.6%[3] were employed. Respondents are considered employed if they reported having done any work (excluding housework) in the seven days before the survey or who are regularly employed but absent from work for leave, illness, vacation or other reasons (CSO, 2017). Unfortunately, the DHS does not provide a measure of job-seeking behaviors, therefore we cannot measure the traditional definition of FLFP and we use the employment rate as a proxy for FLFP.

The DHS also interviewed all ever-married men ages 15 to 49 in half of the households, which leaves a sample of roughly 10,000 men.[4] Of these men, over 92% were employed. The DHS Final Report states that men had a lower response rate, 91% vs 97 % for women, because the interviewers could not interview in the late evenings, when most men are home. We recognize that this may bias our results downward as employed men may be under-sampled.

We combine the DHS with the Global Terrorism Database (GTD) from the National Consortium for the Study of Terrorism and Responses to Terrorism (START). The GTD measures terrorist attacks, locations, casualties, and fatalities. Terrorist attacks in the GTD are defined as "the threatened or actual use of illegal force and violence by a non-state actor to attain

[3] This women's employment rate is lower than the ILO estimate of 19% due to the fact that the ILO sample includes all women, while ours includes only married women to measure bargaining power (ILO, 2016). Employment rate for windows was 24%, though they are excluded from the sample for reasons discussed above.

[4] Of the sample 62% were the head of household, 29% were sons of the head and 7% were brothers.

a political, economic, religious or social goal through fear, coercion or intimidation". In 2015, there were a total of 1,926 terrorist attacks resulting in 6,208 deaths. The average number of attacks and deaths per month per province were 5 and 16, respectively (START, 2017). 97% of the province-months experienced at least one attack in 2015, therefore our estimates reflect the intensity of violence rather than the presence of violence (START, 2017).

In tandem, we use the DHS and GTD to measure the relationship between terrorism violence and women's employment. We link the DHS data to the GTD data at the provincial level by month. We analyze the relationship between the number of terrorist attacks per month and women's employment over the course of nine months from March 2015 to November 2015. As shown in Appendix A, the survey was rolled out over a number of months with roughly 10 - 20% of respondents being surveyed each month from April through October. With the exception of Kabul, there is also a relatively even distribution of respondents over the main survey period in each province.[5] We assume that the geographic distribution of respondents over time is effectively random and unrelated to terrorist events. We use the monthly variation in province-level attacks and the roll out of the DHS survey to exploit temporal variation in the sample.[6] Together, the datasets directly link violent events as a concrete source of preventing improvements in women's employment, providing insight into how violence and instability within a province impacts women's employment.

Below, Table 1 shows that 11.6% of women were employed and common occupations. Approximately 12% of respondents overall listed occupations, suggesting that the question of

[5] DHS acknowledges that violence had a limited impact on survey rollout, but data collection was completed.
[6] Ideally, we would use GIS data to match the GTD database. GIS information is not yet available with this DHS. We have requested access to the GIS data, but have not received a reply.

employment may be undercounting formal FLFP. We note distinct patterns in the most common occupations when the analysis is split for urban versus rural women. Of rural employed women, 43% work in agriculture, 28% in professional roles such as teaching or nursing, and 15% in skilled labor. Meanwhile, of urban employed women, 72% work in professional roles, 11% work in skilled labor, and 10% in unskilled work.

Table 1: Women Working Currently and Occupational Distribution

	Working Currently
Population of Afghan Women	11.55%

Respondent's Occupation	Freq.	Women percent of working in occupation	Urban women percent working in occupation	Rural women percent working in occupation
Not working	16,506			
Professional (teaching and nursing)	868	48%	72%	28%
Clerical	17	1%	3%	0%
Agricultural - self employed	789	16%	3%	43%
Services	20	1%	1%	1%
Skilled manual	329	27%	11%	15%
Unskilled manual	283	8%	10%	13%
Total	18,812			

Analyzing the variables in relation to women's employment showcases the variation between the two groups of women in both Table 2 and Table 3. In Table 2, geographic areas in which women are currently working have slightly more attacks and approximately one more person killed in total. This could possibly be attributed to foreign troop involvement creating an environment for more women to work, or it could be that there are more attacks because more women are working. We test for reverse causality in Appendix B, but do not find evidence to support the idea that women or men's employment is associated with an increase in attacks in the next month. In addition, average age is slightly greater for women currently working than not working. Children, particularly those under five, could increase domestic responsibilities for women leading to a reduction in employment, however we find no difference in the number of children under five years old or five years and older between women who work and do not.

Table 3 describes the binary variables included in our analysis and displays t-tests between employed status of women. First, as the level of education increases, the likelihood that a woman is currently working also increases. In addition, there is an approximate 1 percentage point

difference, significant at the 10% level, in women working if the woman lives in an urban area instead of rural. Regarding ethnic groups, there is a difference of 30, 31 and 41 percentage points if the woman is Turkmen, Nuristani, or Pashai, respectively, all significant at the 1 percent level. We also find that women in the second wealth quintile (Poor) were almost 4 percentage points more likely to be employed.

Women may be more likely to work if they have the power to choose to do so instead of their husbands. The DHS does not have a question regarding who decides if women work outside of the home. It does have four questions on who in the household (the wife, her husband or both) make decisions on health care, large purchases, family visits and spending husband's earnings. We create a binary variable for women who have either sole or joint decision-making power in any of the four areas. Women who have some decision power were almost twice as likely to be employed than those had none (further descriptions can be found in Appendix C). Finally, we have three measures of women's access to communication (radio, television and phone), which also may reflect household wealth. Women whose household had a television were 3 percentage points more likely to be employed.

Table 2: Women Working v. Women Not Working Continuous Variables

Variables	Not Working Currently	Working Currently
Attack	4.95	5.03***
Killed Total	14.95	16.51***
Wife Age	33.55	34.30***
Husband's Years of Education	3.26	3.53
Children Under 5	1.64	1.67
Children 5 and Older	2.60	2.59

Adjusted for sampling weights
*10% **5% ***1% in t-test

Table 3: Women Working v. Women Not Working Binary Variables

Variable	Variable Mean	Percent Employed when Variable=0	Percent Employed when Variable =1	Difference between Variable = 0 and Variable = 1
Primary Education	7.54%	11.28%	14.88%	3.60%*
Secondary Education	5.21%	11.02%	21.15%	10.13%***
Higher Education	1.87%	10.86%	48.15%	37.29%***
Urban	24.46%	11.36%	12.13%	0.77%*
Pashtun	35.95%	13.74%	7.66%	-6.08%***
Tajik	35.81%	14.29%	6.63%	-7.66%***
Hazara	10.12%	10.97%	16.71%	5.74%***
Uzbek	11.40%	9.98%	23.72%	13.74%***
Turkmen	2.66%	10.74%	41.32%	30.58%***
Nuristani	0.52%	11.39%	43.19%	31.80%***
Baloch	0.71%	11.61%	3.75%	-7.86%***
Pashai	0.89%	11.19%	51.89%	40.70%***
1st Wealth Quintile- Poorest	19.77%	12.22%	8.85%	-3.37%**
2st Wealth Quintile- Poor	19.95%	10.80%	14.53%	3.73%***
3rd Wealth Quintile- Middle	20.28%	11.83%	10.46%	-1.37%***
4th Wealth Quintile- Rich	20.65%	10.64%	8.36%	-2.28%***
5th Wealth Quintile- Richest	19.36%	11.33%	12.46%	1.13%
Decision-Making Power	68.13%	6.65%	12.92%	6.27***
Has Phone	86.97%	11.25%	11.60%	0.35%
Has Radio	46.26%	11.94%	11.10%	-0.84%
Has Television	49.84%	9.99%	13.13%	3.14%***

Adjusted for sampling weights
*10% **5% ***1% in t-test

4. Econometric Model

We estimate the probability that a respondent, a married Afghan between the ages of 17 and 49, is currently employed outside of the home using equation (1) shown below. We use a one-month lagged measure of terrorist attacks and total number killed in the respondent's home province. We use province fixed effects to control for time invariant characteristics of the province. We also include month fixed effects, a trend term, and province-level trends to control for temporal variation. We estimate men's and women's outcomes in separate regressions. The model also controls for the respondent's demographics, ethnic group, wealth quintiles, husband's education (for women), the decision making index as described above, and communication access.[7] Additionally, for women we provide separate estimates for those living in rural and urban areas.

The key relationship of interest is between employment and terrorist attacks. Our dependent variable, *employed*[8], is our proxy for FLFP, using a probit where $Y = 1$ if the respondent has worked outside the home in the last seven days and $Y = 0$ if not. The variables *attacks* and *killedtotal* measure the number of terrorist attacks and resulting deaths that took place per province in the previous month (t-1) of the respondents' interview. Subscripts denote the observation of individual "I," in province "j" in month "t." Province fixed effects, $province_{ij,}$ and month fixed effects, $month_{it}$, a trend term ($trend_t$) and the interaction of province fixed effects and trends $trend_t * province_{ij,}$ are included.

Reverse causality and multicollinearity are two potential concerns when examining the number of attacks and total killed measures. Women working could either promote attacks aimed

[7] The core results of the model in terms of the relationship between employment and number of terrorist attacks or deaths are robust to changes that drop trend terms and or controls.
[8] We removed 15 and 16 year olds from the regression sample because they have an employment rate of 0 and 3%.

at reducing women's role in the economy or reduce attacks by providing income sources for families. We test for reverse causality in Appendix B, but do not find evidence to support that women's or men's employment is associated with an increase in attacks in the next month. In terms of multicollinearity, we do not find evidence of a problem between attacks and deaths. First, we note the correlation between the two terrorism measures (attacks and total deaths) is just under 0.5 and the Variance Inflation Factors are 3 (attacks) and 1.5 (total deaths), respectively for a linear regression model of the core analysis, which are below the standard cutoff of 5.

The model also adds demographic controls for the number of children, education, and age. First, we include the numbers of children under 5 (*ChildrenU5*) and older than 5 (*ChildrenO5*). The presence of younger children could reduce women's employment by increasing domestic responsibilities. We include three dichotomous variables with bucketed education level: *primary education, secondary education, and higher education* (*no education* is the omitted comparison group). Each education level variable is defined as, for example, $primary_i$=1 if the woman reported having attended any years of primary school (years one to six) and $primary_i$=0 if not, regardless of completion. Lastly, age_i, measures the age of the respondent in years.

For women, we include additional controls for ethnic group, wealth quintile, husband's education, decision-making power and communication devices.[9] We control for ethnic group via binary variables including $Pashtun_i$, $Tajik_i$, $Hazara_i$, $Uzbek_i$, $Turkmen_i$, $Nuristani_i$, $Baloch_i$, and $Pashai_i$. Each ethnic group variable is defined as X = 1 if the woman identifies with the ethnic group and X = 0 if not. We created separate binary variables for each wealth

[9] The inclusion/exclusion of these additional controls does not change the core results.

quintile corresponding to the variables $poor_i$, $middle_i$, $rich_i$, and $richest_i$. Each wealth quintile variable is defined as $X = 1$ if the woman falls within the wealth quintile and $X = 0$ if not (with the poorest quintile being the omitted group). We hypothesize that women with lower levels of wealth may be employed out of necessity in occupations such as agriculture or midwifery. Meanwhile, higher wealth may allow for a higher level of education, resulting in access to different jobs such as services.

We also include two variables to adjust for a woman's relationship with her husband. $Menseducation_i$ measures the total number of years that the husband obtained education to test the relationship between a husband's education and their wife's employment.[10] At the province level we find that terrorist attacks also influence men's employment so we elected not include province level measures of men's employment.[11] Secondly, we control for decision-making ability to measure each woman's bargaining power in the household (see Appendix C). We define *decisionmaking* as a binary variable where $X = 1$ if the woman reports making any of four household decisions alone or jointly with her husband and $X = 0$ if not.

Finally, we control for access to communication. Afghanistan has been the target of media programs to encourage social change, such as BBC's *New Home, New Life* (Adam, 2005). According to the International Monetary Fund, access to information and communication networks can facilitate women's access to labor markets (Elborgh-Woytek et al., 2013). We measure access to communication with three binary variables: phone ($phone_i$), television

[10] All women were asked about their husband's education, therefore we have men's education for nearly all households, not just the half where men were sampled.

[11] When we include the mean of men's employment at the province-level the sign was positive, though it also reduced the p-value on attack's relationship to women's employment likely due to the relationship between attacks and men's employments. These results are available upon request.

($television_i$), and radio, ($radio_i$). Each variable is binary where $X = 1$ if the woman's household has the specified communication channel and $X = 0$ if not.

$$Employed_{ijt} = \beta_0 + \beta_1 attack_{t-1} + \beta_2 killtotal_{t-1} + \alpha_j \sum_{j=1}^{33} province_j + \Gamma_t \sum_{t=1}^{5} month_t + \Gamma_6 trend_t + \Gamma_{6+j} \sum_{j=1}^{33} province_j * trend_t + \beta_3 ChildrenU5_i + \beta_4 ChildrenO5_i + \beta_5 primary_i + \beta_6 secondary_i + \beta_7 higher_i + \beta_8 age_i + \beta_9 urban_i + \beta_{10} pashtun_i + \beta_{11} tajik_i + \beta_{12} hazara_i + \beta_{13} uzbek_i + \beta_{14} turkmen_i + \beta_{15} nuristani_i + \beta_{16} baloch_i + \beta_{17} pashai_i + \beta_{18} wealth_i + \beta_{19} menseducation + \beta_{20} decisionmaking_i + \beta_{21} phone_i + \beta_{22} television_i + \beta_{23} radio_i + \epsilon_i$$

5. Results

We find that the number of terrorist attacks in a province has a negative relationship with women's employment. The relationship is also negative for men, though not robust to the inclusion of province trends. The results shown in Table 5 suggest that a province with one standard deviation increase in attacks (four attacks compared to a mean of five) would be associated with both higher women's and men's employment by approximately 0.1 percentage points.[12] A 0.1 percentage point decrease in employment will be far more detrimental to the representation of women in the workforce than men in the workforce as men are employed at roughly eight times the rate as women, 92% compared to 11%, respectively, in our sample.

We also find that there is a positive relationship between casualties (*killedtotal*) and employment for women, though further analysis shows women in rural areas in the non-agricultural sector are driving this results. One standard deviation of deaths is approximately 25

[12] In addition, we ran a regression with a pooled sample of men and women and interacted attacks with a binary variable for females and found no differences for the interaction term (this result is available upon request). We also ran a separate regression with just male heads of household and found similar point estimates to all males shown in the results though p-values dropped to .15 likely due to the elimination of 1/3 of the male sample.

people. With the median population of an Afghan province being 555,000 people, 25 deaths would be a 0.004% of the population (UNHCR Refworld, 2017). Therefore, the result that terrorism is associated with a higher employment in rural areas by approximately the same amount--0.004 percentage points—may suggest that women are replacing men who are died in attacks, either as primary breadwinners or in a particular job such as tending fields. On the other hand, women's employment may be just as responsive to deaths of other women, without gendered data on deaths we cannot be certain. When the model is estimated separately for urban and rural households, we find the positive relationship between deaths and employment is only seen in rural areas. Specifically, we find if casualties are one standard deviation higher, or an additional 18 people are killed in a rural area, then rural employment is estimated to be approximately 0.03 percentage points higher. These results contrast with urban areas where we find that one standard deviation higher deaths, or 27 people killed, employment is 0.16 percentage points lower, significant at the 10 percent level.

These findings show that an increase in fatalities only increases employment in rural areas and further analysis shows that the relationship is driven by the non-agricultural sector. Specifically, in Appendix D, we estimate the model with a new employment measure, which $X = 1$ if the respondent is employed in a sector and $X = 0$ if she is not employed or employed in a different sector. We find the same positive and statistically significant relationship between causalities and employment for all occupations in the non-agricultural sector and two of the three most common non-agricultural jobs (nursing and odd jobs), while agricultural employment is negative and not significant. These results suggest that women in rural areas are able to increase their labor supply potentially to offset lost income from causalities, which may be harder in urban areas where 75% of workers are professionals with less labor market flexibility compared

to 25% in rural areas (see Table 1). Close to 90% of non-agricultural labor is paid (cash or in-kind), compared to roughly 50% of agricultural labor.

Robustness Checks

As a robustness check, we re-ran the model for women dropping one province at a time to eliminate the bias of one province and the results do not substantially change. Point estimates range from -0.025 to -0.032 for attacks and from 0.0014 to 0.0021 for total casualties. The results are robust to estimations that dropped the additional controls and/or the province trend interactions. These results are available upon request.

A second robustness check is presented in Appendix E where the number of months between the number of attacks and deaths is varied to two and three months before the attack. The results in urban areas are more consistent in that the same negative relationship is seen with a three-month lag, while the rural results are less clear and two-month lags show similar direction but lack statistical significance, suggesting the relationship may be shorter lived in rural areas as women may provide temporary support for medical or funeral expenses which can be quite large in comparison to family income (Kandiyoti 2012).

Results for Additional Factors:

We also control for additional demographic factors such as the number of children, women's education, and ethnic groups. As expected, we find some evidence that the presence of children under 5 reduce women's employment, though the effect is only statistically significant in urban areas. In rural areas, having children five years and older is associated with higher levels of employment. We find that women's education has a significant positive relationship on employment across all levels of education where women are more likely to work with increased

levels of education. We find that belonging to the Pashai, Turkmen, and Nuristani ethnic groups, accounting for approximately 40% of the women surveyed, is associated with a positive effect on women's employment while the belonging to other ethnic groups do not have a statistically significant relationship. These three ethnic groups represent 95% of populations where subsistence agriculture and goat herding are the primary rural employment sectors, therefore the findings on the impact of ethnic groups connects to our findings that women in rural areas are more likely to be employed.

At the household level, we find that women's employment is negatively related to husband's education and positively related to decision-making power and access to communication. Falling in the second lowest (poor) wealth quintile is associated with lower employment in rural areas. All other wealth quintiles were not statistically significant. We find that men's education is negatively related to women's employment, significant at the 5 percent level. A one standard deviation increase in men's education, approximately 4 years, suggests a woman is 7 percentage points less likely to work. We find that a woman reporting any level of decision-making power is more likely to work and this is significant at the 1 percent level. When analyzed together, the impact of both higher levels of women's education and increased levels of decision-making power show that women's empowerment has a significantly positive impact on whether a married Afghan woman is currently working. We find that if the woman's household has a radio, the woman is 12 percentage points more likely to work. The effect of access to a television and a phone were not statistically significant.

Together, these results provide significant insight that the frequency of terrorist attacks has a negative effect on women's employment. We find that an increase in casualties from an attack has a positive effect on rural women's employment significant at the one percent level. In

addition, we find that education and decision-making power have clear positive effects on whether a married Afghan woman is currently working. Both wealth quintiles and ethnic groups have various effects based on where the respondent is identified. More analysis is required to determine why select groups and quintiles have significant relationships on women's employment while others do not.

Table 4: Probit on Currently Employed (Marginal Effects) Women and Men

	Women			Men	
	(1)	(2)	(3)	(4)	(5)
Sample	Full	Urban	Rural	Full	Full
Province Trends	Yes	Yes	Yes	No	Yes
Additional Controls	Yes	Yes	Yes	No	No
Attacks	-0.0279***	0.0148	-0.0365***	-0.0220*	-0.0116
	(0.0104)	(0.0138)	(0.0100)	(0.0125)	(0.0122)
Killed Total	0.000938*	-0.00606*	0.00175***	0.00366	0.00113
	(0.000524)	(0.00337)	(0.000671)	(0.00301)	(0.00319)
Children Under 5	-0.00384	-0.0712**	0.00730	0.0266**	0.0235*
	(0.0342)	(0.0296)	(0.0369)	(0.0118)	(0.0132)
Children 5 and Over	0.0185**	-0.00458	0.0186**	0.0290	0.0209
	(0.00876)	(0.0146)	(0.00937)	(0.0189)	(0.0174)
Primary Education	0.308**	0.300	0.341**	0.0263	0.0494
	(0.134)	(0.184)	(0.167)	(0.100)	(0.103)
Secondary Education	0.800***	0.335**	0.975***	0.0904	0.0777
	(0.189)	(0.131)	(0.212)	(0.0684)	(0.0626)
Higher Education	1.823***	1.892***	1.475***	0.0351	0.0359
	(0.175)	(0.142)	(0.292)	(0.113)	(0.113)
Respondent's Age	0.00304	0.00727	0.00160	-0.00162	-0.000856
	(0.00698)	(0.00543)	(0.00768)	(0.00452)	(0.00473)
Urban	0.0270			0.0859	0.136
	(0.117)			(0.114)	(0.113)
Pashtun	-0.0451	0.705***	-0.187		
	(0.188)	(0.249)	(0.192)		
Tajik	0.0425	0.663***	-0.0648		
	(0.161)	(0.128)	(0.152)		
Hazara	0.387	1.134***	0.236		
	(0.239)	(0.118)	(0.280)		
Uzbek	0.288	0.789***	0.195		
	(0.266)	(0.246)	(0.271)		
Pashai	1.891***	1.270**	1.758***		
	(0.249)	(0.630)	(0.252)		
Baloch	-0.637	-0.0643	-0.706		
	(0.433)	(0.363)	(0.496)		
Turkmen	0.879***	1.079***	0.819***		

	(0.246)	(0.209)	(0.218)		
Nuristani	1.989***		1.878***		
	(0.327)		(0.333)		
Husband's Education	-0.0138**	-0.00525	-0.0176***		
	(0.00578)	(0.00532)	(0.00674)		
Poor	0.0149	-0.275***	-0.0120		
	(0.0844)	(0.0947)	(0.0888)		
Middle	0.144	-0.0124	0.0995		
	(0.112)	(0.211)	(0.0988)		
Rich	0.0573	-0.0323	0.0705		
	(0.154)	(0.160)	(0.162)		
Richest	-0.0278	-0.0978	-0.140		
	(0.0752)	(0.114)	(0.117)		
Decision-Making Power	0.390***	0.329***	0.441***		
	(0.104)	(0.0736)	(0.124)		
Household has Phone	-0.0243	-0.175	-0.0487		
	(0.0724)	(0.160)	(0.0776)		
Household has TV	-0.0292	-0.0981	0.0128		
	(0.0676)	(0.108)	(0.0615)		
Household has Radio	0.129**	0.303***	0.107*		
	(0.0562)	(0.0981)	(0.0575)		
Constant	-1.427***	-7.826***	-1.275**	1.199***	1.192***
	(0.497)	(0.673)	(0.519)	(0.213)	(0.168)
N	17,686	4,046	12,780	10,211	10,211

Robust standard errors in parentheses clustered at Province Level

*** p<0.01, ** p<0.05, * p<0.1

All models include province and month fixed effects. Models 1-3 and 5 include a trend term and province trend terms

6. Conclusion

As of 2015, Afghanistan had the sixth lowest female labor force participation in the world (ILO, 2016). In addition, Reuters labeled Afghanistan as the most dangerous country for women in 2011 (Ghiasy et al., 2015). Acknowledging these barriers for women and seeking greater understanding of their relationship, this paper analyzes the relationship between low FLFP and security using measures of employment and terrorist attacks. We find that terrorist attacks in the previous month have a statistically significant negative effect on whether married Afghan women are currently working. We find a similar, though less robust, result for men. In addition, we find that the number of total fatalities from a terror attack has a positive relationship on women working in rural areas. A closer examination shows that women in rural areas entered non-agricultural labor.

We acknowledge limitations to this research study. First, the potential for an endogenous relationship between violence and employment in terms of reverse causality and omitted variable bias. For reverse causality, one potential vector is more women working could incite more violence. We do not find evidence of reverse causality for either terror attacks or the total killed in the attacks in a robustness check. Omitted factors that both increase violence and decrease unemployment may also be a cause of bias. We use provincial fixed effects to control for time invariant bias and province trends and month fixed effects to control for time variant bias. We acknowledge the potential for time-variant omitted variables that are unrelated to province trends including US troop movements within the sample period, however we are unaware of a good data source for troop location. US troop placement is likely related to recent violence so even with a good source of data controlling for it would require an additional instrument. Given the potential for bias we are careful in our interpretation of these relationships as causal. Second, we

recognize that using terrorist attacks as a proxy for violence specifically measures random acts of politically or religiously motivated violence, leaving out the large-scale war or conflict efforts. While there were limitations to this study, our research has one of the largest sample sizes and the only one with temporal variation that we are aware of that analyzes the impact of terrorism on Afghan women working. Finally, our analysis only covers the 70% of women who are married due to the DHS sample selection, so we unable to say if the results would hold for non-married women. A comparison of single women, married women and men would shed light on the broader impacts of security concerns on employment by gender.

This study emphasizes two factors that impact whether a married Afghan woman is currently working. First, we find that the number of terrorist attacks negatively impacts FLFP, supporting our main hypothesis. Second, we find that measurements of women's empowerment in various ways, women's education and women's decision-making power, have positive effects on FLFP. Therefore, this research provides policy implications in two facets to increase FLFP in Afghanistan, both decreasing violence and increasing programs for women's empowerment. As of 2018, it is estimated that the war in Afghanistan cost the U.S. approximately $975 billion (Crawford, 2018). Up until 2014, the U.S. had appropriated $104.1 billion for the relief and reconstruction of Afghanistan, approximately 11% of what was spent on the war (Lutz and Desai, 2015). USAID is currently contributing $216 million over five years to promote women's empowerment as part of the PROMOTE Initiative, or 0.02% of the money spent on the war in Afghanistan (RSI Consulting, 2015). Unfortunately, a report by Special Inspector General for Afghan Reconstruction suggests the program was unable to find a measurable impact (Nordland, 2018).

Increasing U.S. aid may be politically challenging under the current administration. In December 2018, President Trump decided to withdraw 7,000 troops, reducing the U.S.' armed presence in Afghanistan to its lowest level since 2002 (Jackson, 2018). There is much uncertainty surrounding the withdrawal of U.S. forces, with experts concerned that U.S. disengagement may create a vacuum in which terrorist groups would increase their operations (Lamothe et al., 2018). Furthermore, the Taliban's participation in the talks is raising concerns about the future rights of women (Jakes, 2019). As the violence in Afghanistan has no foreseeable end, this research emphasizes the importance of taking women in Afghanistan into account during the decision-making process. Afghan women are disproportionately impacted by violence, which hurts not only their personal employment, but also the economic opportunity of the entire country. It is a necessity to include Afghan women in the conversation, as failure to understand how women can contribute to the economic, political, and social environment inhibits Afghanistan from viable peace and prosperity (Hudock et al., 2016).

This research provides implications for three potential studies. First, this research could be built to analyze Afghan FLFP over time, lagging violence over the course of a decade. An analysis providing time variation over a greater period could provide insight into fluctuations in Afghan FLFP. Second, analysis could be done with a new sample that includes unmarried women. Third, additional work could examine the benefit per dollar of funding for defense in Afghanistan versus the benefit per dollar of international aid in Afghanistan. For all future analysis, it is important to emphasize the role women play in the Afghan economy, that while they are disproportionately impacted by violence, they hold a wealth of potential in improving their country's economy.

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APPENDIX

APPENDIX A

Table A.1: Number of women surveyed per province per month

	MONTH OF INTERVIEW												
REGION	1	2	3	4	5	6	7	8	9	10	11	12	Total
Badakhshan	3	2	2	61	68	120	102	34	31	43	80	3	549
Badghis	3	4	3	62	16	115	65	4	118	158	69	4	621
Baghlan	4	1	4	49	48	20	82	131	183	4	4	4	534
Balkh	2	2	2	37	64	116	94	118	106	37	3	2	583
Bamyan	0	0	0	54	60	118	99	126	3	1	1	0	462
Daykundi	0	0	0	65	32	122	106	101	46	0	0	0	472
Farah	4	4	4	44	52	169	137	110	145	88	4	4	765
Faryab	4	4	4	9	69	93	100	52	50	102	5	4	496
Ghazni	4	4	4	55	52	134	84	148	148	30	4	4	671
Ghor	1	3	2	66	23	89	118	125	136	90	3	3	659
Helmand	4	4	4	49	12	97	12	66	110	179	4	4	545
Herat	4	4	4	69	108	134	155	152	154	4	4	4	796
Jawzjan	4	2	4	49	24	80	105	119	71	60	6	4	528
Kabul	4	4	494	8	4	24	4	4	4	20	4	4	578
Kandahar	4	4	4	36	56	48	86	122	134	30	4	4	532
Kapisa	4	3	4	55	63	88	101	159	128	3	3	0	611
Khost	4	4	4	56	38	83	106	138	111	39	4	4	591
Kunarha	4	4	4	64	36	115	87	91	98	36	4	4	547
Kunduz	3	4	4	54	6	95	39	160	152	70	4	4	595
Laghman	4	4	4	53	46	90	100	148	77	3	4	3	536
Logar	4	3	2	89	76	195	135	133	83	4	4	4	732
Nangarhar	4	4	4	61	75	125	67	131	107	41	4	4	627
Nimroz	4	3	3	57	30	94	98	78	96	47	2	2	514
Nuristan	1	3	1	47	63	114	46	194	65	133	3	1	671
Paktika	4	3	3	23	4	120	110	150	82	29	4	4	536
Paktya	2	1	2	54	37	68	108	153	161	4	4	2	596
Panjsher	0	0	3	38	62	123	88	118	76	1	0	0	509
Parwan	2	4	12	44	83	87	119	128	20	18	4	3	524
Samangan	0	1	0	61	35	117	98	93	111	2	0	1	519
Sar-e-pul	3	2	2	80	37	83	53	109	156	86	3	3	617
Takhar	2	1	4	66	41	151	109	115	116	3	1	3	612
Urozgan	4	4	4	4	4	61	87	116	121	121	52	4	582

Wardak	4	4	2	73	22	80	51	88	120	49	4	4	501
Zabul	4	3	1	33	4	56	34	4	3	4	4	4	154
Total	102	97	598	1,725	1,450	3,424	2,985	3,718	3,322	1,539	303	102	19,365

APPENDIX B:

Reverse Causality

We test for reverse causality to measure if lagged women's employment is positively related to terrorism. It could be the case that more women working incites terrorism from fundamentalists. We propose to test reverse causality by making terrorist attacks and the measure of total killed the dependent variable and lagged employment as the main independent variable as seen below in Equation 3. To study the relationship between terrorist attacks and women's employment, we use a pseudo panel wherein we average the employment in month "t-1" and province "j" as well as the number of terrorist attacks (or deaths) and then treat those geographical units as the primary units of observation.

$$\text{Attacks}_{tj} = \beta_1 \overline{Employment_{t-1.J}} + \beta_{2+j} \sum_{n=1}^{33} province_j + \beta_{3+t} \sum_{n=3}^{10} month_t$$

Results

We do not find strong evidence for reverse causality, where in more women working would incite terrorism from fundamentalists, as shown in Table A. This tests the effect of lagged women's employment on both the number of attacks in the province and the total number of people killed by terrorist attacks. None of the relationships are statistically significant, though we are cautious about interpretation due to small sample size. We also note that the p-value of the relationship between women's employment and total killed is roughly 0.7 when we drop the highest 5% of total killed suggesting the lower p-value is the result of outliers. Overall these

results do not support reverse causality that increasing women's employment influences terrorism at the level of temporal variation we are testing.

Table B.1: Reverse Causality Testing

	Men's Employment	p-value	Women's Employment	p-value
Attacks	-0.37	0.865	0.70	0.770
Total Killed	11.36	0.530	31.06	0.204

Appendix C
Decision-making Index

A woman's ability to make decisions is often labeled independence, empowerment or agency and has been broadly studied to examine how these characteristics may influence a variety of life choices, including the ability or willingness to seek employment. We examine four survey questions on the respondent's decision-making power including: decides on healthcare, decides on large purchases, decides on family visits, and decides on how husband's earnings are spent. As mentioned above, the analysis only uses currently married women in order for the questions to be relevant for all respondents. We create an additive index to represent decision-making power or agency, acknowledging the high levels of multicollinearity between these variables. For each question, the respondent is given a value of 2 if the decision is made by the female respondent alone and a value of 1 if the decision is made jointly with the husband. Therefore, the Index value can be between 0 and 8, with 0 being no decision-making power and 8 being the greatest decision-making power. The data in Table 4 shows that 68% of married Afghan women have some level of decision-making power. Of the married women that have the max of 8 on the decision-making index, only approximately 13% of them are currently working. While, there is no clear relationship with employment once the index is above 1, the percent of women working doubles once the woman has any decision-making power greater than one. Given the lack of a clear relationship in the additive index, we instead use a binary measure of decision-making ability, where women either have some decision-making power or none. It is worth noting that the four measures of decision-making have correlations of between 0.5 and 0.7, therefore multicollinearity would make the results of using all four measures difficult to interpret.

Table C.1: Decision-making Index

Woman's Decision-making Power Index	Percent of women in each group	Percent of women working in each group
0	31.87%	6.65%
Greater than 1	68.13%	12.92%
1	12.06%	11.14%
2	10.83%	17.48%
3	11.12%	13.33%
4	30.69%	10.54%
5	1.58%	23.74%
6	0.88%	21.22%
7	0.23%	18.67%
8	0.73%	12.53%

*adjusted for sampling weights

Below we test the robustness of the four individual decision measures (Healthcare, Large Purchase, Family Visits and Husband's Earnings) by re-estimating the main regressions using all or only one of the decision variable. In the first column of Table C.2 we find that Family Visits and Husband's Earnings are positively related to employment, while Decides Large Purchases is not. However, as noted above, there is a strong correlation between all four variables. In columns two through five, each measure is used individually. All four are positive with only Deciding Large Purchases not being statistically significant. It is also worth noting that the key variable of attacks and total killed are not substantially changed by the addition or omission of any women's autonomy measures. Finally, in column six, we test for heterogenous effects of attacks or total killed based on the resultant decision-making power variable. We do not find statistically significant difference in the interaction terms, so there does not appear to

be strong heterogenous effects of attacks or deaths on women's employment for women with more or less decision-making power.

Table C.2: Decision-making Power Variables and Interactions

	(1)	(2)	(3)	(4)	(5)	(6)
Attacks	-0.0295***	-0.0275***	-0.0274***	-0.0273***	-0.0292***	-0.0183
	(0.00713)	(0.00717)	(0.00725)	(0.00716)	(0.00697)	(0.0122)
Total Killed	0.00183***	0.00156***	0.00161***	0.00161***	0.00181***	0.00105
	(0.000588)	(0.000584)	(0.000568)	(0.000593)	(0.000570)	(0.00103)
Decides Healthcare	0.0794	0.160**				
	(0.0621)	(0.0689)				
Decides Large Purchase	-0.216**		0.0115			
	(0.0991)		(0.103)			
Decides Family Visit	0.211*			0.217**		
	(0.117)			(0.0960)		
Decides Husband's Earnings	0.216***				0.216**	
	(0.0775)				(0.0897)	
Decision-Making Power						0.409***
						(0.145)
Decision-Making Power * Attack						-0.0188
						(0.0137)
Decision Making Power*Total Killed						0.00134
						(0.00112)
Constant	-2.001***	-1.971***	-1.913***	-2.020***	-1.916***	-2.097***
	(0.271)	(0.288)	(0.276)	(0.255)	(0.288)	(0.287)
Observations	17,979	18,093	18,090	18,091	17,990	17,979

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix D:

In the paper we note that there is a positive relationship between employment and causalities for rural women, this appendix shows that the relationship is found in the non-agricultural sector. Specifically, in Table D below we re-estimate the model replacing the employment variable with a measure of employment in one of five occupation types, means are listed at the bottom of the table. This measure is coded as 1 if the woman is employed in that occupation and 0 if she is not employed or employed in a different occupation. We first

divide occupation into agricultural and non-agricultural (models 1 and 2) and see the positive relationship between causalities and employment only in the non-agricultural sector. We then test the relationship for the top three non-agricultural professions (weaving, odd jobs, and nursing) and find that women increase their employment in odd jobs and nursing. It is worth noting that nursing is by far the most common non-agricultural job with almost a quarter of all employment. The results are all suggestive that non-agricultural employment is driving the positive relationship between causalities and employment in rural areas.

Table D: Marginal Effects of Occupation

VARIABLES	(1) aglabor	(2) nonaglabor	(3) weaving	(4) oddjob	(5) nurse
Attacks	0.0136	-0.0346***	-0.0209	-0.0168	-0.0305*
	(0.0219)	(0.0122)	(0.0192)	(0.0250)	(0.0178)
Total Killed	-0.00139	0.00107*	-0.000564	0.00408***	0.00168**
	(0.00305)	(0.000554)	(0.00109)	(0.00105)	(0.000680)
Children Under 5	-0.0308	0.0253	0.0599	0.0889***	0.0267
	(0.0510)	(0.0404)	(0.0564)	(0.0214)	(0.0437)
Children 5 and Over	-0.00549	0.0223*	0.0383*	0.0395	0.0125
	(0.0201)	(0.0128)	(0.0229)	(0.0281)	(0.0120)
Primary Education	-0.290	0.445***	0.592**	0.211	0.295**
	(0.180)	(0.165)	(0.273)	(0.327)	(0.135)
Secondary Education	-0.280	1.086***	0.590*	-0.0795	-0.465
	(0.253)	(0.185)	(0.337)	(0.387)	(0.383)
Higher Education	-0.750	1.861***			0.162
	(0.588)	(0.217)			(0.317)
Respondent's Age	-0.000633	0.00218	0.0172**	0.0104	-0.0165***
	(0.0125)	(0.00738)	(0.00730)	(0.00802)	(0.00572)
Pashtun	-0.416	-0.260	-0.0677	3.490***	-0.419***
	(0.338)	(0.198)	(0.350)	(0.230)	(0.131)
Tajik	-0.464	-0.0689	0.233	3.665***	-0.169*
	(0.446)	(0.157)	(0.382)	(0.241)	(0.0883)
Hazara	-0.0417	0.0451	0.618	4.129***	-0.348*
	(0.526)	(0.208)	(0.457)	(0.268)	(0.202)
Uzbek	0.0494	0.138	0.412		-0.0500
	(0.390)	(0.271)	(0.442)		(0.123)
Pashai	1.633***	0.370		4.978***	-0.521**
	(0.437)	(0.234)		(0.344)	(0.249)
Baloch	-		-		
Turkmen	-0.0519	0.778***	1.584***	3.592***	-0.634*
	(0.457)	(0.267)	(0.462)	(0.272)	(0.331)
Nuristani	1.932***	0.699**		5.115***	-0.225
	(0.475)	(0.310)		(0.433)	(0.395)
Husband’s Education	-0.0336***	-0.0123	-0.0394	-0.0208	-0.0129
	(0.00879)	(0.00838)	(0.0273)	(0.0227)	(0.0131)
Poor	-0.335**	0.162	0.0123	0.465***	-0.0328
	(0.136)	(0.126)	(0.184)	(0.0746)	(0.120)

Middle	-0.227*	0.265*	-0.00199	0.236	0.277**
	(0.119)	(0.149)	(0.182)	(0.147)	(0.122)
Rich	-0.221**	0.179	0.335	0.348**	-0.0388
	(0.112)	(0.207)	(0.282)	(0.137)	(0.131)
Richest	-0.261	-0.0925	0.0495	0.528**	-0.302**
	(0.248)	(0.137)	(0.221)	(0.247)	(0.145)
Decision-Making Power	0.157	0.485***	0.440***	0.132	0.513***
	(0.144)	(0.125)	(0.167)	(0.123)	(0.146)
Household has Phone	-0.159	0.0118	0.108	-0.277*	0.0659
	(0.125)	(0.116)	(0.252)	(0.150)	(0.147)
Household has TV	-0.0880	0.0556	-0.0224	0.245	0.114
	(0.108)	(0.0703)	(0.0708)	(0.238)	(0.0821)
Household has Radio	0.101	0.0693	0.0787	0.165	-0.0351
	(0.0730)	(0.0589)	(0.0628)	(0.118)	(0.104)
Constant	-0.552	-2.646***	-7.328***	-10.21***	-6.187***
	(0.408)	(0.485)	(0.805)	(0.566)	(0.495)
Mean Dependent Variable	0.047	0.058	0.006	0.017	0.043
Observations	8,944[13]	12,797	4,979	5,994	11,885

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Dependent variable =1 if respondent is employed in the occupation

Appendix E: Robustness Check of Timing with Attacks and Employment

As a robustness check, the lag between attacks and the employment measure was adjusted to the number of attacks and total killed from two months and three months before the survey and employment measure. Below, Table E.1 shows the changes based on this robustness check. The statistical significance of the variable disappears with a two-month lag. This could indicate that the effects of attacks are short lived. However, in the third month the urban areas see a similar result where higher number of attacks is associated with lower employment. This does differ from the one-month lag where it is attacks that is associated with

[13] The change in observations is due to limited variation in the dependent variable which drops observations that are overidentified. Elimination of all fixed effects yields similar results for the key killed total coefficient with little variation in sample size.

lower employment, however both are consistent with declining safety in urban areas reducing women's employment. In the rural areas using the three month lag we find that attacks are positively associated with employment, while total killed is negatively associated. This suggests the higher women's employment with high total killed may be temporary perhaps to pay for medical expenses or funeral expenses. Long term, the three-month result suggests that safety may be driving the total killed result. What is unknown is how local communities react in the long term and if the attacks effect security forces. Overall, in the urban areas there is evidence that both long and short term attacks reduce women's employment, while the rural areas continue to be more complex.

Table E.1: Robustness Check in Variation of Lags of Attacks and Total Killed

		Full Sample			Rural Areas			Urban Areas	
Variables	**1 Month**	**2 Months**	**3 Months**	**1 Month**	**2 Months**	**3 Months**	**1 Month**	**2 Months**	**3 Months**
Attacks	-0.0279***	-0.0164	0.0207**	-0.0365***	-0.0231	0.0393**	0.0148	-0.00335	-0.0570**
	(0.01)	(0.0143)	(0.0101)	(0.01)	(0.0312)	(0.0189)	(0.01)	(0.0239)	(0.0286)
Total Killed	0.000938*	0.00167	-0.00482**	0.00175***	0.00415	-0.00759*	-0.00606*	-5.68e-05	0.0106
	(0.00)	(0.00218)	(0.00223)	(0.00)	(0.00396)	(0.00390)	(0.00)	(0.00584)	(0.00716)

Robust standard errors in parentheses clustered at Province Level

*** p<0.01, ** p<0.05, * p<0.1

The one month lags are copied from Table 4. All models include province and month fixed effects as well as all variables included in Table 4. Also include a trend term and province trend terms