Impact of Terrorism and Refugee Crisis on Female Employment

Gunes A. Asik [*]

TOBB Economics and Technology University

Very Preliminary, Please Do Not Circulate
November 30, 2017

Abstract

The recent brutal attacks of Islamic State of Iraq and Syria (ISIS) across Europe showed that no country is completely immune from the threat of terrorism. The other disturbance that was concurrent to ISIS threat and more likely to have longer term implications is the Syrian refugee crisis. How do employment dynamics change in a country which suffers both from terrorism and refugees crisis? Using administrative data of registered employment of men and women that is available on a monthly basis for 81 provinces between 2009-2016 and matching monthly formal employment with the Global Terrorism Database (GTD), I provide evidence on the impact of terrorism and refugee crisis on female and male employment from Turkey. Relying on instrumental variables and system GMM estimators, I find the counter-intuitive result that terrorism has positive impact on formal female employment. Two possible explanations are that i) the increase in military demand for goods and services in the regions that are exposed to attacks, and ii) given the fact that informality is higher among women, women require higher compensation (in the form of formal contracts) to work under terrorism threats.

Keywords: Female Employment, Terrorism, Migration

1 Introduction

While some countries in the world have been suffering from a long term war with terrorism, first 9/11 and then the rise of Islamic State of Iraq and Syria (ISIS) showed that no country is completely immune from the threat of terrorism.[1]. The brutal attacks of ISIS in major Western capitals shocked the world but since terrorist attacks are rare and temporary events, any impact should be purely transitory. On the other hand, the other disturbance that is concurrent to ISIS threat and more likely to have longer term economic and social implications is the Syrian refugee crisis. But what are the labour market implications when a country suffers both from long term terrorism and large influxes of refugees? This research aims to provide evidence from Turkey, a country that suffers both from long term terrorism and mass migration.

Terror management theories suggest that individuals may withdraw from the labour market in the face of threat to connect with the loved ones and anxiety over leaving home and children (Becker (1971)). Another theory on how terrorism might affect the female labour force is provided by social psychology which suggest that populations might move towards traditional gender roles under a threat (Jost et al. (2003)). This line of theory suggests that increased anxiety towards the well being of children and protection concerns might motive women to exit the labour force and watch over the family.

Becker et al. (2004) shows that people are both emotional and rational but terrorism, and other events, can both cause subjective beliefs to deviate widely from objective beliefs. The study estimates the impact of both bus-related suicide attacks on the usage of public bus services and caf-related terrorist incident on visits to cafs and shows that frequent and occasional users respond differently to terrorism, with no impact of suicide attacks on the demand for these goods and services by frequent users. The study also shows that the less educated are more likely to overreact to terrorist acts than more educated individuals.

An important problem in identifying the impact of terrorism is the endogenous nature of the terrorist attacks. While terrorism can have an impact on economic outcomes, socioeconomic structures such as inequality and poverty can

---

[1]ISIL is also known as the Islamic State of Iraq and Levant (ISIL) and the Islamic State (IS)

also affect terrorism. Robison et al. (2006) argue that there might be a causal relationship going from female labour force participation towards terrorism; as the freedom and liberation of women might disturb the social order and trigger religious conflict, such as Islamic terrorism. Caprioli (2005) suggests that gender discrimination is associated with higher tendencies of violence and hence states with higher gender inequality are more likely to suffer from internal violence. Berrebi and Ostwald (2016) investigates the causal relationship between female labour force participation and terrorism by using a panel data set of 165 countries between 1980 and 2007 and instrumenting terrorism with i) natural disasters and terrorism incidence in neighboring countries. The study finds that terrorist attacks decrease female labor force participation and increase the gender gap between male and female participation rates.

In addition to the reverse causality problems in identification, timing and location choices of terrorist attacks might also be endogenous. Brodeur (2015) addresses the endogeneity of the location choice by exploiting the randomness in success and failure of attacks. Using data for U.S. counties between 1970-2013, the study finds that successful attacks in comparison to the failed attacks reduce the number of jobs in targeted counties by 5% in the year of the attack but the effects fade away in 2 years and no there is evidence of impact on neighboring counties. Moreover, the study suggests that successful attacks brought a leftward shift in gender roles, as local residents were more likely to disagree that a woman's place is in the home. Durante et al. (2015) shows that in the conflict between Israel and Palestine, Israeli attacks are more likely to be carried out when U.S. news are expected to be dominated by important domestic events on the following day to minimize negative news coverage whereas the study finds no evidence of strategic timing for Palestinian attacks.

Economic theory suggests that exogenous such as natural disasters or terrorism can cause both a decline in labour supply and labour demand (Belasen and Polachek (2008)). Terrorist attacks can have economic impact through destruction of capital stock, crowding out private sector by increased military expenditures, creating an environment of uncertainty and reducing tourism revenues. By creating a synthetic control region without terrorism, Abadie and Gardeazabal (2003) find that GDP per capita in the Basque Country declined about 10 percentage points following the outbreak of separatist attacks. Greenbaum et al. (2007) suggest that terrorist attacks reduced the number of firms and employment in the year following an attack in Italy from 1985 to 1997, ho-

wever, their identification strategy does not take into account the fact that terror is endogenous. Eckstein and Tsiddon (2004) show that had Israel not suffered from terror during the last 3 years preceding 2003, per-capita output would have been about 1015% higher than they actually were at 2003. Singh (2013) finds significant negative effects of terrorism on the level of investment in long-term agricultural technology in Punjab (India), but effects are small and insignificant for short-term investment. Using an autoregressive distributed lag model, Feridun (2011) show that terrorism had a negative causal impact on tourism in Turkey between 1986-2006, confirming earlier results estimated in the literature. And finally, using granger causality tests Feridun and Shahbaz (2010) shows that there exists a unidirectional causality running form terrorist attacks to defense spending but not vice versa.

There is a large body of literature on migration which show that in the long term, migrants generally have a limited impact on employment in their host country. Card (1990) finds no the effect of the Mariel Boatlift of 1980 on wages or unemployment rates of less-skilled workers in Miami, a result that was later also confirmed by Clemens and Hunt (2017) but was in contrast with the findings by Borjas (2006). One recent study argues that migrants actually have a positive impact on economic growth (Bove and Elia (2017)). The main channel of impact is the environment of cultural diversity which stimulates growth. According to calculations of Bove and Elia (2017) based on international data for 1960-2010, an increase of 10 percentage points in cultural diversity leads to a rise of 2.1percentage points in gross domestic product (GDP) growth per capita. In developing countries, the increase reaches 2.8 percentage points. Akcigit et al. (2017) looks at the innovation and patents in the United States from 1880 to 1940 and show that although migrants represented only 2% of the population, they accounted for almost 20% of patent receivers.

Evidence from Turkey on migration shows some small employment effects on natives. Treating the Syrian crisis as a quasi-experimental design, Ceritoglu et al. (2017) find that the Syrian refugees replaced low skilled natives in regions with a heavy Syrian presence, and the ratio of informal employment to population fell by 1.9 and 2.6 percentage points for males and females, respectively. They also show that unemployment has increased, while labor force participation and job finding rates have declined for natives, especially for women. Using the same quasi-experimental design Tumen (2016) find that Syrian refugee inflows to the treatment region in Turkey reduced the likelihood of having an informal job by

4

2.26 percentage points for natives in those regions compared to the natives in the control region and formal employment to population ratio increased by approximately 0.46 percentage points. Tumen (2016) finds no convincing evidence of increased public services (due to the existence of accommodation camps) in treatment regions that could drive the increase in formal employment. The study finds no statistically significant effect of the refugee inflows on the wage earnings of the native individuals. Del Carpio et al. (2015) uses the distance to Syrian provinces as an instrument for refugee intensity in Turkish Nuts2 regions and also find sizable impact on informal jobs. Consistent with occupational upgrading, there are increases in formal male employment but not female employment among the locals. The low educated and women experience net displacement from the labor market with effects of around 6 natives for every 10 refugees. Akgündüz et al. (2015) on the other hand suggest that employment appears to be unaffected by the inflow of Syrian refugees into Turkish regions bordering Syria.

While the main focus of this study is to understand the gender differences in labour market responses to terrorist attacks, it is difficult to isolate terrorism from the current refugee crisis, as an important part of the problem lies in the very existence of Islamic State both as a driver of refugee flows from Syria towards Turkey and Europe and conducting lethal attacks on civilians across metropolitan cities in the world. This study contributes to the literature by attempting to isolate the impact of these two types of shocks and it is the first study to present evidence on formal employment with gender breakdown from a developing country perspective. While the economies are almost entirely formal in developed countries, the prevalence of informal employment (that is employment without registration to the social security system) is high in developing countries, especially among women, which might lead to different responses of labour supply decisions in the face of major shocks. Indeed, El-Mallakh et al. (2016) find that the 2011 Egyptian protests reduced intra-household differences in labor force participation by increasing womens employment and unemployment relative to men in Egypt. The study shows that womens employment relative to men increased in both the private and informal sectors and suggests economic uncertainty may undermine the importance of cultural factors and attitudes towards female work.

Another contribution of this study is that contrary to the existing studies in the literature which relies on annual data, I use monthly administrative data

on formal employment which allows me to link the timing of terrorist attacks with employment growth in a given month in a much clearer way. Since terrorist attacks are rare, identification problems may arise in studies using annual labour force surveys as the main change in outcomes might have taken place before the attacks rather than the other way around. Moreover, while it is possible to see whether an individual is employed formally or not in labour force surveys, usually the information on the date of formal contract (month of the year the individual started to work) or past formal employment history is lacking in order to identify differential effects on formal and informal employment. Another weakness of annual surveys is that individuals might not be truthful about their formality status with the fear of being fined by the budgetary, or fired by the employees. I use monthly administrative data on private sector formal employment for 81 provinces (cities, or Nuts3 regions) of Turkey between 2009-2016 provided by the Social Security Institution of Turkey, hence it is more accurate than household surveys in terms of formality. But precisely because of this reason, my research has unfortunately nothing to say about the impact of terrorism and refugee crisis on informal employment, since there is no available data on informal employment on a monthly basis.

Given the endogenous nature of the terrorist attacks and the location choice of Syrian refugees, I rely on two stage least squares and system GMM. The two instruments that I use for terrorism is; i) the number of attacks in other provinces in a given month that are in the same Nuts2 region with the province in question, ii) change in average temperature as compared to the same month of the previous year in a given province with the identifying assumption that conducive weather conditions might actually make the organization of attacks easier in winter months. The instruments that I use for predicting the location choice of Syrians is; i) the distance from Aleppo interacted by the number of total attacks in a given month in Syria (and three lags of this measure), and ii) total fatalities in a given month in Syria. And finally, given the fact that employment may depend on its lagged values and most control variables are likely to be endogenously determined with employment, I rely on system GMM treating almost all variables as endogenous.

I find the surprising and somewhat counter-intuitive result that terrorism affects formal female and male employment growth positively, but the impact on female employment growth is much stronger and robust. In particular, an increase in the number terrorist attacks in a given month increases y-o-y female

formal employment growth by about 1-1.6 percentage points and increases the growth of female employment share in total formal employment by 0.15 percentage points on average. Moreover, being exposed to at least 1 terrorist attack in the last three months; increases y-o-y female formal employment growth by about 2.4-2.7 percentage points and increases the growth of female employment share in total formal employment by 0.3-0.7 percentage points on average. I find no statistically significant impact of ISIL attacks on male or female employment. 1 percentage point increase in the y-o-y change in number of refugees increases y-o-y formal male employment growth by about 1.3 percentage points but has no impact on formal female employment growth, a result that confirms the earlier findings in the literature.

The organization of the paper is as follows; in Section 2, I provide information on terrorism history and refugee crisis in Turkey. In Section 3, I describe the data and the methodology. Section 4 provides the results. Section 5 concludes.

2 Terrorism and the Refugee Crisis

2.1 Background on the History of Terrorism in Turkey

Turkey stands as a unique example that has engaged in an armed conflict for more than 30 years with Kurdistan Workers Party (PKK), which is internationally listed as a terrorist organization. Although the regions which are predominantly populated by citizens with Kurdish ethnicity have lower per capita incomes on average and are less developed, PKK terrorism is rather a political phenomena than an economic one, having its roots back in Treaty or Sevres and 1920's Kurdish rebellions in southeastern Turkey (Ergil (2000)). The overall death toll since 1984 is estimated to be around 30,000-40,000 (Feridun and Sezgin (2008)). After an intense war throughout 1990s, PKK announced a unilateral ceasefire after its leader Abdullah Ocalan was captured in 1999. PKK ended the ceasefire in 2004 and the armed conflict continued until 2013 when AKP budgetary launched the so-called Kurdish Peace Process which sought policies to promote peace and reconciliation. Unfortunately, the process halted once again in 2015 when an Islamic State suicide bombing killed 33 and injured more than 100 activists in Kurdish majority town of Suruc in South-Eastern Turkey. PKK held Turkish budgetary responsible for failing to protect the activists who were en route to support reconstruction efforts in the Syrian Kurdish town of Kobani

and killed several budgetary officials in retaliation. Since then another intense episode started but this time was deadlier than ever. PKK changed tactics and started targeting major metropolitan cities instead of its strategy to attack military in Eastern parts of Turkey throughout 1990s. According to International Crisis Group, at least 2,844 have been killed, 395 being civilians in clashes between PKK and Turkey since 2015.

Unfortunately, PKK terror has not been the only outlet of deadly attacks targeting both civilians and officials across Turkey. The Islamic State of Iraq and Syria (ISIS), a predominantly Sunni jihadist group, which seeks to sow civil unrest in Iraq and the Levant with the aim of establishing a caliphate Islamic state based on sharia Laub and Masters (2014). It originated as Jama'at al-Tawhid wal-Jihad in 1999 in alliance with al-Qaeda in Iraq and participated in the Iraqi insurgency following the 2003 invasion of Iraq by Western forces (Zelin (2014)). ISIL gained prominence when it captured Mosul in 2014 and is believed to be operational in 18 countries.[2] According to International Crisis Group, attacks by the Islamic State killed at least 211 civilians and left more than 1182 civilians wounded in Turkey since 2013.

The Global Terrorism Database (GTD) by National Consortium for the Study of Terrorism and Responses to Terrorism (START shows that between 2009 and 2016 there were in total 1303 terrorist attacks in Turkey, 953 of which are believed to carried over by PKK, 74 by ISIS and the rest by mostly minor communist/marxist organizations. PKK and ISIS have different attack strategies, the former targeting mostly (but not confined to) the military and the budgetary, while the latter's main target is civilians. GTD shows that PKK conducted 375 attacks to military, 253 to police, 176 to civilians and 54 to budgetary officers while ISIS' 57 attacks targeted civilians, 10 targeted military and 7 targeted the police.

Figures 1 and 2 show the geographic distribution of terrorist attacks by PKK and ISIS. Both carry out attacks mostly in the South Eastern cities of Turkey (which are predominantly Kurdish and Arabic speaking areas), but have also targeted major metropolitan areas such as Istanbul, Ankara and Izmir. ISIS' headquarter has been in Raqqa, Syria until the recent defeat to allied forces, while PKK is based in the Qandil Mountains between Iraq, Iran and Turkey. PKK's headquarter location makes it difficult for the Turkish military to conduct

---

[2]Source: BBC, 'Islamic State and the crisis in Iraq and Syria in maps', article published on November 3, 2017

ground operations against the PKK, but precisely because of its location choice, there is seasonality in the frequency of PKK attacks. Qandil Mountains have an elevation of 3,587 meters and since the weather conditions are severe over the winter, PKK carries over its attacks mostly over summer and autumn. Figure 4 show the monthly distribution of attacks by PKK and ISIS. In contrast to PKK, ISIS is more likely to attack over spring, when the weather is not too hot but both PKK and ISIS are relatively inactive in winter months, a point which we will come back when discussing the identification strategy.

2.2 Syrian Civil War and Implications of the Refugee Crisis in Turkey

The Syrian Civil War erupted in 2011, when the military forces of President Bashar al-Assad used excessive force over protesters who demanded an end to the authoritarian practices of the Assad regime and eventually opposition militias started to form that escalated to a fully fledged civil war.[3] The conflict in Syria as well as the ISIS violence in neighboring Syrian towns led millions of Syrian to fled out of country en mass, some of them heading towards Lebanon, Jordan and some towards Europe and Turkey since 2012. Turkey has adopted an open door policy for Syrian nationals or stateless individuals fleeing from Syria from the initial stages of the conflict and according to the United Nations High Commissioner for Refugees (UNHRC), there are about 5.38 million Syrians registered outside, 3.3 million of which reside in Turkey corresponding to roughly 4.14% of Turkish population as of November 2017.

When Syrians first started migration to Turkey in early 2011, majority were hosted in refugee camps. But as the numbers increased exponentially, Syrians started moving to biggest cities in West and in South East as it became increasingly difficult to accommodate the refugees in camps. Location choice of Syrians are not random, with refugees settling to provinces closer to the Syrian border and with higher Arabic-speaking locals. Intensity varies across provinces; for instance Kilis hosts Syrians that corresponds to about 99.6% of its population whereas in Antalya, Syrian refugees are about 0.02% of the local population. As, Figure 6 shows majority of Syrians are located in South East and in the major metropolitan cities as Istanbul and Ankara.

---

[3]Source: Encyclopedia Britannica,https://www.britannica.com/event/Syrian-Civil-War

The Syrians in Turkey are not officially categorized as 'migrants' but are granted with temporary protection (TP) by the budgetary of Turkey since 2014. Syrian nationals, refugees and stateless persons arriving from Syria in Turkey are not be punished (such as through administrative fines) for entering Turkey through irregular (illegal) ways or for irregular stay in Turkey and includes the right to stay in Turkey until a more permanent solution is found for the protection of individuals. Syrians are entitled to a range of rights, services and assistance which includes, among others, access to health, education, social assistance, psychological support and access to the labour market under TP. [4] The temporary protection status however, does not grant automatic entitlement to work.

Turkish businesses which would like to obtain work permit on behalf of a Syrian employee can apply online to the Ministry of Labor and Social Security after a waiting period of four weeks during which the employer has to prove that there was no Turkish citizen equal qualifications for the vacancy. According to the Regulation on Work Permit of Refugees Under Temporary Protection, dated 2016, there is a quota on Syrians; the number of Syrians employed cannot exceed 10% of the Turkish citizens at any workplace. Moreover, the Syrians are allowed to work only in the provinces they are registered in. According to the regulation, wages paid to the Syrians can not be under the minimum wage.

3 Data and Identification

The research question to be tested in this proposal is the impact of terrorism and Syrian migration on formal female employment, formal male employment and share of formal female employment in total. Existing studies mostly use annual household labour force surveys which are able to capture informal employment, however these surveys are neither available at the provincial level, nor include information on the month that the survey was conducted. Moreover, household labour surveys do not include information on whether the individuals were employed formally or informally in the past, or when they were registered in the social security system. Another important disadvantage that is specific to Turkish labour force surveys is that they do not include information on the city of residence, as the data is only representative for the 26 Nuts2 regions of

---

[4]Source UNHCR. http://help.unhcr.org/turkey/information-for-syrians/temporary-protection-in-turkey/

Turkey whereas the administrative employment and terrorism data is available for 81 provinces. Hence both the variation over time and variation across geographical distribution are greatly reduced in household labour surveys, making it very difficult to identify the causal impact of terrorism on employment and the type of contracts that the individuals accept.

In my study, I use administrative data of registered employment of men and women that is available on a monthly basis for 81 provinces of Turkey between January 2009 and December 2016 provided by the Social Security Institution of Turkey. This dataset also includes information on the average formal earnings of men and women, number of unemployment benefit applications and number of establishments opened in a province in a given month. Since it is administrative data on exact registered employment, the dataset does not include any information on the monthly informal employment in a province. The database includes individuals employed by the private sector outside agriculture and individuals who are not public servants but employed on a contractual basis by the budgetary.[5]

I match the monthly formal employment with the global terrorism database provided by the National Consortium for the Study of Terrorism and Responses to Terrorism (START GTD). GTD provides detailed information on all terrorist activities on a daily basis which includes the name of terrorist organization that carried out the attack, where the attack was conducted and the number of casualties. For an incident to be defined as a 'terrorist attack' GTD checks whether it meets the following criteria; i) the incident has to be intentional, ii) it entails some level of violence, and iii) the perpetrators of the incidents are sub-national actors. In addition, the incidence have to satisfy at least two of the following criteria; i) having a political, religious, social goal, ii) evidence of intention to convey a message to a group of people other than the immediate victims, and iii) action carried over outside legitimate warfare activities.

Applying these criteria, GTD offer a combined dataset that includes 1303 terrorist attacks between 2009 and 2016 on a monthly basis and at the same time allows me to analyze the differentiated impacts of PKK terror and ISIS terror.

---

[5]More specifically, the data used in estimations includes all employment that is classified as 4a under Turkish Labour law. Other types of employment which is out of the scope of this paper; such as the craftsman and farmers are classified under 4b and public servants are under 4c.

Data on monthly Syrian refugees are provided by the Ministry of Interior, Directorate General of Migration Management on a provincial level, however, certain months are missing for provinces especially in the initial years of 2012 and 2013. The missing figures between months are linearly interpolated for each province, making the dataset a balanced panel. Annual data on provincial level population, number of children between 0-14, number of university graduates are provided by the Turkish Statistical Agency (Turkstat); the annual budgetary expenditures at the province level is provided by the Ministry of Finance; and data on annual provincial GDP at 2010 US Dollars is provided by Başıhos (2016). Unfortunately data on military expenditures by provinces is not publicly available which limits the ability of this study to identify the channels through which terrorism has impact on formal employment.

In identifying the causal impacts of both the terrorism and mass migration, there are couple of important problems that need to be addressed. More specifically; the challenges in identification are; i) strong seasonal patterns in monthly data, ii) the Nickell Bias in dynamic panel data models (models that contain lags of the dependent variables); iii) the endogeneity of terrorism, i.e. possible reverse causality between the economic outcomes and terrorism and the non-random nature of the timing and location choice of terrorist attacks; and iv) location choice of the refugees in the host countries. I attempt to address these concerns as follows:

1) Seasonality of monthly data: Unlike annual data, high frequency data are subject to seasonal patterns. This is a concern for identification because if the seasonal factors are not removed, the effect of an impact of attack in a certain month can be easily confused with the seasonal effects. As 8 shows, first differences in log female employment shows a very clear seasonal pattern, with employment growth slowing down every July and increasing in every September between 2009-2016.[6] Moreover, as explained in section 2, terrorism database is also subject to seasonality, its frequency increasing over the warmer months and decreasing over winter which can in theory overlap with seasonality of employment and can lead to misleading results. Hence, in order to control for seasonality, I use 12 months difference of log employment and other macro-covariates

---

[6]I chose Istanbul as an example as it is the most populated city of Turkey with around 14 million residents.

estimating the monthly growth over the same period of the last year (i.e. year-on-year growth) in all my specifications. Indeed as 8 shows, year-on-year growth does not exhibit a seasonal pattern anymore.

2) The Nickell Bias: In dynamic panel data models which (by definition) include one or more lags of the dependent variable, demeaning or the within transformation to remove the unobserved fixed heterogeneity creates correlation between the regressor and the error term (Nickell (1981)). The correlation occurs because the mean of the lagged dependent variable contains observations from 0 to $(T-1)$ and the mean of the error which is subtracted from each ϵ_{it} contains contemporaneous values of ϵ_{it} for $(t = 1, 2, ...T)$. Taking first differences to remove the fixed effects does not solve the problem either because $y_{i,t-1}$ is correlated with $\epsilon_{i,t-1}$. The bias in the coefficients become an important problem in the context of small T and large N as the inconsistency of the coefficient is of order $1/T$ as $N \to \infty$.

The difference GMM by Arellano and Bond (1991) and system GMM developed by Arellano and Bover (1995) and Blundell and Bond (1998) aim to provide consistent estimates by using the appropriate lags of endogenous variables in dynamic panel models. The advantage of these estimators are that they are suitable for multiple endogenous and predetermined variables, however if T is large, the number of instruments explode and over-fitting of endogenous variables becomes problem. Roodman (2006) suggests that usual fixed effects models can be applied when the number of time periods, T is large as the dynamic panel bias becomes insignificant. In my study I rely on system GMM estimators in addition to the Two Stage Least Squares due to their advantages of handling multiple endogenous variables. However, in order to limit the number of instruments, I divide my data into two year periods as 2016-2015, 2014-2013 and 2012-2011 and restrict the maximum lags to 2. This provides me samples with $T = 24$ for every two years and results in an instrument count of maximum 126 (depending on the specification) for $NT = 1863$ and allows me to investigate the impact of terrorism and refugees in a more credible way by limiting the over-fitting of endogenous variables.

3) Endogeneity of terrorism: While terrorism in Turkey had historically political roots and can be fairly considered as exogenous in terms of the la-

13

bour market conditions in South East regions subject to frequent attacks, the timing and the location of the attacks are nonrandom. Admittedly, finding credible instruments on terrorism that satisfy the instrument exogeneity and exclusion restrictions is a very challenging task. I attempt to address the endogeneity by relying on two instruments for terrorist attacks, namely; a) number of terrorist attacks in other provinces of the same NUTS2 region, b) year-on-year change in average temperature by provinces as a start.

The identifying assumption for my first instrument is that number of attacks in other provinces classified within the same Nuts2 regions might increase the likelihood of attacks in a given province but otherwise have no direct impact on the formal employment or the control variables. So this instrument assumes no spillover effects from attacks in other provinces in the same region. There are in total 26 Nuts2 regions, consisting of 81 Nuts3 regions (provinces) in Turkey and the Nuts2 regions are formed based on the level socio-economic development. While metropolitan cities of Istanbul, Ankara and Izmir are each a single Nuts2 region, there is typically 3-4 provinces in a Nuts2 region. Figure 9 shows geographical distribution of Nuts2 regions based on the classification by the Turkish Statistical Agency. Since the provinces in the same region have very similar economic structures, it is reasoable to assume ex-ante that terrorist attacks in different provinces in the same region should not trigger migration or change in demand for goods and services in a given province. Moreover, as Figures 1 and 2 show, in South East regions of Turkey-which are subject to frequent attacks, terrorism incidence almost always takes place in multiple provinces and hence there is limited incentives for the locals to migrate to a different province as all neighboring provinces suffer from same terrorist attacks.

As for the second instrument; while the timing of terrorist attacks has seasonality (more attacks in the summer), the change in average temperature as compared the same month of the previous year should be purely exogenous. Recall that there are less PKK attacks over the winter as the base of PKK is in Qandil Mountains with extreme weather conditions. The identifying assumption is that the change in average temperature only affects the number of attacks by making the physical conditions more conducive for attacks (less snow and rain) but have otherwise no impact

on formal employment. 10 shows the number attacks and year-on-year change in average temperature in Turkey which shows somewhat a weak, but positive association. While admittedly, one can argue against this instrument based on the fact that change in average temperature can have impact on economic activity, I argue that it should be rather limited. The reason is that those regions which are subject to frequent attacks are not major tourist attractions and have high informal employment, and hence it is difficult to argue in favor of economic channels that might increase formal employment when average temperature is warmer as compared to the same month of previous year in a given province.

The two alternative instruments that are forthcoming in the second draft of this paper is; i) the 'martyr' data of Kurdish fighters that are killed in action in Syria provided by Ferris and Self (2015). The identifying assumption that is when more PKK fighters are killed in conflict with jihadists in Syria, there are less resources for attacks in Turkey and the number of PKK fighters died in Syria are purely exogenous in terms of the employment in Turkey. ii) information on the perceptions and support for 'Kurdish independence', provided by Konda Research, a private research company that conducts surveys for its monthly bulletin called the 'Barometre'. These surveys include a spectrum of questions on political and electoral tendencies and have been also measuring the support for the budgetary's 'Peace Process'. The identifying assumption is that lagged values of support for Kurdish peace process might affect PKK's willingness to attack in a given month, but otherwise have no direct impact on the employment outcomes.

4) Location choice of Syrians: While outbreak of the conflict in Syria can be considered as a natural experiment, the location choices of the refugees are not random, proximity to Syrian border being the most important factor deriving the flows in Turkey. In order to control for the location choice, I use two different instruments. The first one is the distance from Aleppo to each 81 provinces of Turkey, interacted by total number of attacks in Syria (provided by GTD) in a given month, and the 3 lags of this measure. The distance from Aleppo is exogenous to the employment outcomes in Turkey, however it is fixed over time. On the other hand, total number of monthly attacks in Syria are exogenous but they are fixed

for each province for Turkey. Hence interacting the two gives variation for each of the province-month pairs between 2009-2016. The identifying assumption is that this measure and its lags affect the location choice of refugees fleeing Syria but has otherwise no direct impact on local labour markets in Turkey.

The choice of Aleppo for measuring the distance to Turkish provinces is as follows; a forthcoming Oxfam survey shows that Syrian refugees in Turkey are mostly from border provinces, with refugees of Aleppo origin constituting 57% of total refugees, Idlib constituting 8%, Hasakah constituting 7%, Raqqa constituting 6% and Latkihia constituting 3%, together which constitute 81% of total refugee population in Turkey (Oxfam (2018)). But as Figure 7 shows, all of these cities are located almost next to each other, having similar distance to each Turkish province with the exception of Hasakah. Hence distance to Aleppo is in fact a good approximation for the location choice majority of the refugees.

The second instrument that I use is the number of monthly fatalities in each month in Syria and their 3 lags with the identifying assumption that fatalities might affect the intensity of inflows to Turkey but otherwise have no direct affect on the formal employment in local labour markets. While one can argue that the conflict in Syria can directly affect employment in Turkish provinces that have export links with Syria, a counter-argument could be put forward based on the fact that decline in exports are replaced with stronger domestic demand in those provinces, as refugees are in effect consumers in Turkey rather than consumers in Syria. Moreover, there is also demand for goods, especially for medical supplies by international organizations that carry aid to Syria.[7] Since the economic activity in Syria went down severely, the supplies of basic goods are met by Turkish producers and it is not entirely clear whether the Syrian conflict had a non-negligible impact on Turkish exports after the initial shock. Hence, the impact on employment coming from refugees in Turkey should be much more important than the export channel although it is a valid concern for instrument exogeneity.

And finally in addition to the instruments discussed above, I also rely on

---

[7]See BBC article (in Turkish): http://www.bbc.com/turkce/haberler/2015/06/150601_gaziantep_ihracat_gs2015

system GMM treating terrorism and refugees as endogenous in order to identify their impact on formal employment.

The equation I estimate is the following one:

$$\Delta Y_{i,t-12} = \beta_0 + \rho L.\Delta Y_{i,t-12} + \beta_1 T_{i,t} + \beta_2 \Delta M_{i,t-12} + \theta \Delta X_{i,t-12} + \beta_3 D_t + \alpha_i + \epsilon_{i,t} \quad (1)$$

where i denotes the province, t denotes the time. Depending on the specification, $Y_{i,t-12}$ denotes change in female and male employment (in natural logs) as compared to the same month of the previous year, or change in share of female employment in total formal employment as compared to the same month of the previous year. Depending on the specification, $T_{i,t}$ is the total number of terrorist attacks in a given province and month, or an indicator variable that takes on the value 1 if there has been an attack in the last 3 months in a given province. $M_{i,t-12}$ is the year-on-year change in total number of Syrian refugees (in natural logs) in a given province and month, and $X_{i,t}$ is the vector of control variables, namely, i) GDP per capita (in 2010 US Dollars and in natural logs), ii) number of business establishments (in natural logs), iii) real budgetary expenditures (in natural logs), iv) number of children aged 0-14 (in natural logs), v) number of female university graduates (in natural logs), and vi) total population (in natural logs). D_t is the month and year effects and α_i province effects. The number of female graduates can have a positive impact on formal employment as it is a well documented fact that women with tertiary education are more likely to participate in the labour force and work under formal contracts while the number of children in a province can have an impact on the level of female employment, especially if there are limited outside childcare facilities.

The next section provides the estimation results.

4   Results

Tables 1, 2, and 3 provides the baseline OLS fixed effects estimations ignoring the endogeneity concerns. As Table 1 shows, there is a positive and statisticaly significant association between the number of terrorist attacks and formal female employment while there is no statistically significant association between terrorism and male employment, except for ISIS attacks. We see that there is a negative and significant association between male employment and ISIS attacks while as for women the association is positive. The magnitudes of the coefficients

17

are very similar for overall attacks and PKK attacks in columns (1) and (3) which is expected since the majority of terrorism attacks in Turkey are carried over by the PKK. More specifically, an increase in the number of attacks are associated with about 0.3 percentage points increase in y-o-y growth in monthly female employment, which is small in magnitude. On the other hand, simple OLS estimations show that the change in number Syrian refugees have no statistically significant association with female employment growth but are positively and highly associated with male employment growth. This result is in line with the findings of Ceritoglu et al. (2017), Tumen (2016) and Del Carpio et al. (2015).

Taking into account the fact that terrorism might affect employment with a lag, Table 2 uses a different measure for attacks. The variable of interest in columns (1) and (2) is an indicator variable that takes on the value equals to 1 if there has been at least one terrorist attacks in a given province in the last three months. Columns (3) and (4) are the same measure for PKK attacks and columns (5) and (6) is for ISIS attacks in the last three months. We now see that not only the female employment growth is positively associated with attacks, but also male employment growth. This may indicate that the contemporaneous relationship with terrorism is stronger for female employment growth than male employment growth with the effect taking place slower in the case of males. On the other hand the coefficients for ISIS attacks are no longer significant, suggesting that ISIS's attacks might be perceived as purely transitory since the history of ISIS terrorism is very recent while as for PKK once an attack occurs, more could be expected given the history of 40 years fight. We get similar results to those in Table 1 for the coefficients for Syrian refugees with male employment growth having a positive and significant association while female employment growth has not statistically significant association with refugee crisis.

Instead of looking at growth in levels of formal employment for males and females, Table 3 uses the annual change in monthly share in female employment in total formal employment. In all columns from (1) to (6), we see that female employment share is positively and significantly associated with terrorism incidence, suggesting that formalization is stronger for women under the threat of terrorism, tilting the shares in favor of women.

We next turn to specifications attempting to address the endogeneity of terrorism and Syrian refugees. Tables 4 and 7 attempt to instrument terrorism only while Tables 5 and 8 take into account the endogeneity of both the terrorism and refugee inflows. Starting with Table 4, we see that terrorism coefficients for fe-

male employment growth is still positive and highly significant with magnitudes about three times larger than OLS baselines. More specifically an increase in the number of attacks in a given month leads to an increase in female employment by about 1.2 percentage points on average over the same month of the previous year. Moreover, column (2) shows the coefficient of terrorism attacks in predicting male employment growth is significant at 10% level albeit with much smaller coefficients as compared to female employment growth. The coefficients for Syrian refugee growth is negative for female employment growth and positive for male employment growth, but this time they are statistically significant for female employment. First stage results show that the instrument are statistically significant although the F statistics are not above the recommended threshold of 10. In fact the instruments perform rather poorly for ISIS terrorism.

In Table 5 we instrument both the number of terrorist attacks and the Syrian refugees. The coefficients of terrorism in predicting female employment growth are now slightly higher, indicating a 1.6 percentage point impact. The coefficients for Syrian refugees however, are no longer significant for female employment growth although they are still negative. First stage results in Table 6 show stronger first stage fit, with Kleibergen-Paap rk Wald F statistics of around 40 that are well above the Stock-Yogo critical values for 10% IV relative bias. However, first stage results for ISIS attacks still indicate weak instruments problem. Results show that terrorist attacks in other provinces in the same Nuts2 region have strong predictive power for overall attacks and for PKK attacks but not for ISIS attacks. On the other hand, the measure of distance to Aleppo interacted with total number of terrorist attacks in Syria as an instrument for the location choice of Syrians has the expected positive and significant coefficient, while surprisingly fatalities in Syria have the opposite sign albeit highly significant. The explanation could be that once the number of attacks in Syria are controlled for, more fatalities could mean less Syrians remaining alive to migrate, or it could mean that it is harder for the remaining Syrians to leave the beloved buried ones.

In Table 7 I only instrument the measure of terrorism incidence in the last three months, and in Table 8 I instrument both endogenous variables. In both tables, the impact of at least 1 terrorist attack in the last 3 months is positive and highly significant for female employment growth and the results are still the same when we look at at least 1 PKK or ISIS attacks in the last 3 months. The results for women are quite robust across different specifications.[8] As for male

---

[8]In addition to the attacks, specifications with number of fatalities included show posi-

employment growth, overall terrorism in the last 3 months has still a positive but weaker impact compared to women while the coefficients for PKK or ISIS attacks in the last three months are not significant for men. On the other hand, the results for the impact of Syrians seem robust in explaining formal male employment growth while the same cannot be said for the female employment growth. Table 10 confirms the OLS results on the association between terrorist attacks, Syrian refugees and female employment share, suggesting that terrorism leads to an increase in the share of female employment, but the Syrian refugees have a negative impact on the share of females in total formal employment.

We now turn to system GMM, treating most control variables as endogenous. Not only the OLS, but also the 2SLS estimations could be inconsistent if we let go of the assumption that number of businesses, GDP, budgetary expenditures and earnings are predetermined. System GMM is suitable to handle multiple endogenous variables and I treat terrorism, y-o-y growth of Syrian refugees, number of businesses, real female earnings, real GDP, real budgetary expenditures and the first lag of annual female formal employment growth as endogenous whereas time dummies, y-o-y change in population, number of university graduates, number of children aged 0-14 are treated as exogenous in all specifications estimated with system GMM. Since the number of instruments are quartic in system GMM, I reduce the instrument count by i) dividing the sample into three biannual periods, ii) limiting the number of lags for each endogenous variables to 2, and iii) by replacing the GMM-style instruments with their principal components.[9]

The results are provided in Tables 11 and 12 for female and male employment growth separately. Unlike in baseline OLS and 2SLS estimations, the impact of terrorism on female employment growth is weaker but still significant, at least for the two sub-periods of 2013-2014 and 2015-2016. The PKK terrorism is no longer significant any any periods while ISIS terror has a highly statistically significant association with female employment for the period 2015-2016. On the other hand, there is evidence of PKK terrorism having a positive effect on male employment growth between 2013-2014 whereas the coefficient for ISIS terrorism is not statistically significant for any sub-periods. The Syrian refugees seem to have a positive but small impact on y-o-y male employment growth in 2016-2015

---

tive coefficients both for terrorism and fatalities although the coefficients of fatalities are of negligible size. Results available upon requests.

[9]The 'pca' option in Stata's xtabond2 command proposed by Roodman (2006) reduces the instrument count by replacing GMM instruments with their principal components.

period by the order of 0.4-0.5 percentage points but the effect is not rubust to different specifications. Similarly, the coefficients of Syrian refugee inflows are positive and statistically significant at 10% for the period 2016-2015. While the impact on both female and male formal employment could be explained by the boost in demand for goods and services, the system GMM estimations are not robust across time periods or across different specifications. This could be due to the reason that the lagged endogenous variables that are used as instruments in the GMM setting could be performing poorly especially for terrorism.

So overall, what could be the mechanisms that derive the counter-intuitive result of increase in formal employment growth, especially for women? There are two possible mechanisms that need further research. First is the 'war' economy that leads to increased demand by budgetary for goods and services in the regions that are exposed to terrorism. While the real budgetary expenditures by provinces do not seem to have a statistically significant association with formal female employment growth, the results could be driven by goods and services demand by which is not captured in budgetary expenditures of municipalities. The next step is to use labour force surveys to identify the sources of formal employment growth by occupations across regions. Second explanation is behavioral. Female labour force participation in Turkey is as low as 32% while informality across women is around 95% in agriculture and about 25% outside agriculture. Women might be more risk averse than men in light of uncertainty and major shocks such as the terrorism could affect the bargaining power and labour supply decisions of women in developing countries requiring social and financial protection against life threatening risks.

5 Conclusion and Further Research

This paper aims to contribute to the literature on gender differences in employment responses to major shocks, such as terrorism and refugee crises. To my knowledge, it is the first paper to that presents evidence on the impact of terrorism on female formal employment in a developing country which suffers both from terrorism and refugees crisis. In this paper, I use administrative data of registered employment of men and women that is available on a monthly basis for 81 provinces between 2009-2016 and match monthly formal employment with the Global Terrorism Database (GTD). Relying on instrumental variables and system GMM estimators, I find a positive and robust impact of terrorism on

formal female employment. The further steps for next draft is to improve the identification strategy with respect to terrorism by employing two alternative instruments. The first one is the lags of perceptions on Kurdish peace process based on the monthly micro surveys collected and provided by Konda Research and Consulting. Surveys have been conducted on a monthly basis since 2010 and certain cross-sections include questions on perceptions of Kurdish conflict and approval of policies as well as information on the employment status of respondents. The second alternative instrument is the number of Kurdish terrorists who were killed in fight in Syrian soil. Since PKK is also at war with jihadists in Syria, higher military losses can generate an exogenous variation in the resources allocated to attacks in Turkey which would meet the requirements of instrument exogeneity and exclusion restriction for the instrument. Further steps also include placebo tests and robustness checks.

Figure 1: **Total Number of PKK Attacks by Provinces between 2009-2016**
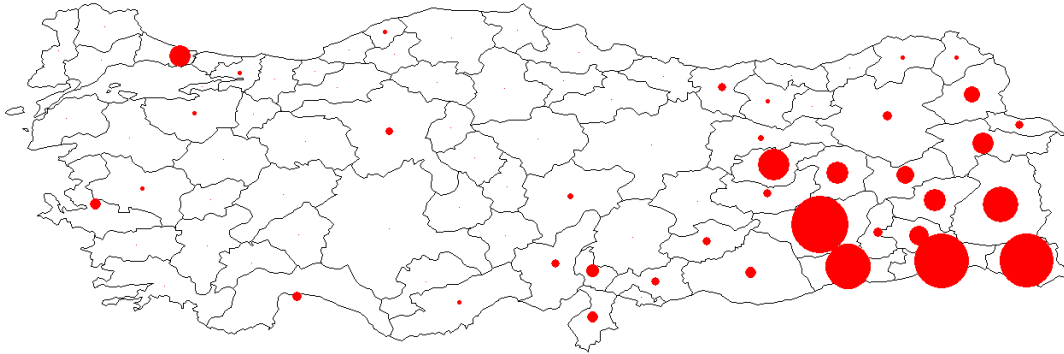
Figure 2: **Total Number of ISIL Attacks by Provinces between 2009-2016**
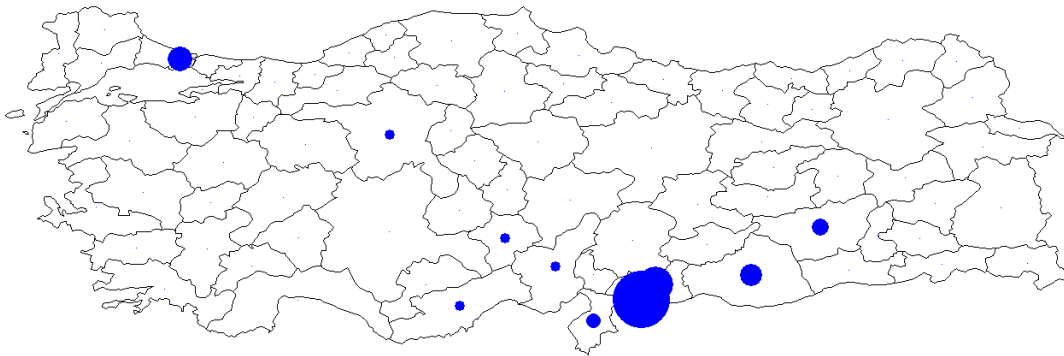
Figure 3: **Total Number of PKK and ISIS Attacks between 2009-2016**
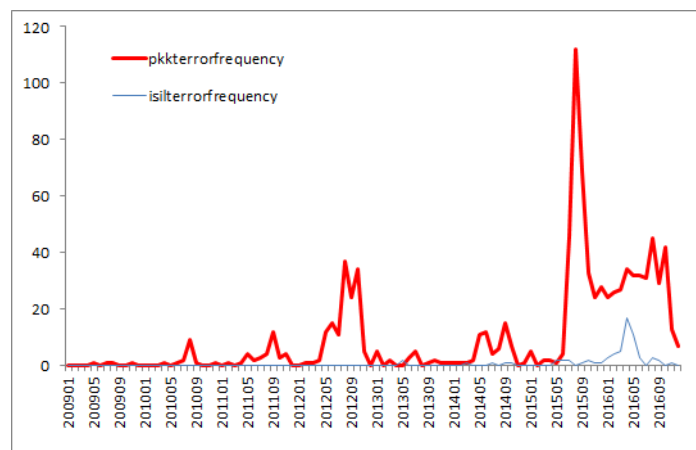
Figure 4: **Seasonal Distribution of PKK and ISIL Attacks**
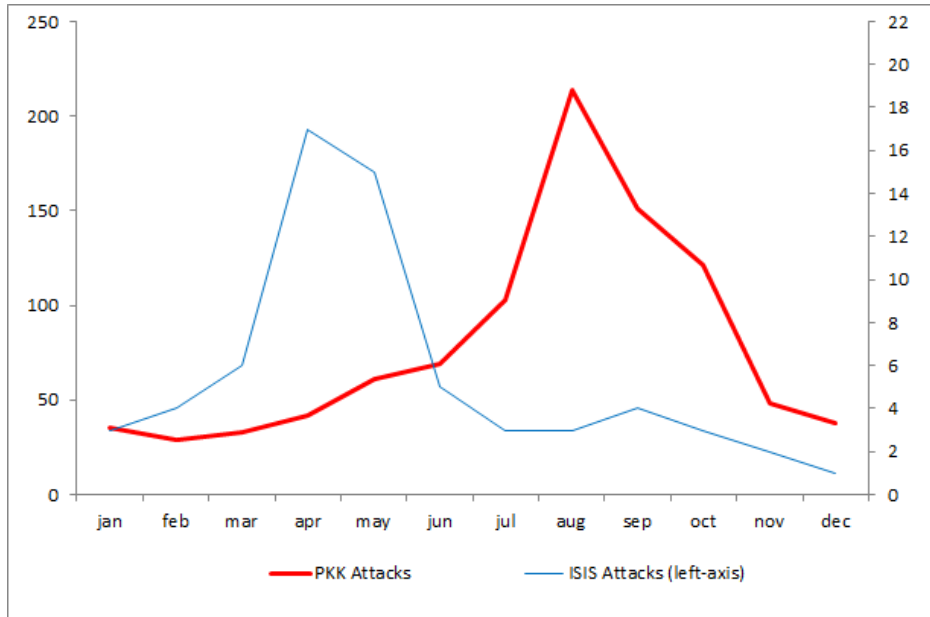
Figure 5: **Syrian Refugees in Turkey**
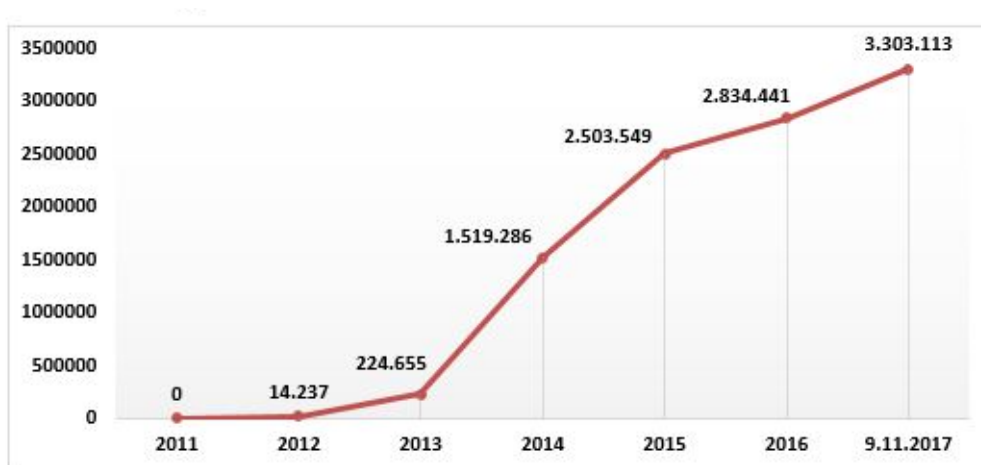
Figure 6: **Spatial Distribution of Syrian Refugees by Provinces in Turkey (as of December, 2016)**
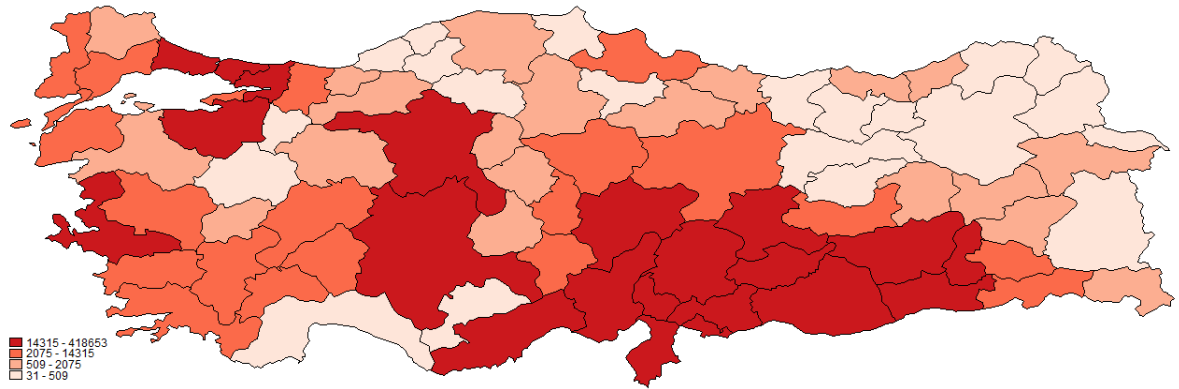
Figure 7: **Map of Syria**

Figure 8: **Female Employment, Istanbul 2010-2016**
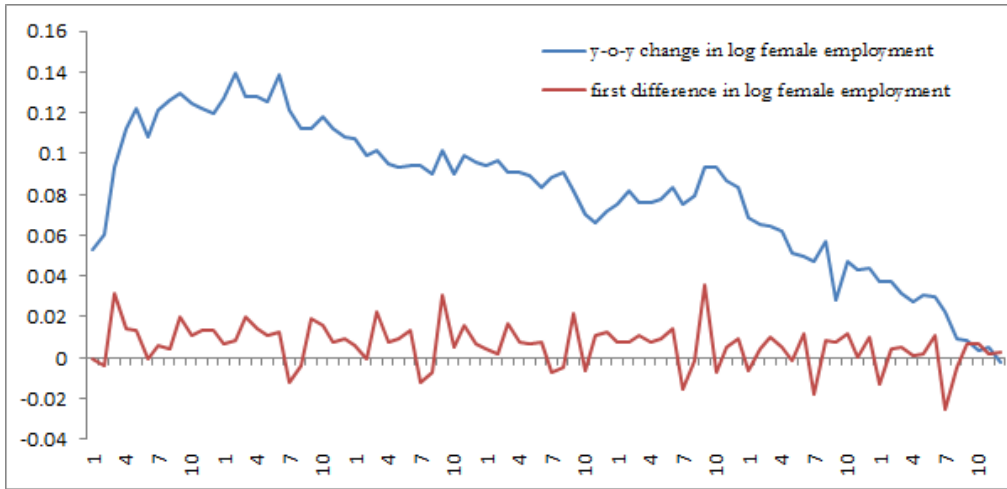
Figure 9: **Classification of Nuts2 Regions of Turkey by Statistical Agency of Turkey**
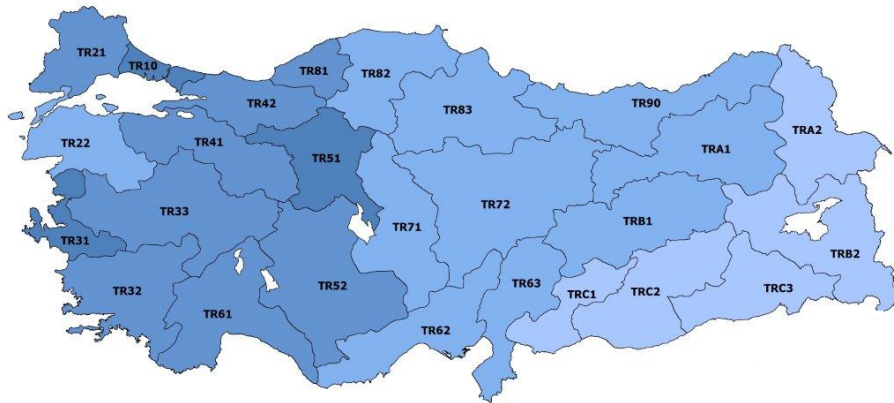
Source: Statistical Agency of Turkey

Figure 10: **12 Months Change in Average Temperature**
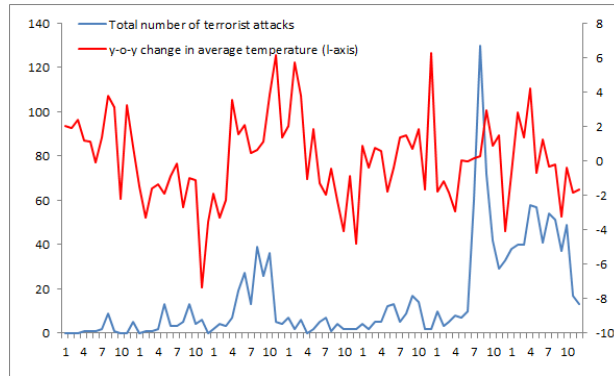
References

Abadie, A. and J. Gardeazabal (2003). The economic costs of conflict: A case study of the basque country. *The American Economic Review 93*(1), 113–132.

Akcigit, U., J. Grigsby, and T. Nicholas (2017). Immigration and the rise of american ingenuity. Technical report, National Bureau of Economic Research.

Akgündüz, Y., M. Van Den Berg, and W. H. Hassink (2015). The impact of refugee crises on host labor markets: the case of the syrian refugee crisis in turkey.

Angrist, J. D. and A. D. Kugler (2003). Protective or counter-productive? labour market institutions and the effect of immigration on eu natives. *The Economic Journal 113*(488).

Arellano, M. and S. Bond (1991). Some tests of specification for panel data: Monte carlo evidence and an application to employment equations. *The review of economic studies 58*(2), 277–297.

Arellano, M. and O. Bover (1995). Another look at the instrumental variable estimation of error-components models. *Journal of econometrics 68*(1), 29–51.

Başıhos, S. (2016). Gelişmişlik göstergesi olarak gece ışıkları: Ulusal ölçekte ve il bazında gsyh tahmini. TEPAV, Discussion Note No: 2016/17.

BBC (2015, June). Gaziantep: Ihracat kentine arap bahar freni. http://www.bbc.com/news/world-middle-east-27838034. Accessed: 2017-11-28.

BBC (2017, November). Islamic state and the crisis in iraq and syria in maps. http://www.bbc.com/news/world-middle-east-27838034. Accessed: 2017-11-28.

Becker, E. (1971). *The Birth and Death of Meaning: An Interdisciplinary Perspective on the Problem of Man. 2d Ed.* Free Press.

Becker, G. S., Y. Rubinstein, et al. (2004). Fear and the response to terrorism: an economic analysis. *University of Chicago mimeo*.

Belasen, A. R. and S. W. Polachek (2008). How hurricanes affect wages and employment in local labor markets. *The American Economic Review 98*(2), 49–53.

Berrebi, C. and J. Ostwald (2016). Terrorism and the labor force: Evidence of an effect on female labor force participation and the labor gender gap. *Journal of Conflict Resolution 60*(1), 32–60.

Blundell, R. and S. Bond (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of econometrics 87*(1), 115–143.

Borjas, G. J. (2006). Native internal migration and the labor market impact of immigration. *Journal of Human resources 41*(2), 221–258.

Bove, V. and L. Elia (2017). Migration, diversity, and economic growth. *World Development 89*, 227–239.

Brodeur, A. (2015). Terrorism and employment: Evidence from successful and failed terror attacks.

Caprioli, M. (2005). Primed for violence: The role of gender inequality in predicting internal conflict. *International Studies Quarterly 49*(2), 161–178.

Card, D. (1990). The impact of the mariel boatlift on the miami labor market. *ILR Review 43*(2), 245–257.

Ceritoglu, E., H. B. G. Yunculer, H. Torun, and S. Tumen (2017). The impact of syrian refugees on natives labor market outcomes in turkey: evidence from a quasi-experimental design. *IZA Journal of Labor Policy 6*(1), 5.

Clemens, M. A. and J. Hunt (2017). The labor market effects of refugee waves: Reconciling conflicting results. Technical report, National Bureau of Economic Research.

Del Carpio, X. V., M. Wagner, et al. (2015). *The impact of Syrians refugees on the Turkish labor market*. World Bank.

Durante, R., E. V. Zhuravskaya, et al. (2015). *Attack when the World is Not Watching?: International Media and the Israeli-Palestinian Conflict*. Centre for Economic Policy Research.

Eckstein, Z. and D. Tsiddon (2004). Macroeconomic consequences of terror: theory and the case of israel. *Journal of Monetary Economics 51*(5), 971–1002.

El-Mallakh, N., M. Maurel, and B. Speciale (2016). Arab spring protests and women's labor market outcomes: Evidence from the egyptian revolution.

Encyclopedia Britannica, inc. (2017). Syrian civil war. https://www.britannica.com/event/Syrian-Civil-War. Accessed: 2017-11-28.

Ergil, D. (2000). The kurdish question in turkey. *Journal of Democracy 11*(3), 122–135. The Johns Hopkins University Press.

Feridun, M. (2011). Impact of terrorism on tourism in turkey: empirical evidence from turkey. *Applied Economics 43*(24), 3349–3354.

Feridun, M. and S. Sezgin (2008). Regional underdevelopment and terrorism: the case of south eastern turkey. *Defence and Peace Economics 19*(3), 225–233.

Feridun, M. and M. Shahbaz (2010). Fighting terrorism: are military measures effective? empirical evidence from turkey. *Defence and Peace Economics 21*(2), 193–205.

Ferris, J. and A. Self (2015). Dead men tell no lies: Using martyr data to expose the pkks regional shell game. *The George Washington University, Mayıs*.

Greenbaum, R. T., L. Dugan, and G. LaFree (2007). The impact of terrorism on italian employment and business activity. *Urban Studies 44*(5-6), 1093–1108.

Jost, J. T., J. Glaser, A. W. Kruglanski, and F. J. Sulloway (2003). Political conservatism as motivated social cognition.

Laub, Z. and J. Masters (2014). The islamic state in iraq and syria. *Council on Foreign Relations 14*.

National Consortium for the Study of Terrorism and Responses to Terrorism (START) (2017). Global terrorism database. https://www.start.umd.edu/gtd.

Nickell, S. (1981). Biases in dynamic models with fixed effects. *Econometrica: Journal of the Econometric Society*, 1417–1426.

Oxfam (2018). Report on perceptions of syrian refugees in turkey. *Forthcoming*.

Robison, K. K., E. M. Crenshaw, and J. C. Jenkins (2006). Ideologies of violence: The social origins of islamist and leftist transnational terrorism. *Social Forces 84*(4), 2009–2026.

Roodman, D. (2006). How to do xtabond2: an introduction to "difference" and "system" gmm in stata. Technical report, Center for Global Development Working Paper No. 103.

Singh, P. (2013). Impact of terrorism on investment decisions of farmers: evidence from the punjab insurgency. *Journal of Conflict Resolution 57*(1), 143–168.

The United Nations High Commissioner for Refugees (UNHCR) (2017). Syria refugee response inter-agency information sharing portal. http://data.unhcr.org/syrianrefugees/regional.php. Accessed: 2017-11-28.

Tumen, S. (2016). The economic impact of syrian refugees on host countries: Quasi-experimental evidence from turkey. *The American Economic Review 106*(5), 456–460.

Zelin, A. Y. (2014). The war between isis and al-qaeda for supremacy of the global jihadist movement. *The Washington Institute for Near East Policy 20*(1), 1–11.

Table 1: OLS Fixed Effects: Year-on-year Formal Employment Growth and Contemporaneous Terrorist Attacks

Dependent Variable: Formal Employment	(1) Female	(2) Male	(3) Female	(4) Male	(5) Female	(6) Male
Terrorist attacks	0.003**	0.000				
	(0.001)	(0.000)				
PKK attacks			0.003*	0.000		
			(0.002)	(0.000)		
ISIS attacks					0.005***	-0.003***
					(0.001)	(0.000)
Δ_{t-12} Syrian Refugees	0.002	0.001***	0.001	0.002***	0.001	0.001***
	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)
L.Δ_{t-12} Female Employment	0.837***		0.837***		0.839***	
	(0.014)		(0.014)		(0.014)	
L.Δ_{t-12} Male Employment		0.762***		0.762***		0.762***
		(0.030)		(0.030)		(0.030)
Δ_{t-12} Number of Businesses	0.152**	0.265***	0.152**	0.265***	0.141**	0.264***
	(0.068)	(0.051)	(0.067)	(0.051)	(0.068)	(0.052)
Δ_{t-12} Real Female Earnings	0.031**	-0.006	0.031**	-0.006	0.032***	-0.006
	(0.012)	(0.005)	(0.012)	(0.005)	(0.012)	(0.005)
Δ_{t-12} Real Budgetary Expenditures	0.001	0.003**	0.001	0.003**	0.002	0.003**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Δ_{t-12} Real GDP (2010 US Dollars)	-0.069*	-0.017	-0.070*	-0.017	-0.066	-0.018
	(0.039)	(0.025)	(0.039)	(0.025)	(0.040)	(0.024)
Δ_{t-12} Population	-0.205**	-0.055	-0.206**	-0.054	-0.212**	-0.055
	(0.092)	(0.050)	(0.092)	(0.050)	(0.091)	(0.049)
Δ_{t-12} Female College Graduates	-0.001	-0.002	-0.001	-0.002	-0.001	-0.001
	(0.006)	(0.004)	(0.006)	(0.004)	(0.006)	(0.004)
Δ_{t-12} Children aged between 0-14	-0.006***	-0.008***	-0.007***	-0.008***	-0.007***	-0.008***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Observations	6,723	6,723	6,723	6,723	6,723	6,723
R-squared	0.729	0.797	0.729	0.797	0.729	0.797
Number of provinces	81	81	81	81	81	81
Province Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year and Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

(1) Robust and clustered standard errors (at province level) in parenthesis.
(2) All variables except the number of terrorist attacks are in natural logarithms.

Table 2: OLS Fixed Effects: Year-on-year Formal Employment Growth and Terrorist Attacks in the Last 3 Months

Dependent Variable: Formal Employment	(1) Female	(2) Male	(3) Female	(4) Male	(5) Female	(6) Male
Terrorism Incidence in the last 3 months	0.008** (0.004)	0.002* (0.001)				
PKK attacks in the last 3 months			0.010** (0.004)	0.002* (0.001)		
ISIS attacks in the last 3 months					0.010 (0.010)	0.002 (0.003)
Δ_{t-12} Syrian Refugees	0.001 (0.001)	0.002*** (0.000)	0.001 (0.001)	0.001*** (0.000)	0.001 (0.001)	0.002*** (0.000)
L.Δ_{t-12} Female Employment	0.838*** (0.014)		0.838*** (0.014)		0.839*** (0.014)	
L.Δ_{t-12} Male Employment		0.761*** (0.030)		0.761*** (0.030)		0.762*** (0.030)
Δ_{t-12} Number of Businesses	0.145** (0.068)	0.267*** (0.052)	0.145** (0.067)	0.266*** (0.052)	0.142** (0.068)	0.265*** (0.051)
Δ_{t-12} Real Female Earnings	0.032*** (0.012)	-0.006 (0.005)	0.032*** (0.012)	-0.006 (0.005)	0.032*** (0.012)	-0.006 (0.005)
Δ_{t-12} Real Budgetary Expenditures	0.001 (0.001)	0.003* (0.001)	0.001 (0.001)	0.003* (0.001)	0.002 (0.001)	0.003** (0.001)
Δ_{t-12} Real GDP (2010 US Dollars)	-0.065 (0.041)	-0.016 (0.025)	-0.066 (0.040)	-0.017 (0.025)	-0.067 (0.040)	-0.017 (0.025)
Δ_{t-12} Population	-0.214** (0.089)	-0.055 (0.049)	-0.214** (0.089)	-0.055 (0.049)	-0.211** (0.091)	-0.054 (0.049)
Δ_{t-12} Female College Graduates	-0.000 (0.006)	-0.001 (0.004)	-0.001 (0.006)	-0.001 (0.004)	-0.001 (0.006)	-0.002 (0.004)
Δ_{t-12} Children aged between 0-14	-0.007*** (0.002)	-0.008*** (0.002)	-0.007*** (0.002)	-0.008*** (0.002)	-0.006*** (0.002)	-0.008*** (0.002)
Observations	6,723	6,723	6,723	6,723	6,723	6,723
R-squared	0.729	0.797	0.729	0.797	0.729	0.797
Number of provinces	81	81	81	81	81	81
Province Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year and Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

(1) Robust and clustered standard errors (at province level) in parenthesis.
(2) All variables except the number of terrorist attacks are in natural logarithms.

Table 3: OLS Fixed Effects: Change in Female Employment Share and Terrorist Attacks

Dependent Variable: Female Employment Share	(1)	(2)	(3)	(4)	(5)	(6)
Number of terrorist attacks	0.035** (0.015)					
Number of PKK attacks		0.034* (0.017)				
Number of ISIL attacks			0.129*** (0.018)			
Terrorism Incidence in the last 3 months				0.082* (0.046)		
PKK attacks in the last 3 months					0.110** (0.050)	
ISIS attacks in the last 3 months						0.142 (0.123)
$\Delta_{t-12} SyrianRefugees$	0.006 (0.013)	0.005 (0.013)	0.005 (0.013)	0.005 (0.013)	0.004 (0.013)	0.005 (0.013)
$L.\Delta_{t-12}$ Female Employment Share	0.861*** (0.011)	0.862*** (0.011)	0.861*** (0.011)	0.862*** (0.011)	0.862*** (0.011)	0.862*** (0.011)
Δ_{t-12} Number of Businesses	-0.367 (0.941)	-0.394 (0.942)	-0.466 (0.954)	-0.462 (0.952)	-0.465 (0.947)	-0.477 (0.957)
Δ_{t-12} Real Female Earnings	0.213 (0.139)	0.213 (0.139)	0.231 (0.139)	0.226 (0.138)	0.223 (0.137)	0.228 (0.140)
Δ_{t-12} Real Budgetary Expenditures	-0.010 (0.025)	-0.009 (0.025)	-0.008 (0.025)	-0.010 (0.025)	-0.010 (0.025)	-0.008 (0.025)
Δ_{t-12} Real GDP (2010 US Dollars)	-0.971** (0.374)	-0.985** (0.377)	-0.921** (0.382)	-0.932** (0.386)	-0.941** (0.382)	-0.949** (0.381)
Δ_{t-12} Population	-1.503* (0.858)	-1.528* (0.858)	-1.583* (0.837)	-1.615* (0.827)	-1.617* (0.824)	-1.585* (0.840)
Δ_{t-12} Female College Graduates	0.019 (0.064)	0.020 (0.064)	0.022 (0.062)	0.025 (0.062)	0.024 (0.062)	0.022 (0.062)
Δ_{t-12} Children aged between 0-14	-0.007 (0.018)	-0.009 (0.020)	-0.007 (0.020)	-0.010 (0.016)	-0.009 (0.018)	-0.005 (0.019)
Observations	6,723	6,723	6,723	6,723	6,723	6,723
R-squared	0.774	0.774	0.774	0.774	0.774	0.774
Number of provinces	81	81	81	81	81	81
Province Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year and Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

(1) Robust and clustered standard errors (at province level) in parenthesis.
(2) All variables except the number of terrorist attacks are in natural logarithms.

Table 4: Two Stage Least Squares: Instrumenting for Terrorist Attacks

Dependent Variable: Formal Employment	(1) Female	(2) Male	(3) Female	(4) Male	(5) Female	(6) Male
Terrorist attacks	0.012***	0.004*				
	(0.005)	(0.002)				
PKK attacks			0.013***	0.004		
			(0.005)	(0.002)		
ISIS attacks					0.026	0.008
					(0.047)	(0.022)
Δ_{t-12} Syrian Refugees	-0.011***	0.011***	-0.011***	0.011***	-0.013***	0.011***
	(0.004)	(0.002)	(0.004)	(0.002)	(0.004)	(0.002)
Full Controls	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes
Year and Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of provinces	81	81	81	81	81	81
Observations	5,908	5,908	5,908	5,908	5,908	5,908
R-squared	0.707	0.759	0.710	0.760	0.710	0.762

First Stage

Coefficients	(1) Female	(2) Male	(3) Female	(4) Male	(5) Female	(6) Male
Δ_{t-12}Average temperature	0.006*	0.008**	0.004	0.005	0.001	0.001
	(0.003)	(0.004)	(0.003)	(0.003)	(0.001)	(0.001)
Other terrorist attacks in the region	0.134***	0.137***				
	(0.044)	(0.045)				
Other PKK attacks in the region			0.145***	0.147***		
			(0.051)	(0.051)		
Other ISIL attacks in the region					0.12	0.121
					(0.087)	(0.088)
F test of Excluded Instruments	6.38	6.72	4.85	4.78	1.56	1.37
Stock-Yogo Critical Values for 10% IV Relative Bias	19.93	19.93	19.93	19.93	19.93	19.93

(1) Robust and clustered standard errors (at province level) in parenthesis.
(2) All variables except the number of terrorist attacks are in natural logarithms.

34

Table 5: Two Stage Least Squares: Instrumenting Both for Terrorist Attacks and Refugee Location

Dependent Variable: Formal Employment	(1) Female	(2) Male	(3) Female	(4) Male	(5) Female	(6) Male
Terrorist attacks	0.016*** (0.005)	0.004* (0.002)				
PKK attacks			0.016*** (0.006)	0.003 (0.002)		
ISIS attacks					0.019* (0.011)	0.001 (0.006)
Δ_{t-12} Syrian Refugees	-0.002 (0.004)	0.013*** (0.002)	-0.001 (0.004)	0.013*** (0.002)	0.001 (0.003)	0.014*** (0.002)
Full Controls	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes
Year and Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of provinces	81	81	81	81	81	81
Observations	5,908	5,908	5,908	5,908	5,908	5,908
R-squared	0.710	0.750	0.716	0.750	0.726	0.747

(1) Robust and clustered standard errors (at province level) in parenthesis.
(2) All variables except the number of terrorist attacks are in natural logarithms.

Table 6: First Stage Results: Instrumenting Both for Terrorist Attacks and Refugee Location

	(1) Female	(2) Male	(3) Female	(4) Male	(5) Female	(6) Male
First Stage: Terrorism						
Δ_{t-12} Average temperature	0.002	0.004	0.004	0.001	0.001	0.001
	(0.003)	(0.003)	(0.002)	(0.002)	(0.001)	(0.001)
Other terrorist attacks in the region	0.130***	0.133***				
	(0.044)	(0.044)				
Other PKK attacks in the region			0.141***	0.143***		
			(0.051)	(0.051)		
Other ISIS attacks in the region					0.12	0.121
					(0.087)	(0.088)
Sanderson-Windmeijer multivariate F test	6.39	4.74	8.55	5.86	1.62	1.58
	(pval=0.00)	(pval=0.00)	(pval=0.00)	(pval=0.00)	(pval=0.12)	(pval=0.14)
First Stage: Location of Syrian Refugees						
Log. distance to Aleppo*total attacks in Syria	0.0005***	0.0005***	0.0005***	0.0005***	0.0005***	0.0005***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
(Log. distance to Aleppo*total attacks in Syria)`t-1	0.0014***	0.0014***	0.0014***	0.0014***	0.0014***	0.0014***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
(Log. distance to Aleppo*total attacks in Syria)`t-2	0.0002	0.0001	0.0002	0.0001	0.0001	0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
(Log. distance to Aleppo*total attacks in Syria)`t-3	0.0006***	0.0007***	0.0006***	0.0007***	0.0005***	0.0006***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Total fatalities	-0.0002***	-0.0002***	-0.0002***	-0.0002***	-0.0002***	-0.0002***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
(Total fatalities)`t-1	-0.0002***	-0.0002***	-0.0002***	-0.0002***	-0.0002***	-0.0002***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
(Total fatalities)`t-2	-0.0001***	-0.0001***	-0.0001***	-0.0001***	-0.0001***	-0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
(Total fatalities)`t-3	-0.0001***	-0.0001***	-0.0001***	-0.0001***	-0.0001***	-0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Sanderson-Windmeijer multivariate F test	47.47	48.35	46.86	47.98	53.50	53.01
	(pval=0.00)	(pval=0.00)	(pval=0.00)	(pval=0.00)	(pval=0.00)	(pval=0.00)
Kleibergen-Paap rk Wald F	39.32	41.3	39.16	41.09	0.85	0.87
Stock-Yogo Critical Values for 10% IV Relative Bias	10.58	10.58	10.58	10.58	10.58	10.58

Table 7: Two Stage Least Squares: Instrumenting for Terrorist Attacks in the Last 3 Months

Dependent Variable: Formal Employment	(1) Female	(2) Male	(3) Female	(4) Male	(5) Female	(6) Male
Terrorism Incidence in the last 3 months	0.041*** (0.014)	0.016* (0.009)				
PKK attacks in the last 3 months			0.064*** (0.020)	0.013 (0.011)		
ISIS attacks in the last 3 months					0.054* (0.029)	0.011 (0.012)
Δ_{t-12} Syrian Refugees	0.002** (0.001)	0.001*** (0.000)	0.001 (0.001)	0.001** (0.000)	0.002** (0.001)	0.001*** (0.000)
Full Controls	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes
Year and Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of provinces	81	81	81	81	81	81
Observations	5,908	5,908	5,908	5,908	5,908	5,908
R-squared	0.720	0.777	0.712	0.779	0.725	0.780

First Stage

Coefficients

	(1) Female	(2) Male	(3) Female	(4) Male	(5) Female	(6) Male
Δ_{t-12} Average temperature	0.002 (0.002)	0.002 (0.002)	0.001 (0.001)	0.002 (0.001)	0.000 (0.000)	0.000 (0.000)
Other terrorist attacks in the region in the last 3 months	0.183*** (0.029)	0.184*** (0.029)				
Other PKK attacks in the region in the last 3 months			0.186*** (0.032)	0.188*** (0.032)		
Other ISIS attacks in the region in the last 3 months					0.335*** (0.119)	0.336*** (0.120)
F test of Excluded Instruments	20.67	20.06	18.83	19.49	3.94	4.03
Stock-Yogo Critical Values for 10% IV Relative Bias	19.93	19.93	19.93	19.93	19.93	19.93

(1) Robust and clustered standard errors (at province level) in parenthesis.
(2) All variables except the number of terrorist attacks are in natural logarithms.

Table 8: Two Stage Least Squares: Instrumenting Both Terrorist Attacks in the Last 3 Months and Refugee Location

Dependent Variable: Formal Employment	(1) Female	(2) Male	(3) Female	(4) Male	(5) Female	(6) Male
Terrorism Incidence in the last 3 months	0.054*** (0.016)	0.021** (0.010)				
PKK attacks in the last 3 months			0.076*** (0.022)	0.012 (0.012)		
ISIS attacks in the last 3 months					0.054* (0.029)	0.010 (0.015)
$\Delta_{t-12} Syrian$ Refugees	-0.001 (0.003)	0.014*** (0.003)	-0.002 (0.004)	0.014*** (0.002)	0.001 (0.003)	0.014*** (0.002)
Full Controls	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes
Year and Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of provinces	81	81	81	81	81	81
Observations	5,908	5,908	5,908	5,908	5,908	5,908
R-squared	0.713	0.745	0.704	0.748	0.725	0.747

(1) Robust and clustered standard errors (at province level) in parenthesis.
(2) All variables except the number of terrorist attacks are in natural logarithms.

38

Table 9: First Stage Results: Instrumenting for Terrorist Attacks in the Last 3 Months and Refugee Location

	(1) Female	(2) Male	(3) Female	(4) Male	(5) Female	(6) Male
First Stage: Terrorism						
Δ_{t-12} Average temperature	0.002	0.002	0.001	0.002	0.000	0.000
	(0.002)	(0.002)	(0.001)	(0.001)	(0.000)	(0.000)
Other terrorist attacks in the region	0.182***	0.182***				
	(0.029)	(0.029)				
Other PKK attacks in the region			0.183***	0.185***		
			(0.032)	(0.032)		
Other ISIS attacks in the region					0.334***	0.336***
					(0.120)	(0.120)
Sanderson-Windmeijer multivariate F test	6.72	6.74	6.58	6.81	1.79	2.54
	(pval=0.00)	(pval=0.00)	(pval=0.00)	(pval=0.00)	(pval=0.08)	(pval=0.01)
First Stage: Location of Syrian Refugees						
Log. distance to Aleppo*total attacks in Syria	0.0005***	0.0005***	0.0005***	0.0005***	0.0005***	0.0005***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
(Log. distance to Aleppo*total attacks in Syria)'t-1	0.0014***	0.0014***	0.0014***	0.0014***	0.0014***	0.0014***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
(Log. distance to Aleppo*total attacks in Syria)'t-2	0.0001	0.0001	0.0002	0.0001	0.0001	0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
(Log. distance to Aleppo*total attacks in Syria)'t-3	0.0005***	0.0006***	0.0005***	0.0006***	0.0005***	0.0006***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Total fatalities	-0.0002***	-0.0002***	-0.0002***	-0.0002***	-0.0002***	-0.0002***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
(Total fatalities)'t-1	-0.0002***	-0.0002***	-0.0002***	-0.0002***	-0.0002***	-0.0002***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
(Total fatalities)'t-2	-0.0001***	-0.0001***	-0.0001***	-0.0001***	-0.0001***	-0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
(Total fatalities)'t-3	-0.0001***	-0.0001***	-0.0001***	-0.0001***	-0.0001***	-0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Sanderson-Windmeijer multivariate F test	37.28	39.06	38.24	40.31	47.54	46.69
	(pval=0.00)	(pval=0.00)	(pval=0.00)	(pval=0.00)	(pval=0.00)	(pval=0.00)
Kleibergen-Paap rk Wald F	8.55	10.14	10.24	11.59	38.04	35.61
Stock-Yogo Critical Values for 10% IV Relative Bias	10.58	10.58	10.58	10.58	10.58	10.58

Table 10: Two Stage Least Squares: Female Share in Total Formal Employment, Terrorist Attacks and Syrian Refugees

	(1)	(2)	(3)
Terrorist attacks	0.150***		
	(0.055)		
PKK attacks		0.148***	
		(0.057)	
ISIS attacks			0.297*
			(0.168)
Δ_{t-12} Syrian Refugees	-0.169***	-0.161***	-0.154***
	(0.055)	(0.054)	(0.049)
Full Controls	Yes	Yes	Yes
Province, Year, Month FE	Yes	Yes	Yes
Observations	5,908	5,908	5,908
R-squared	0.754	0.757	0.761
First Stage: Terrorism			
Δ_{t-12} Average temperature	0.002	0.001	0.001
	(0.003)	(0.002)	(0.001)
Other terrorist attacks in the region	0.130***		
	(0.044)		
Other PKK attacks in the region		0.142***	
		(0.051)	
Other ISIL attacks in the region			0.12
			(0.087)
Sanderson-Windmeijer multivariate F test	5.45	7.57	1.21
	(pval=0.00)	(pval=0.00)	(pval=0.30)
First Stage: Location of Syrian Refugees			
Log. distance to Aleppo*total attacks in Syria	0.0005***	0.0005***	0.0005***
	(0.0001)	(0.0001)	(0.0001)
(Log. distance to Aleppo*total attacks in Syria)˙t-1	0.0014***	0.0014***	0.0014***
	(0.0001)	(0.0001)	(0.0001)
(Log. distance to Aleppo*total attacks in Syria)˙t-2	0.0002	0.0002	0.0001
	(0.0001)	(0.0001)	(0.0001)
(Log. distance to Aleppo*total attacks in Syria)˙t-3	0.0006***	0.0006***	0.0006***
	(0.0002)	(0.0002)	(0.0002)
Total fatalities	-0.0002***	-0.0002***	-0.0002***
	(0.0000)	(0.0000)	(0.0000)
(Total fatalities)˙t-1	-0.0002***	-0.0002***	-0.0002***
	(0.0000)	(0.0000)	(0.0000)
(Total fatalities)˙t-2	-0.0001***	-0.0001***	-0.0001***
	(0.0000)	(0.0000)	(0.0000)
(Total fatalities)˙t-3	-0.0001***	-0.0001***	-0.0001***
	(0.0000)	(0.0000)	(0.0000)
Sanderson-Windmeijer multivariate F test	47.38	47.00	54.42
	(pval=0.00)	(pval=0.00)	(pval=0.00)
Kleibergen-Paap rk Wald F	39.48	39.57	0.76
Stock-Yogo Critical Values for 10% IV Relative Bias	10.58	10.58	10.58

Table 11: System GMM: Year on Year Change in Female Formal Employment, Terrorist Attacks and Syrian Refugees

	(1) 2016-2015	(2) 2014-2013	(3) 2012-2011
Terrorist attacks	0.002*	0.017**	0.004
	(0.001)	(0.008)	(0.005)
Δ_{t-12} Syrian Refugees	0.006*	0.001	0.008***
	(0.003)	(0.002)	(0.003)
Observations	1,863	1,863	1,863
A-B test for AR(1) in first diff.	$Pr > z = 0.000$	$Pr > z = 0.000$	$Pr > z = 0.000$
A-B test for AR(2) in first diff.	$Pr > z = 0.597$	$Pr > z = 0.104$	$Pr > z = 0.205$
Hansen test of overid. restrictions	$Pr > \chi^2 = 0.943$	$Pr > \chi^2 = 0.698$	$Pr > \chi^2 = 0.904$
Number of instruments	123	107	126
PKK attacks	0.002	0.007	-0.003
	(0.002)	(0.013)	(0.004)
Δ_{t-12} Syrian Refugees	0.007*	0.000	0.008***
	(0.004)	(0.003)	(0.003)
Observations	1,863	1,863	1,863
A-B test for AR(1) in first diff.	$Pr > z = 0.000$	$Pr > z = 0.000$	$Pr > z = 0.000$
A-B test for AR(2) in first diff.	$Pr > z = 0.580$	$Pr > z = 0.095$	$Pr > z = 0.266$
Hansen test of overid. restrictions	$Pr > \chi^2 = 0.913$	$Pr > \chi^2 = 0.705$	$Pr > \chi^2 = 0.874$
Number of instruments	122	110	122
ISIS attacks	0.007***	0.104	0.000
	(0.002)	(0.097)	(0.000)
Δ_{t-12} Syrian Refugees	0.004*	0.000	0.006*
	(0.003)	(0.003)	(0.003)
Observations	1,863	1,863	1,863
A-B test for AR(1) in first diff.	$Pr > z = 0.000$	$Pr > z = 0.000$	$Pr > z = 0.000$
A-B test for AR(2) in first diff.	$Pr > z = 0.579$	$Pr > z = 0.133$	$Pr > z = 0.263$
Hansen test of overid. restrictions	$Pr > \chi^2 = 0.777$	$Pr > \chi^2 = 0.327$	$Pr > \chi^2 = 0.465$
Number of instruments	118	98	109
Full Controls	Yes	Yes	Yes
Province, Year, Month FE	Yes	Yes	Yes
Number of provinces	81	81	81

(1) Control variables include y-o-y growth of number of businesses, real female earnings, real GDP, real budgetary expenditures, population, number of university graduates, number of children aged 0-14, and the first lag of female formal employment growth.
(2) Terrorism, y-o-y growth of Syrian refugees, number of businesses, real female earnings, real GDP, real budgetary expenditures and the first lag of annual female formal employment growth are all treated as endogenous whereas time dummies, y-o-y change in population, number of university graduates, number of children aged 0-14 are treated as exogenous in all estimations.

Table 12: System GMM: Year on Year Change in Male Formal Employment, Terrorist Attacks and Syrian Refugees

	(1) 2016-2015	(2) 2014-2013	(3) 2012-2011
Terrorist attacks	0.000	0.009*	0.002
	(0.001)	(0.005)	(0.002)
Δ_{t-12} Syrian Refugees	0.004*	0.001	-0.001
	(0.002)	(0.001)	(0.002)
Observations	1,863	1,863	1,863
A-B test for AR(1) in first diff.	$Pr > z = 0.003$	$Pr > z = 0.000$	$Pr > z = 0.008$
A-B test for AR(2) in first diff.	$Pr > z = 0.765$	$Pr > z = 0.077$	$Pr > z = 0.178$
Hansen test of overid. restrictions	$Pr > \chi^2 = 0.974$	$Pr > \chi^2 = 0.545$	$Pr > \chi^2 = 0.957$
Number of instruments	125	108	124
PKK attacks	0.001	0.008**	0.000
	(0.001)	(0.004)	(0.003)
Δ_{t-12} Syrian Refugees	0.005*	0.001	0.000
	(0.003)	(0.001)	(0.002)
Observations	1,863	1,863	1,863
A-B test for AR(1) in first diff.	$Pr > z = 0.004$	$Pr > z = 0.000$	$Pr > z = 0.000$
A-B test for AR(2) in first diff.	$Pr > z = 0.752$	$Pr > z = 0.082$	$Pr > z = 0.179$
Hansen test of overid. restrictions	$Pr > \chi^2 = 0.978$	$Pr > \chi^2 = 0.655$	$Pr > \chi^2 = 0.898$
Number of instruments	128	114	121
ISIS attacks	-0.000	-0.008	0.000
	(0.001)	(0.029)	(0.000)
Δ_{t-12} Syrian Refugees	0.003	0.002**	-0.000
	(0.002)	(0.001)	(0.002)
Observations	1,863	1,863	1,863
A-B test for AR(1) in first diff.	$Pr > z = 0.002$	$Pr > z = 0.000$	$Pr > z = 0.006$
A-B test for AR(2) in first diff.	$Pr > z = 0.30$	$Pr > z = 0.095$	$Pr > z = 0.174$
Hansen test of overid. restrictions	$Pr > \chi^2 = 0.919$	$Pr > \chi^2 = 0.203$	$Pr > \chi^2 = 0.433$
Number of instruments	121	98	107
Full Controls	Yes	Yes	Yes
Province, Year, Month FE	Yes	Yes	Yes
Number of provinces	81	81	81

(1) Control variables include y-o-y growth of number of businesses, real female earnings, real GDP, real budgetary expenditures, population, number of university graduates, number of children aged 0-14, and the first lag of female formal employment growth.

(2) Terrorism, y-o-y growth of Syrian refugees, number of businesses, real female earnings, real GDP, real budgetary expenditures and the first lag of annual female formal employment growth are all treated as endogenous whereas time dummies, y-o-y change in population, number of university graduates, number of children aged 0-14 are treated as exogenous in all estimations.