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When Do Refugees Return Home? Evidence from Syrian Displacement in Mashreq

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Abstract

This paper provides an empirical analysis of refugee returns to the Syrian Arab Republic. Since 2011, about 5.6 million Syrians—more than a quarter of the country's pre-conflict population—have been registered as refugees. By mid-2018, only about 1.8 percent of them had returned to Syria voluntarily. This paper compiles a novel data set with administrative data for 2.16 million refugees, existing and new household surveys, a new conflict-events database, and nightlights data for Syria to analyze the correlates of these returns. A reduction in conflict intensity and an increase in luminosity in Syria strongly increase the likelihood of refugees' return. Differential return rates are observed along key demographic characteristics, such as age, gender, and family status between high and low conflict intensity areas. Interestingly, improvements in the conditions faced by refugees in exile can also increase the likelihood of return.

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1 Introduction

The recent literature on forced migration has largely focused on measuring the economic impact of refugees on host countries.[1] However, an important factor that shapes this impact is refugees' self-selection through return migration. An expansive literature on temporary (voluntary) migration has shown that ignoring this selection can distort the assessment of migrants' assimilation profiles and, by corollary, their economic impact.[2] This line of work has also revealed important properties of return decisions but only that of economic migrants. We now know that refugees are distinct in many ways, including their human capital investments and dynamic earnings profiles while in the destination country, which is often attributed to differences in their subjective return probability (Cortes (2004) and Galor and Stark (1991)). In this paper, we bring together these two strands of literature by analyzing the return decisions of 2.16 million Syrian refugees who were displaced between January 2011 and March 2018.

Starting from 2011, more than 5.6 million Syrians fled one of the most destructive wars in recent decades, which led to more than 400,000 directly conflict-related deaths, physical damage to about half of the schools and hospitals in major urban centers, and deepened sectarian divisions (World Bank, 2017). The outflow of refugees peaked in 2013, but never ceased completely. In the meantime, according to the United Nations High Commissioner for Refugees (UNHCR), 103,090 - about 1.8 percent - were verified to return to the Syrian Arab Republic by mid-2018, the end point of our analysis.[3] Our sample covers those refugees registered by UNHCR in the Middle East and North Africa Region (excluding Turkey and European countries), including returnees and those who

[1] See Becker and Ferrara (2019), Verme and Schuettler (2019), and Ruiz and Vargas-Silva (2015) for detailed reviews of the forced migration literature.

[2] For an excellent review of this literature, see Dustmann and Görlach (2016).

[3] The latest figures from UNHCR suggest that the return percentage has doubled to 4.1 percent or 230,418 refugees by the end of 2019. However, this figure is still small in magnitude with the vast majority of refugees remaining in their respective host countries.

stayed.

Our objective is to identify the factors that facilitated or hampered the return of these refugees. However, an inherent challenge in the literature on conflict and forced migration is the absence of a complete longitudinal data set for conditions in countries of asylum and origin that can be mapped onto refugee characteristics. Establishing causality is even more challenging. We make progress on the first part by combining different sources and types of data. For demographic characteristics of refugees and their arrival and return information, we use administrative data from the Profile Global Registration System (ProGres) database of UNHCR. For the conditions faced by refugees in exile, we use vulnerability surveys conducted by UN agencies in Jordan and Lebanon, and complement these with a new household survey comprising similar demographic and socioeconomic modules but also including vignettes about the drivers of return. Finally, for conditions in Syria, we have compiled a novel monthly conflict events data set to use along with nighttime light emissions data that proxies access to utilities.

These sources are utilized in two different but complementary ways. First, we exploit the temporal and spatial variation of the nightlights and conflict events series to build a sub-district-month panel for conditions inside Syria. This is used to analyze the impact of changes in conflict and luminosity patterns on return in an aggregate manner using ordinary least squares (OLS) and Poisson quasi maximum likelihood (PQML) count models. Second, we use the detailed information on refugee characteristics provided by ProGres together with conditions in countries of asylum,[4] to analyze individual return decisions. Given that we have arrival and - where applicable - return dates for each refugee, we can study their likelihood of return for a given month using both discrete

[4]Since the conditions in countries of asylum are only captured for a small sample of registered refugees in Lebanon and Jordan, we approximate host country conditions with district averages for the full sample.

and continuous time proportional hazard models, such as the complementary log-log model (cloglog) and Cox proportional hazard model (Cox), respectively. This helps to deal with the right-censored nature of the return problem.

Our results show that security (measured in the refugee's home district) is an important determinant of return. A one standard deviation improvement in security (measured by the change in a composite Conflict Events Index (CEI)[5] between the previous two quarters) increases returns by 6 percent when using the PQML model. Improved access to electricity (measured at the refugee's home sub-district level), and by extension utilities, also encourages returns. In particular, a one standard deviation improvement in luminosity (measured analogously to the CEI, comparing changes between the previous two quarters) increases returns by 3.8 percent. Overall, the conditions in Syria have the expected signs aligned with the risk-adjusted expected payoff-based explanations in standard models of migration (e.g., Sjaastad (1962) and Borjas (1987)).

Next, we turn to the analysis of what type of refugee is more likely to return to Syria. Our results paint a complex picture of the decision-making process underlying the spontaneous return behavior of refugees. Not only the individual characteristics of a refugee, but also the social structure surrounding her can shape the likelihood of return. For example, generally the likelihood of return increases dramatically with age. In terms of social structure, a refugee who is a member of the immediate and extended family of the principal applicant has a considerably higher hazard rate than the principal applicant's spouse. These patterns are further sensitive to the conditions in Syria (i.e. conflict intensity), particularly for men. These results are consistent with international experience, which suggests that individual family members - often single, older men - return to the country of origin first to assess the situation on the ground,

[5]The CEI is computed for each district-month using principal components analysis of normalized key conflict events, such as light skirmishes, airstrikes, artillery strikes, and chemical attacks, as well as the casualty-count.

while the remainder of the family remains in exile (World Bank, 2019).

Lastly, we analyze how conditions in the countries of asylum correlate with return probabilities. Interestingly, our results do not support the common perception that harsh conditions in host communities make refugees return. In fact, we find that more food secure refugees are more likely to return. For example, a one standard deviation increase in food security increases the hazard rate of return by 0.27%. We find similar, but less robust, results for refugees with better housing conditions.

Our results and analysis are closely linked with the literature on the economic analysis of forced displacement. This literature includes a rapidly growing number of works that consider the effects of forced migration on locals in the following areas: employment, wage, entrepreneurship and consumption (Braun and Kvasnicka (2014); Moser et al. (2014); Ruiz and Vargas-Silva (2015); Borjas and Monras (2017); Tumen (2016); and Alix-Garcia et al. (2018)), the incidence of crime and hostility, (Bell et al. (2013); Hangartner et al. (2019)), and electoral outcomes (Dustmann et al. (2019)). These papers, however, do not consider the return dynamics of refugees. The omission of positive or negative self-selection of refugees through return migration can potentially distort impact and economic performance assessments as shown by Abramitzky et al. (2014) in the case of economic migration patterns during the Age of Mass Migration (1850–1913) in the United States. A limited number of other papers, e.g. Cattaneo and Peri (2016) and Clemens (2017), consider endogenous displacement driven by climate and violence shocks, but they do not analyze return migration.

The analysis in this paper also contributes to a second, and more established, strand of literature, which focuses on temporary migrations. An important share of this work focuses on the differences between the economic behavior of those migrants who intend to return and those who do not. Galor and Stark (1990) and Borjas and Bratsberg (1996) argue, respectively, that a positive probability (or intention) of future return

to home country leads to higher savings and higher labor force participation among migrants. Bauer and Sinning (2011) and Dustmann (1997) provide empirical evidence for these arguments using migrant savings and labor force participation data from Germany, respectively. Bijwaard and Wahba (2014) compare the return trends of migrants in the Netherlands and show that the effect of host-country income on propensity of return migration is U-shaped, with migrants from low and high income groups being more likely to return. Gibson and McKenzie (2011) use a cross-section survey of top high-school performers of cohorts from 1976 to 2004 in Tonga, Papua New Guinea, and New Zealand to assess the determinants of migration and return decisions. For this group, return is found to be primarily linked to family and lifestyle reasons rather than wage differentials across countries.

Some of our results are analogous to those in the temporary migration literature (e.g., the positive associations between income and return in the case of migrants and between more meals and return in the case of tenured refugees). However, these are probably driven by different mechanisms. To elaborate on this point, we use a simple migration model to show that for Syrian refugees, most of whom live near subsistence level, the costs associated with return could be prohibitive. In this case, a permanent improvement in host country conditions has two effects on the comparison of expected lifetime utility across return and stay options. First, it reduces the opportunity cost of the return decision. Second, it makes the return option less attractive as the gap between future utilities in return and no-return scenarios decreases with a higher permanent income in exile. For initially high income levels, with a small increase in income, the second effect dominates and return becomes less attractive. In contrast, when starting from an income that is too close to the return cost, a small increase in income relaxes the opportunity cost of return drastically, which dominates the second effect and makes return more attractive.

The number of refugees who have returned is still very small, so we caveat that the decision process behind these refugees choosing to return may be very different than what we will observe with a larger mass return. The analysis of hypothetical vignettes, which were administered to a representative sample of refugees in Lebanon and Jordan, suggests that conditions in Syria - in particular whether the family's house in Syria was destroyed and the conditions of schools - will play a major role in the return decision going forward. The contribution of the paper, however, is instead to understand factors related to early, voluntary return.

This paper continues as follows. The next section briefly provides contextual information regarding the displacement of Syrians. The third section describes our data and empirical strategy. We discuss our results in the fourth section. Finally, we discuss some key results by employing a simple framework in the fifth section, before concluding. The appendices provide additional material: detailed variable descriptions and robustness checks.

2 Syrian Refugees in Mashreq: Background[6]

When the first "Arab Spring" protests erupted in 2011, Syria was a country of 20.7 million people. After a growth spell in the preceding decade, GDP per capita reached USD 2,806 in 2010. Despite the seemingly improving economic conditions, however, the social unrest escalated rapidly and by mid-2011 a full-scale armed conflict was already unfolding. Since then, the conflict has led to more than 400,000 directly conflict-induced fatalities and millions of indirect casualties, often by means of severe deprivation.

The brutal conflict in Syria has also created the world's largest forced displacement crisis since World War II. As of end-2019, over half of the country's pre-conflict popu-

[6]This section refers to the findings of World Bank (2019) unless noted otherwise.

lation remains displaced. About 5.6 million Syrians are registered as refugees outside of their country and another 6.2 million persons are displaced within Syria's borders. Of the refugees, most (3.6 million) reside in Turkey, with another 1.8 million in other countries in the Middle East and North Africa.

In proportion to host country populations, refugees in Mashreq are among the largest displaced groups in the world, as shown in Table 1. In Lebanon, about 0.91 million registered refugees (close to 20 percent of the country's population before the Syrian conflict) inhabit informal settlements which are spread across a large part of Lebanon, with concentrations near the Syrian border and in Beqaa. In Jordan, about a fifth of the 0.66 million registered Syrian refugees stay in three camps (Zaatari in Mafraq governorate, Azraq and Mrajeeb Al Fhood in Zarqa governorate). Those refugees who live outside camps are largely spread across Amman, Mafraq and Irbid governorates. In Iraq, the number of refugees is small compared to the country's total population (about 0.7 percent), but they constitute 5 percent of Iraq's Kurdistan Region population, where almost all refugees reside with 40 percent staying in camps.

The Syrian refugees in Mashreq are an economically active population. In 2018, the labor force participation (LFP) rate of Syrian men was 68 percent in Lebanon and 63.3 percent in Jordan (World Bank (2017)). In comparison to the LFP of Syrian men in Syria (79.1 percent), these rates are lower. However, unemployment and underemployment are likely to be more prevalent in Syria, for which (and for Iraq) we do not have comprehensive data . The female LFP has been typically low in Lebanon, Jordan and Syria, at 10, 13 and 12 percent, respectively.

In both Lebanon and Jordan, Syrian labor is concentrated in the manufacturing, construction and agriculture sectors, mostly on an informal basis. The regulations restricting employment of foreign labor were in place before the arrival of Syrian refugees in both countries. In Lebanon, a decree that dates back to 1964 (Decree No. 17561,

Article 9), gives mandate to the Ministry of Labor to announce sectors that are closed to non-Lebanese nationals annually. With resolutions No. 1/19 in 2013 and No. 1/197 in 2014, the only professions open to Syrians were narrowed down to agriculture, construction, and cleaning. In Jordan, a Ministry of Labor decision dated January 4, 2016 restricted the sectors open to non-Jordanians to manufacturing, construction, and agriculture. The Jordanian government has undertaken a number of measures to formalize the labor force participation of Syrian refugees. In February 2016, the government announced the "Jordan Compact", which comprised commitment to issue formal work permits to 200,000 Syrian refugees and eased procedures to obtain them (e.g., the foreign passport requirement was abolished and exemptions from a series of medical check-ups were granted). By June 2018, an estimated 105,404 work permits were issued: 29 percent in the agriculture sector, 43 percent in construction and 11 percent in manufacturing.

In addition to labor market activity, refugees are also eligible for assistance through various programs managed by host country governments and international organizations like UNHCR, UNICEF, and the WFP. Basic-needs support takes the form of winterization assistance, cash assistance, and basic needs kits. Eligibility for assistance is typically determined by a set of common indicators of vulnerability with associated thresholds. A survival minimum expenditure basket (MEB) and family size are used to determine the value of the cash transfers. For example, in Jordan, the MEB for a family of four was estimated at 387 Jordanian dinars (JD) per person per month, and the total size of the transfers (UNHCR and WFP combined), was 196 JD in 2018. Despite these efforts, however, poverty prevails among Syrian refugees. According to World Bank (2019), the extreme poverty rate of Syrian refugees in Jordan (51-61 percent) and to a lesser extent in Lebanon (37-50 percent) remained close to that in Syria (55-67 percent) in 2018.

Under these conditions, and despite the active conflict in Syria, there has been a small, but non-negligible, number of returns to Syria. Although the exact number is not known, as returnees may wish to remain confidential for security reasons, UNHCR announced 213,418 verified spontaneous returns from 2016 until end-2019. Accordingly, among all refugees registered in the respective countries, about 15.4 percent in Iraq, 8.1 percent in Jordan, and 5.9 percent in Lebanon were verified to have returned to Syria in that period.

Figure 1 provides a pairwise comparison between those who returned and those who stayed in terms of their case size, age, and adult education distributions. The top panel shows that smaller households constitute a greater share of the returnee sample as compared to the non-returnees. The median case sizes are five for the returnees and 5.3 for the non-returnees. The middle panel shows that whereas children ($<$15) constitute a smaller share of the returnee sample, seniors ($>$55) constitute a larger share, pushing the median age of returnees above that of non-returnees. Finally, the bottom panel shows that the median years of schooling among returnees is lower than that of the non-returnees. Individuals with no schooling comprise about 19 percent of the adult returnee population, while the same category comprise less than 12 percent of the non-returnee population.

A separate comparison across countries in our data set shows that refugees also stayed for different durations in different countries. Refugees in Lebanon stayed longer than the refugees in the other two countries included in the study. The average returnee from Lebanon remained in the country of asylum for about 1.5 years more than peers from Iraq and 10 months longer than those from Jordan. One may consider differences in arrival year as a driving factor in explaining such differences in duration of stay, that is, if refugees arrived earlier in one country, then they will stay longer. However, this is not true. The relative distribution of arrival times is very similar across all three

countries covered in this study.

We next turn to analyzing the factors that helped or hindered the return of Syrian refugees until early 2018.

3 Data and Empirical Strategy

Return migration decisions are potentially influenced by expected payoffs in both the country of origin and country of asylum, as well as the individual characteristics of refugees. To analyze these factors, we need a comprehensive data set, which is often not available especially in active conflict situations. In what follows, we describe the strategy we followed in exploiting the available information.

3.1 Data

With an active conflict situation in Syria, a complete longitudinal data set for conditions in countries of asylum and origin was not available. Thus, we adopt a pragmatic approach that combines different sources and types of data.

Refugee attributes: We use the Profile Global Registration System (ProGres) database, which is compiled by UNHCR to record each person of concern who approaches it.[7] Our version comprised about 2.16 million Syrian refugees in the Middle East and North Africa region (Turkey and European countries are not included), with a cutoff date of March 2018.

The ProGres database is a limited administrative database, which functions like a civil register. It includes a broad set of social and demographic characteristics for each recorded individual: e.g., sex, age, marriage status, religion, ethnicity, occupation, and

[7]Registration with UNHCR is not mandatory; Lebanon suspended registration in 2015 but UNHCR continued to collect data for the new arrival cases that approached it in order to include them in their assistance provision process.

education. In addition, information on their registration status is recorded, including refugee status, arrival and, where applicable, return date, and sub-district-level location information for last residence in Syria and current residence in the country of asylum. It also identifies kinship of individuals within each "case" (e.g., familial relationships of everyone within a case to the principal applicant, ranging from members of the nuclear family to extended family, such as in-laws and aunts).

Following the initial registration, entries are updated in subsequent contacts. Update frequencies vary from one operation to another, with at least 5 percent of all observations being updated in a given month.[8] Therefore, although information on single-shot events like arrival and return dates is fixed, other information like occupation, education and marital status may change over time. In the case of education and marital status, these changes are largely driven by the aging of the refugee. However, the occupation variable is more problematic, since it could refer to current employment or past employment (including in Syria) depending on when it was last updated. Therefore, while we are able to use all of the demographic and registration information of the ProGres database, we exclude the occupation variable from the main analysis.

Conditions in countries of asylum: We use vulnerability surveys conducted by UN agencies in Jordan and Lebanon. These surveys assess living conditions of registered refugees at the case, household, and individual levelS, and monitor protection, shelter, education, health, water and sanitation, as well as poverty and food coping strategies. Our data from the Vulnerability Assessment Framework (VAF) in Jordan comprises two years: 2015 and 2017 (sampled cases: 2,163 and 2,001), which are comparable. Samples are weighted by the share of refugees in each governorate, and representative at the 95% confidence interval. Data from the Vulnerability Assessment of Syrian

[8]For example, in Tunisia where UNHCR has fewer than 600 persons of concern, the information is updated every 3 months, while in the Arab Republic of Egypt the cycle is every 18 months, which is the maximum in the region. For the overall data set, we can assume that the information is up-to-date on average for 2017.

Refugees (VASyR) in Lebanon covers three years: 2015, 2016, and 2017 (sampled households: 4,105, 4,596, and 4966, respectively). VASyR surveys employ a two-stage cluster sampling approach: first, to ensure geographical representativeness, 30 clusters are randomly selected in proportion to refugee population size and, then, 5 to 6 randomly selected households in each selected cluster are visited.

There are a number of challenges when using the VAF and VASyr surveys. The first is the limited comparability of questions across surveys. This limits the number of variables we can use to measure conditions in Lebanon and Jordan consistently. Nonetheless, we are able to proxy for living conditions and access to employment by computing a composite food security index using principal components analysis (PCA) of normalized food consumption variables. The latter include the average number of meals per day, and the average number of days a week a case did not have to borrow food, restrict portion sizes, limit the number of meals or restrict consumption of adults. A PCA index is also computed for housing conditions, using normalized dummies for whether the case has an acceptable roof and windows, and access to a (private) latrine.

The second problem is the limited sample size of the two surveys. To take advantage of the much larger ProGres database of nearly 2.2. million refugees, we compute area averages for the above-mentioned case-level host community conditions, aggregating to the smallest possible geographic unit available (district level for Lebanon and governorate level for Jordan). This information is then matched with all refugees in the ProGres database that have location information in Lebanon and Jordan, yielding a sample of 1.85 million refugees.

Finally, we worry about reporting bias. Respondents may have felt they were more likely to receive assistance if they reported worse living conditions. The bias could also go the other way if refugees want to signal their gratitude for the assistance they receive. The problem is even more acute given our research question. Those who intend

to return may have systematically different tendencies in reporting. It is possible that those who plan to return no longer feel the need to mis-report their income, and this would generate a bias in the correlation between the return decision and asylum country conditions. We attempt to solve this problem in two ways. First, we exploit the fact that we observe whether refugees return to Syria for 1-3 years after the survey data was collected. We can therefore remove the responses from cases who ultimately return when aggregating the data to the district and governorate levels. This should at least keep the reporting bias constant across geographic areas. Second, we employ a fixed effect specification which looks at changes in conditions in Lebanon and Jordan, which will remove differences in reporting bias which are time invariant.

Conditions in Syria: To capture conflict dynamics, we compiled a novel conflict events data set, covering all districts in Syria between January 2011 and August 2018 at a monthly frequency. This data set provides a record of verified conflict-driven casualties, changes in area control, and key conflict events (light skirmishes, airstrikes, artillery strikes, and chemical attacks) using more than 7,000 news items and multiple databases.[9] Whereas casualties are recorded as a count variable in this case, other conflict events are defined categorically with two or more values, e.g., yes, no for presence of combat activity and low, medium, high for the intensity of it. This allows us to differentiate between different types of conflict events while assessing the impact on the return decisions of refugees: *a priori*, some conflict events, like chemical attacks, are expected to pose a greater deterrent to return than others. Such decomposition of conflict events also helps us to reduce potential endogeneity concerns between return and the proxies of conflict intensity, e.g., casualties. Finally, we also computed a Conflict

[9]These include the following: ACLED, Carter Center Syria Conflict Resolution Database, Institute of War Syria Events Database, University of Maryland Global Terrorism Database, Syrian Observatory for Human Rights Database, Syrian Shuhada Database, The Uppsala Conflict Data Program and The Violations Documentation Center among others. In addition, activity-specific databases have been consulted, including airwars.org and Arms Control Organization timeline of confirmed chemical weapon use in Syria.

Events Index (CEI) for each district-month using PCA of normalized conflict activity.[10] This index is used where a more complete picture of the conflict conditions is considered.

For non-security-related conditions in Syria, it was not possible to acquire a comparable and geographically comprehensive time series. Instead, we use nighttime lights measurements from the Suomi National Polar Partnership (SNPP) satellite, which was launched by NASA and NOAA in 2011. The satellite uses a Visible Infrared Imaging Radiometer Suite (VIIRS) instrument to collect low light imaging data in spectral bands covering emissions generated by electric lights, excluding stray light, lightning, lunar illumination, and cloud-cover. Temporal averaging is done on a monthly and annual basis starting from April 2012.

For the purposes of this study, we used the monthly data set with zonal statistics up to ADM3-level aggregation, comprising governorate, district, and sub-district divisions. The nightlights in this scheme can be interpreted narrowly as the availability of electricity (grid or generator) or more generally as a proxy measure for the existence of utilities, economic activity or the conflict-driven isolation of a given location. Figure 2 maps the evolution of visual nightlights and the CEI onto each other. From April 2012 (the first available data point) until April 2015 (midpoint of series), total luminosity decreased by 65% across Syria. By April 2018, about half of these losses were offset, with the exception of areas with persistently intensive conflict like Aleppo and Idleb.

Lastly, Figure 3 provides an overview of the evolution of the Syrian conflict by year, across districts within Syria. The figure plots the number of casualties per year and shows the variation in conflict intensity both over time and over space. This is the variation we will use in our analysis below. However, it is important to note that several districts have experienced persistently high levels of conflict since its advent. This is illustrated by Figure 4, which correlates the district-level return percentage with the

[10]The components included key conflict events (light skirmishes, airstrikes, artillery strikes, and chemical attacks) and the casualty-count for the district-month.

mean CEI over our sample period. Since return decisions are likely impacted by the persistence of conflict, we classify districts into high and low conflict districts, using the top 10^{th} percentile of the mean CEI as a cut-off point.[11] We will use this classification to explore the extent to which return decisions of key social and demographic groups are impacted by the persistence of conflict.

Survey of refugees in Lebanon and Jordan: In a survey of 900 Syrian refugees in Jordan and Lebanon, we randomly varied the details of the scenario or vignette presented to a given individual respondent. Some refugee families are certainly more predisposed to wanting to return than others. By describing hypothetical scenarios, but ones which hit fairly close to home, and varying key factors within those scenarios should help us identify what factors are important to many refugee families when deciding whether to return.

For all respondents in all vignettes, we asked "How likely is this family to return to Syria in the next 2 months?" where the respondent could answer using a Likert scale, ranging from "Very likely" to "Very unlikely". For the analysis below, we use an indicator which is equal to one if a respondent says the family is either very likely or likely to return, and 0 if the respondent says neutral, unlikely or very unlikely.

Each respondent was presented with three vignettes, where key aspects of the scenarios were randomly varied across respondents. These three vignettes were designed to probe the impact of different pull and push factors on the refugees' return decision, allowing us to go beyond the data limitations of the above analysis. That is, the vignettes not only explore the impact of security on return decisions, but also of employment prospects in both the country of asylum and Syria, the status of property in the home community, and the availability of financial assistance.

In particular, the first vignette probes three questions: first, whether the ability to

[11] According to this classification, Jebel Saman, Deir-ez-Zor, Homs, Al Ma'ra, and Duma are high-conflict districts.

work in the host country affects the return decision and moreover if the ability to work is more or less important among highly skilled workers. Second, whether the length of time that security has been stabilized in the origin community affects the return decision. Third, whether financial assistance, and the level of that assistance, affects the return decision.

The second vignette has two key aspects of the scenario which varies across respondents. The first varies whether the wife of a refugee family from Syria, now living in either Lebanon or Jordan (the country was matched to the country where the respondent was currently residing), was working as a housekeeper or stayed home to take care of the family. The second aspect varied the opportunities of the husband of the family to get work back in their home community in Syria. The vignette also sought to understand how a family may decide to send some, but not all, family members to return and elicits the likelihood of each family member to return.

The third and final vignette varied what information a hypothetical family in either Lebanon or Jordan had about their home back in Syria. A respondent was told that the family's house in Syria was either destroyed or intact and unoccupied. The information was provided to the family either by a resident of the village or from family members who remained in their village in Syria.

As part of this survey, we also collected information on the vulnerability of the surveyed refugees using the subset of common questions from the VAF and VASyr surveys. Since the data for this survey was collected through a third party unaffiliated with the UNHCR - and, thus, any decision to allocate assistance - we would expect answers on income, food security, and poverty coping strategies to be more truthful. These data provide important contextual information on the correlations between income, food security and employment status.

Overall, our ability to put together a comprehensive data set with key dimensions

(micro-characteristics of refugees, conflict dynamics, and the conditions in the countries of asylum and origin) has made the analysis of return decisions possible. The next section will discuss how we leverage the different dimensions of this data set for our purposes.

3.2 Empirical Strategy

The analysis proceeds in two parts: we first analyze a panel data set, constructed at the sub-district level within Syria,[12] to understand the relationship between returns and security and access to utilities in Syria. Formally, we estimate the following specification:

$$\begin{aligned} ln(returns_{smt}) &= \alpha + \beta_1 \Delta CEI_{dmt} + \beta_2 \Delta luminosity_{dmt} + \beta_3 AoC_{dmt} \\ &\quad + \delta_d + \tau_t + \varepsilon_{dmt}, \end{aligned} \tag{1}$$

where $returns_{smt}$ is the number of refugees originally from sub-district s in Syria who returned to Syria in month m of year t. Also included are district fixed effects δ_d and year fixed effects, τ_t.[13] Since refugees will make the decision to return home based on past conflict events and recent changes in standards of living like electricity reliability, we look at a lag of both the conflict events index (CEI) and luminosity. In particular we construct ΔCEI_{dmt} as the change in the conflict events index for district d between the quarter immediately prior to month m in year t from the previous quarter.[14] The second term on the right hand side $\Delta luminosity_{smt}$ is analogously constructed using the same lagged time periods. The third term AoC_{smt} is a series of Area of Control dummy variables, which capture who is in control of sub-district s in month m in year

[12] Syria is a unitary state, but for administrative purposes it is divided into 14 governorates, which are further divided into 65 districts and 281 sub-districts.

[13] As a robustness check, we also include month of the year fixed effects to pick up seasonal changes in migration patterns.

[14] Note that the conflict data is only available at the district level.

t. These include a dummy for who controls the area (i.e., only government forces, only non-government forces, or contested). The omitted category is sole control by the Government of Syria, which held about half of the sub-districts during our sample period. Standard errors are clustered at the district level to account for arbitrary serial correlation over time within districts.

An important challenge we face in this analysis is the low incidence of actual returns. With less than 4% return records in our registration data, 67% of month-sub-district observations have zero returns. Of all 257 sub-districts, 29 sub-districts (11%) have no returns during the entire sample period. The mean return in the entire sample period is 3 individuals in a given month, with a variance of 281. To address this problem, we estimate a Poisson Quasi Maximum Likelihood (PQML) count model, with robust standard errors clustered by district (Wooldridge, 1999). Specifically, we estimate by Maximum Likelihood estimator equations such that

$$E(returns_{smt}) = \delta_d exp(\beta_1 \Delta CEI_{dmt} + \beta_2 \Delta lum_{smt} + \beta_3 AoC_{smt} + \tau_t) \tag{2}$$

where the variables are defined as in equation 1. Note that the β coefficients in Equation 2 represent the semi-elasticity of returns with respect to changes in conflict intensity or luminosity in the origin district. The PQML count model is particularly suitable because it is robust to arbitrary distributional assumptions so long as the conditional mean is specified by 2.

In the second part of the empirical analysis we aim to exploit the heterogeneity of individual characteristics to identify other correlates of refugee returns. With detailed arrival and return information from the ProGres database, we construct an unbalanced individual-level panel. Each refugee i is observed repeatedly from her arrival month until the month that she either chose to return back to Syria or March 2018 - the last

month for which we have ProGres data. However, this is a right-censored panel (i.e., the majority of individuals did not return by the end of our records). Thus, we use survival analysis. By estimating the hazard rate of return for a given point (month) in time, conditional on refugee i not having returned yet, survival models account for the right-censoring and time-varying explanatory variables that are problematic when using OLS or a binary dependent variable model, such as logit or probit to estimate transition probabilities (Cameron and Trivedi (2005) and Jenkins (2005)).

Following Jenkins (2005), we estimate a proportional hazard model. Given that our data is grouped monthly, we first estimate the complementary loglog (cloglog) model with robust standard errors clustered at the origin district level as follows:

$$\begin{aligned} h(t,X)_i &= 1 - exp[-exp(c(t) + \beta_1 char_i + \beta_2 reg_i \\ &\quad + \beta_3 foodsec_{lt} + \beta_4 housing_{lt} + + \delta_d + \tau_t] \end{aligned} \tag{3}$$

where $h(t,X)_i$ is the proportional hazard function of refugee i and $c(t)$ represents the generic baseline probability to return to Syria after a refugee spell t (duration) conditional on not having yet returned. Following Constant and Massey (2002), we assume that t enters with a quadratic term in the baseline hazard, such that $c(t) = \alpha_1 t + \alpha_2 t^2$. In addition, we control for refugee i's social and demographic characteristics $char_i$, such as her sex, age, marital status, education level, and family relationship, her registration status reg_i as well as livelihood opportunities $foodsec_{lt}$ and living conditions $housing_{lt}$ in refugee i's location l in the country of asylum.[15] Lastly, we include fixed effects for the country of asylum coa, the origin district δ_d and year τ_t.

However, since misspecification of the parametric model could lead to inconsistent

[15]The level of disaggregation of location l is determined by the UNHCR vulnerability surveys. For Jordan the VAF data was aggregated to the Governorate, whereas for Lebanon the VaSyr data is also available at the district level.

estimates, we also estimate the continuous time, semi-parametric Cox proportional hazard (Cox) model. The main advantage of the Cox model is that it allows us to estimate the relationship between the hazard rate and the determinants of refugee returns without having to make any assumptions about the shape of the baseline hazard function. A continuous time model might also be appropriate in this context, given that we have a long panel of 75 months. Using the same variable definition as in 3, we estimate

$$h(t) = h_0(t)exp[\beta_1 char_i + \beta_2 reg_i + \beta_3 foodsec_t + \beta_4 housing_t + \mu_l + \delta_d + \tau_t] \quad (4)$$

We restrict survival analysis to the Syrian refugees based in Jordan and Lebanon as their host country conditions are proxied by the geographical aggregates computed from the VAF and VASyr surveys. Despite this restriction, more than 85 percent of all refugees in our data set is included in the analysis. It is important to note that the conditions in the country of asylum may be the result of a refugee's anticipated length of stay in the host country. As such, we discuss these results, which are reported in section 4, as correlations and not necessarily causal relationships.

4 Results

4.1 Conditions in Syria

The evolution of the security situation and overall quality of life must be important factors for refugees to consider returning home. We therefore start this analysis by looking at how the return decision varies as a function of our composite measure of security (the CEI) and the luminosity measure using nightlights.

Table 2 shows an overall robust relationship between security and returns. In our

preferred specifications, columns (3) and (4), we find that a one standard deviation decrease in the quarterly Δ CEI - that is a standard deviation improvement in conflict conditions relative to the previous quarter - increases returns by 2.3 and 6 percent, respectively. These effects are small but precisely estimated in both OLS and PQML specifications. They also exclude Daraa, which carried a special status during the conflict, for the sake of a more general representation of the conflict-return relationship.[16] Inclusion of Daraa would seem to be qualitatively inconsequential in the OLS (column 1), but weakens the conflict coefficient in PQML (column 2). We keep the exclusion for the remainder of the paper. Columns (5) and (6) add in month fixed effects to our preferred specifications for robustness, and the estimated coefficients on the conflict index are qualitatively unchanged.

Access to electricity, and by extension utilities (measured at the sub-district level), also encourages returns. In particular, our preferred specifications demonstrate that a one standard deviation increase in luminosity, relative to the level of luminosity two quarters ago, increases returns by 4.6 and 3.8 percent (for the OLS and PQML count models, respectively). These results are robust, as shown in columns (1)-(5). However, the PQML model with month fixed effects erodes the effect of luminosity in column (6). Nevertheless, the net takeaway from this analysis is that an omnibus measure of quality of life, proxied by nightlights, is a factor in refugees' decisions to return home even in the presence of ongoing conflict at the country level.

In table 3, we look at how the different types of conflict affect the return decision. We find that overall casualties (conflict-driven mortality) reduce the return decision.

[16]Daraa was part of a deescalation zone established by the governments of the United States, Jordan and the Russian Federation. Unlike the other three deescalation zones created as part of the Astana Process, Daraa shared a contiguous border between origin and asylum locations for a large group of Syrian refugees for the duration of our analysis. This made movements between the two regions, including the delivery of international aid, less complicated as crossing government-controlled areas was not necessary (Bojicic-Dzelilovic and Turkmani (2018)). The patterns of asylum seeking and returns are therefore distinct in this area, and less correlated with the time series conflict pattern.

The magnitudes are similar as we saw with the overall conflict index. A one standard deviation decline in quarterly casualties, which is about 90, is associated with a 2% higher return rate. The use of chemical weapons and incidents of skirmishes and fighting all have a significant negative effect on returns to Syria. In results not shown, we find less robust relationships between the number of air strikes and incidents of artillery and carpet bombing and refugees' decision to return.

4.1.1 Vignette Analysis

We complement the study of returns that have already happened with data from hypothetical vignettes. There are advantages and disadvantages of both of these data sources. The returns observed to date are still a very small percentage of the overall refugee population, and therefore the factors affecting their return decision may not be representative of the larger Syrian refugee population. The hypothetical vignettes, while clearly weaker in that they represent hypothetical scenarios, seek to provide insights into the external validity of the earlier results.

The data is analyzed using a straightforward regression specification:

$$Pr(y_i = 1|X) = \quad \alpha + \beta_1 VignetteScenario_i + \gamma Jordan_i + \varepsilon_i \tag{5}$$

where y_i is an indicator variable =1 if the respondent i reported that the family depicted in the vignette was Very likely or Likely to return to Syria in the next two months. The variable Jordan=1 if the respondent resides in Jordan and =0 if the respondent i currently resides in Lebanon. The different scenarios are captured by either a dummy variable $VignetteScenario_i$ or a series of dummy variables. β_1 captures how changes in a refugee family's conditions – either in their country of asylum or back in Syria – affect the perception that the refugee will return to Syria.

In table 4, we look at whether the condition of the family's house back in Syria

affects the return decision. The reference group in this table is the scenario where the family hears from their former neighbors that their house is still intact. Column (1) shows that in this scenario, 38% of respondents say that the hypothetical household is likely or very likely to return to Syria in the next 2 months. However, finding out that their home was destroyed has a substantial negative effect, reducing the probability of expected return by 22 to 23 percentage points. This constitutes a 60% reduction in respondents' stated perception of the family's likelihood to return. The source of the information, neighbors or extended family still in the village, did not matter. The results are similar for both refugees who are officially registered with UNHCR (column 2) and those who are not (column 3).

Table 5 looks at another aspect of life in Syria: whether schools are open and functioning well. In column (1), we see that 43% of respondents who are told about a scenario in which a refugee whose wife is working in their country of asylum and who hears that schools in Syria are open say that the depicted family are likely or very likely to return in the next two months. Whether the wife is working or not in the country of asylum does not have a significant effect on the reported likelihood of return. However, the vignette highlights how schools in Syria affect the return decision: respondents are 19 percentage points less likely to expect the hypothetical household to return when the schools are under-resourced. This is more than a 40% reduction in the likelihood of expected return.

Overall, these two vignettes signal that conditions back home in Syria have a large and economically meaningful impact on the return decisions.

4.1.2 Does Conflict Affect *Who* Returns?

The conflict pattern in Syria may not only affect the total number of individuals who choose to return, but also the profile of the refugees who return. In this section, we show

that different types of refugees, as can be measured using observable characteristics, return to high versus low conflict areas.

We designated districts that were in the top 10^{th} percentile of the conflict events index (CEI) averaged over the time period January 2012-2018 as "high conflict". As was seen in Figure 4, these districts experienced significantly more conflict over our study period. Note we do not observe where refugees return to, so we instead use their origin district as a proxy. We then look at the percentage of refugees from a given district in Syria in that demographic category who returned. This helps account for the fact that the profile of refugees from a given origin district may have been altered when there is high versus low conflict - i.e. there may be more widows among the refugee population who hail from high conflict districts.

Figure 5 has five panels. The regression results behind these figures are available in appendix tables A1-A4.[17] Note that the standard error bars show differences within each conflict grouping (e.g. the difference between male and female refugees among low conflict districts; and analogously the difference between male and female refugees within high conflict districts). Below the figure legend, we report the difference and significance of the interaction term of High conflict x Demographic characteristic(s) explored in the figure.

The upper left panel looks at the gender composition. 2 percent of female refugees (all ages) from low conflict districts returned to Syria, compared with 1.6% for male refugees from low conflict districts. Qualitatively, the picture is the same in high conflict areas, though female refugees from high conflict districts return at a very slightly but statistically significant lower rate than females from low conflict areas (difference is

[17]The regression specification is

$$\%returned = \beta_0 + \beta_1 X + \beta_2 HighConflict + \beta_3 X x HighConflict + \epsilon$$

where X is the demographic characteristic(s) explored in the panel.

-.00086, p value<.01).

The second and third panels in Figure 5 look at the relationship between age and the return percentages, for males and females, respectively. In all cases, we observe that older refugees are the most likely to return, and all age groups from high conflict areas are slightly less likely to return than refugees from low conflict districts. However, in panel 2 focusing on males, the largest difference in return probability between high and low conflict areas is among the oldest age group. There is a small - but statistically significant - decline also for prime-aged males, 15-44. We found it surprising that we did not observe a large decline in the return probability among men in this age range, given the fear of being drafted to fight in the conflict. However, this may reflect that the risk of being drafted exists throughout the country. Overall, the age gradient flattens among males from high conflict areas. Panel 3 demonstrates that the age gradient for women is more pronounced, among refugees from both low and high conflict areas. Female refugees are increasingly likely to return with age, with approximately 11% of women ages 60 plus who come from low conflict areas returning. This contrasts with men from low conflict districts in the same age range having a return percentage of 6.5%.

Panel 4 of Figure 5, on the left in the second row, looks at the return rates among refugees with different levels of education. Return rates are overwhelmingly higher among refugees with the very lowest level of education. This is true among refugees coming from low and high conflict areas. While this work is descriptive, it suggests that changes in conflict intensity in Syria may not alter the distribution of high and low educated workers among the refugee population in a given country of asylum. We will return to this finding in section 4.3, where we discuss how conditions in the country of asylum relate to the return decision. For now, we will also point out that monthly per capita household income, as measured by our survey in 2018, is increasing

with educational level within the household (though not all differences are statistically significant given the fairly small sample size). This can be seen in Appendix Figure A1.

The final panel of Figure 5 explores who within a case returns. A case is defined by UNHCR and does not always follow a traditional household definition. Among the refugee population, 96.5% are close family members to the head of the case - i.e. the spouse or child of the head of the case. However, there can also be brothers, parents, etc. of the "household head" all in the same case. We see that individuals who are more distantly related to the head of the case are very likely to return to Syria. In fact, 22% of these individuals who originated in low conflict districts return to Syria in our study timeframe. This is in contrast to 2% for individuals who are nuclear family members. The figure shows that the difference between nuclear and immediate/extended family members narrows slightly in high conflict areas but the same pattern overwhelmingly persists.

These figures highlight some stark patterns of who returns based on demographic characteristics, which we explore further in the next section. They also provide suggestive evidence that the conditions in Syria impact refugees' decisions to return. The return rate among refugees who come from high conflict districts are overall lower, and the demographic pattern of who returns shifts towards being less elderly.

4.2 Demographic Factors

Next, we analyze how social and demographic characteristics of adult refugees correlate with return decisions by means of survival analysis. We focus on adult refugees (age 15 years or older), since it is more likely that their characteristics and relationships with the rest of the case will determine which member(s) of the case return to Syria.

The findings in Table 6 provide interesting insights into the type of refugee that has a higher hazard rate of returning. Column (1) presents the results for the cloglog

model using origin district and country of asylum fixed effects. It clearly shows that the hazard rate increases with age, with coefficient estimates of 0.58 and 0.78 for individuals ages 45-59 and 60 and above, respectively. This is equivalent to an increase in their respective hazard rate of 77% and 118% relative to the omitted category of refugee ages 15-44 years. Both coefficients are precisely estimated. As this section of the paper is descriptive, we cannot give a reason for this finding. We provide two possibilities to consider. One possible explanation for this result is that the younger cohort is at a greater risk of being conscripted by the Syrian army for compulsory or reserve military service, which applies to men ages 18-42 and has been used in a discretionary manner throughout the conflict. Table 7, which reports results separately for women and men in columns (2) and (3), respectively, confirms this result for men, but also shows a similar pattern for female adults. A second possible explanation that particularly applies to women is that older age cohorts are more likely to be unemployed, which could increase their hazard rate of return (World Bank (2020)).

Our results are aligned with the view that refugees make proactive choices about returning - for example, about which family member to send back to Syria. The hazard rate is greater for men in the multivariate regression, in contrast to the simple plots we showed in section 4.1.2.[18] The highly significant coefficient estimate of 0.38 suggests that the hazard rate for men is 45% higher than for women. Moreover, the relationship of the refugee to the principal applicant of the case matters. That is, adult immediate and extended family members, such as siblings, aunts and uncles, have considerably higher hazard rates than the principal applicant's spouse. The hazard rate is also higher for

[18]We think that both the uni-variate relationship and the multivariate regressions are informative. As an example of why we see differences based on specification: once we condition on marital status and whether the refugee is the principal applicant, the relationship between gender and the return probability flips. The majority of principal applicants are male, and principal applicants are less likely to return. Men are typically household heads in this culture. It is therefore not obvious if we want to average out the role of other characteristics - which are intrinsically correlated with gender - when looking at the role of gender in the decision to return. Therefore, we show the results both ways to provide a more complete picture.

singles compared to married refugees (60%), a result that is precisely estimated. In contrast, widowed refugees have a 24% lower hazard rate (also significant at the 1 percent level). These findings are in line with international experience (World Bank (2017)), which suggests that return happens in stages, with individual family members - often single adult males - returning to the country of origin to assess the situation on the ground, while the rest of the case remains in the country of asylum.

Higher levels of education are also associated with lower hazard rates. For example, a university degree reduces the hazard rate relative to an uneducated adult by 21% percent and by 19% percent for a secondary degree (both significant at the 1 percent level). It is, however, unclear to what extent this is linked to the refugee's actual employment opportunities since most are not allowed to formally work in skilled jobs. Appendix figure A1 suggests that more educated refugees make more income while in asylum. These differences in return hazard could also be driven by differences in wealth (e.g., more-skilled people may have more savings as suggested by Appendix Figure A1) or lower transaction costs (e.g., more-skilled people better communicate/navigate in host communities). We are, however, not able to disentangle these mechanisms.

The remaining columns in table 6 test the robustness of these results. Column (2) adds year fixed effects to control for major changes in the conflict dynamics and peace negotiations that are likely to impact return decisions. The results are very similar, both in terms of magnitude and level of significance. The remaining columns estimate continuous time proportional hazard models, assuming an exponential baseline hazard in columns (3) and (4) and using the semi-parametric Cox model in columns (5) and (6). The results are very similar across hazard models and distributional assumptions. Given that the semi-parametric Cox model is robust to arbitrary distributional assumptions, it is our preferred specification for the remainder of the paper.

Table 7 provides a formal test of the descriptive statistics reported in section 4.1.

In particular, we test to what extent conflict intensity, as measured by the high conflict dummy, impacts who returns. Column (1) reports the results for all adults, while columns (2) and (3) break out the sample by females and males, respectively.

In line with our results in section 4.1, we find that the hazard rate is significantly lower for refugees who come from a district with persistently high levels of conflict. The coefficient estimate of -0.32 is statistically significant at the 5% level and is equivalent to a reduction in the hazard rate of 27% compared to a home district that has experienced less conflict. This result is exclusively driven by male refugees, whose hazard rate is 45% lower compared to male refugees who hail from a more peaceful district. Conversely, we do not find a similar effect for women.

High conflict intensity in the origin district also seems to influence the case's decision on which family member should return, further reinforcing the patterns already observed above. In particular, immediate and extended family members have substantially higher hazard rates of return if they originate from a high conflict district as observed in column (1) of Table 7. Their respective hazard rates are 78% and 84% higher than for comparable family members from low conflict districts. This pattern is very similar for both female and male refugees, though the impacts on the latter are larger for immediate family members.

In terms of the age profile of refugees, in column (3) we find no statistically significant difference by conflict intensity for men ages 45 or older. However we see in column (2) that women ages 45-59 who hail from a high conflict district have hazard rates that are 20% lower than women of the same age from low conflict districts. The interaction term for older women is not significant.

Taken together, these results paint a complex picture of the decision-making process underlying the spontaneous return behavior of refugees. Not only the individual characteristics of a refugee, but also the social structure surrounding her can shape the

likelihood of return. Moreover, the sensitivity of this return decision to conditions in Syria (i.e., conflict intensity) is also markedly different along such characteristics.

4.3 Conditions in Host Countries

A refugee's livelihood opportunities and housing conditions in the host country may also be important determinants of her return decision. In fact, this point often appears in the popular media in different forms like "good conditions make refugees stay" and, by extension, "bad conditions make refugees return".[19] In this section, we show that our results do not necessarily support this view.

First, we explore how individual return decisions are affected by living conditions in the host countries by estimating equation 4. These results are reported in Table 8, where individual controls from ProGres are suppressed for ease of exposition. In column (1), we find that more food secure households have a higher hazard rate of return, a result that is highly significant. However, the magnitude of the effect is small: a one standard deviation increase in the food security PCA index increasing the hazard rate by 0.27%. Moreover, Column (2) shows that better housing conditions - proxied for by the housing PCA index - also increase the hazard rate by a similar magnitude.

Second, we analyze how conditions in the host countries affect aggregate returns by using the district-month panel. Unlike the panel data set used in Tables 2 and 3, we aggregate returns by their location l in the country of asylum not their home district in Syria.[20] However, because the country of asylum indicators are reported for only 2 years for Jordan and 3 years for Lebanon, the time variation in this panel is severely

[19] See Berry et al. for a review of press coverage about Syrian refugees until 2015.

[20] The regression specification is

$$E(returns_{lmt}) = \delta_l exp(\beta_1 + \beta_2 foodsec_{lt} + \beta_3 housing_{lt} + \tau_t)$$

where $delta_l$ is the location specific fixed effect and all other variables are defined as in equation 3. Since the VAF and VASyr surveys were only conducted during the 2015-2017 period, we only estimate the regression for this subset of years.

constrained. Nevertheless, we pursue the panel estimates since they remove time invariant characteristics which we do not observe and are correlated with the return decision. This includes reporting biases, since UNHCR provides assistance to the respondents, that are constant over time. Results are shown in Table 9. Better livelihood opportunities - proxied for by the food security PCA index - increase the number of returnees. In particular, a one standard deviation increase in the food security index increases the number of returns by 24% when using the PQML specification in column (2), a result that is statistically significant at the 5% level. We view this as strong evidence. However, the corresponding OLS result in column (1) is insignificant. Housing conditions, on the other hand, do not seem to affect the aggregate return numbers, as shown in Columns (3) and (4). This may be because we do not have enough variation in the data.

These results do not support the view that poor living conditions in host countries push refugees to spontaneously return to their origin country. In the following section, we will provide a discussion on the economic interpretation of this result and possible underlying mechanisms that may generate such an outcome.

5 Discussion

The results have so far shown that the effects of conditions at the origin, such as security, on returns are as expected. Other things being equal, an increase in risk adjusted payoffs from return (delivered by better security and living conditions) tends to increase the probability of return. The opposite is, however, not true for conditions in countries of asylum, where improvements in payoffs from staying may also increase returns. This is somewhat unexpected within a standard income/opportunity based migration framework and entails further discussion.

The literature on temporary (economic) migrations can provide important insights on these findings. An important revelation of this literature, the planned adaptation of economic actions in anticipation of return or settlement, has been shown to differentiate various migrant groups. These adaptations can take place in terms of savings (Galor and Stark (1991)), labor force participation (Borjas and Bratsberg (1996)), or human capital accumulation (Dustmann et al. (2011)). Thus, a two-way determination between returns and economic conditions is likely. Our data and empirical setting are not rich enough to fully identify such mechanisms in the case of Syrian refugees. Nevertheless, the positive association between the return of refugees and their conditions in host countries is a curious phenomenon. The vulnerability assessments (VASyr and VAF), reveal extreme coping strategies among refugees which are resorted to support a bare bones living standard, with no surplus to be saved or used for additional schooling. What could be driving such positive association?

In what follows, we develop a simple framework where this outcome can be observed even in the absence of a strategic location-specific action from refugees. The idea is that, for refugees with incomes at the low end of the distribution, the costs associated with return by themselves can generate the result we observed in the data. While it is not possible to detect or estimate such costs and incomes by using our data set, a descriptive literature on the rules and regulations governing the return of Syrian refugees provides ample facts in support of the transportation cost argument. For instance, about 70 percent of Syrian refugees in Lebanon and Jordan are reported to lack basic civil documentation, which is required for returns (Norwegian Refugee Council, 2017). However, access to those could be prohibitively costly: e.g., with a $325 price tag, the Syrian passport is one of the costliest passports to acquire in the world ($825 if expedited). To put that into perspective, the average cash transfer received by refugees is $27 per person per month. This cost can impede returns in a trivial manner: as

refugees are credit constrained, they may not be able to afford the return. However, there is also a non-trivial effect: given the trade-offs they face; refugees may not be willing to return even when such cost can be afforded.

To see this, let us consider a simple dynamic environment with 2 periods, where the second period has a variable length $l > 0$, reflecting differences in the planning horizon (i.e., the age of the refugee). Each refugee i is endowed with an income w_i in the first period. If a refugee stays in the host country, she is endowed with the same endowment w_i in the second period as well.

Alternatively, refugees may choose to return to their country of origin at the end of the first period. Once attempted, this return may succeed with a probability $\pi_i \in [0, 1]$. Succeeding refugees receive an endowment v_i in the second period of their lives in the country of origin. Ruling out access to credit and transfer of resources across periods or countries, we can now define the lifetime utilities in different situations as follows

$$W_i = u(w_i) + \begin{cases} lu\left(w_i\right), & if\ no\ return \\ lu\left(v_i\right), & if\ successful\ return \\ 0, & if\ failed\ return \end{cases} \tag{6}$$

where $u(.)$ is the period utility function with $u'(.) > 0$ and $u''(.) < 0$.

In this simple framework, utility gains from returning $\Delta_i = l\left[\pi_i u\left(v_i\right) - u\left(w_i\right)\right]$ increases in π_i, v_i and l and decreases in w_i provided that $v_i > w_i$. That is, improving conditions in the country of origin should increase returns and improving conditions in the country of asylum should decrease returns. Similarly, a longer life expectancy and the likelihood of a successful (safe) return also increase returns.

Let us now introduce a cost of return trip τ, which can represent the actual logistical costs or other factors, e.g., psychological burden, in cash terms. The ex-ante life-time

utility of return is then given as:

$$W_i = u\left(w_i - \tau\right) + \pi_i l u\left(v_i\right) \tag{7}$$

and the ex-ante gain from return is:

$$\Delta_i = \left[u\left(w_i - \tau\right) - u\left(w_i\right)\right] + l\left[\pi_i u\left(v_i\right) - u\left(w_i\right)\right] \tag{8}$$

where the first term on the right hand side shows the opportunity cost of attempting the return and the second term shows the expected increase in second period welfare. Like the case without transportation costs, the expected gain from return increases monotonically in l and pull factors v_i and π_i. An increase in transportation cost decreases Δ_i; however, w_i now has ambiguous effects:

$$\frac{\partial \Delta_i}{\partial w_i} = \left[u'\left(w_i - \tau\right) - u'\left(w_i\right)\right] - l u'\left(w_i\right) \gtrless 0. \tag{9}$$

When l is sufficiently small and $u(.)$ satisfies the Inada conditions, the following properties are observed for a given τ:

$$\lim_{w_i \to \infty} \frac{\partial \Delta_i}{\partial w_i} < 0 \tag{10}$$

$$\lim_{w_i \to \tau^+} \frac{\partial \Delta_i}{\partial w_i} > 0 \tag{11}$$

Intuitively, a small improvement in the asylum conditions has two effects on the comparison of expected lifetime utilities across options. First, it reduces the opportunity cost of the return decision, i.e., decreasing own consumption by a given amount (τ) is easier when the first-period income is greater. Second, it makes the return option less

attractive as the gap between second period utilities in return and no-return scenarios decreases with a higher w_i. When the initial income is high, i.e., $w_i \to \infty$, the second effect dominates following a small increase in w_i and return becomes less attractive. In contrast, starting from an income that is too close to τ, i.e., $w_i \to \tau$, a small increase in income relaxes the opportunity cost of returning drastically, which dominates the second effect.

Figure 7 shows the dramatic effect of explicitly recognizing the mobility cost for low income levels. The first panel shows the payoffs associated with not returning (W^{nr}_{NC}), which are identical regardless of mobility costs, and the payoffs for a returning refugee with (W^{r}_{C}) and without (W^{r}_{NC}) mobility costs. Inclusion of a mobility cost makes the return payoff steeper than the staying payoff for low income levels. As a result, as shown in the second panel, whereas the gain from return is a monotonically decreasing function of the host country income in the case with no mobility costs (Δ^{r}_{NC}), it becomes non-monotonous in the case with mobility costs (Δ^{r}_{C}). As a result, for low income levels, a small increase in host country income can make return more desirable. In fact, for some ranges of v_i and τ, a double crossing of the stay payoff and return payoff streams is also possible. In that case, only refugees with an intermediate income range would return as Bijwaard and Wahba (2014) find for economic migrants.

6 Conclusion

In this paper, we analyzed the factors that influenced the return of Syrian refugees from Lebanon, Jordan, and Iraq to Syria during an active period of conflict, from January 2011 to March 2018. Our analysis with novel subdistrict-month panel data shows that better security and improved access to utilities, as proxied by nightlight luminosity, at the location of origin increase the likelihood of return. This result is

aligned with the risk-adjusted expected payoff-based explanations of standard models of migration. However, we provide evidence that worse conditions in exile do not always induce more returns to the origin country. In certain aspects, such as access to food, poor conditions reduce the likelihood of return. In discussing these results, we propose a simple framework where an increase in income in exile can trigger return for those with low income in the presence of mobility costs.

Our results have both analytical and practical implications. From an analytical point of view, the nature of refugees' self-selection in return migration could determine the composition of refugees, and their skill set, who stay in exile. This should be taken into consideration in assessing how refugee arrivals shape the economic welfare of the host communities. More practically, a formal consideration of the endogenous return behavior can help design humanitarian interventions more effectively in countries of asylum.

The study of refugee returns is a data-demanding process in a data-poor field. This limits the generation of systematic empirical evidence and, thus, our knowledge. Any future research that expands the respective data space, especially longitudinally, and examines the validity of our results in different refugee situations will help improve our understanding significantly.

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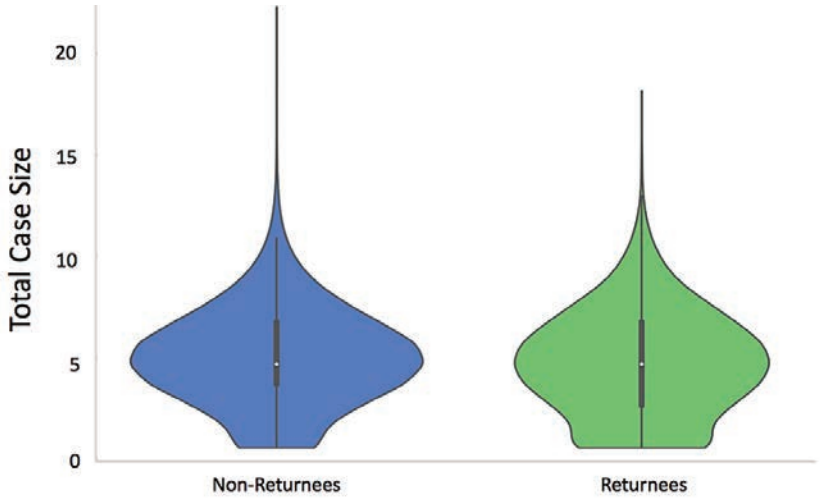
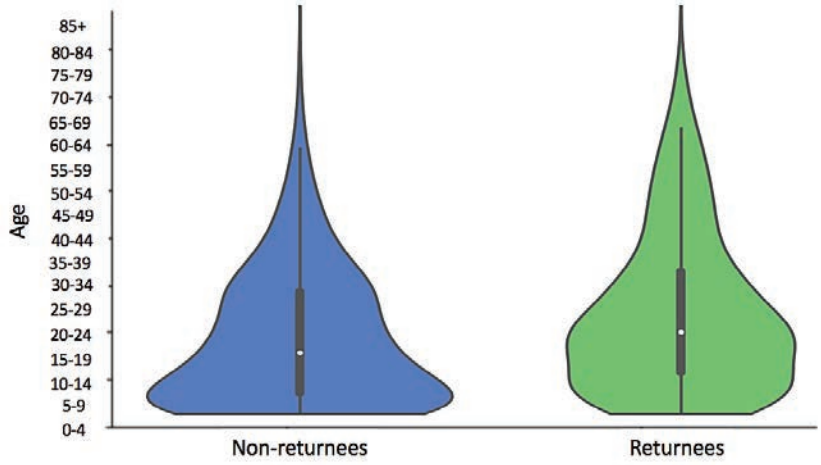
Figure 1: Case Size, Age, and Adult Education: Returnees vs. Non-returnees

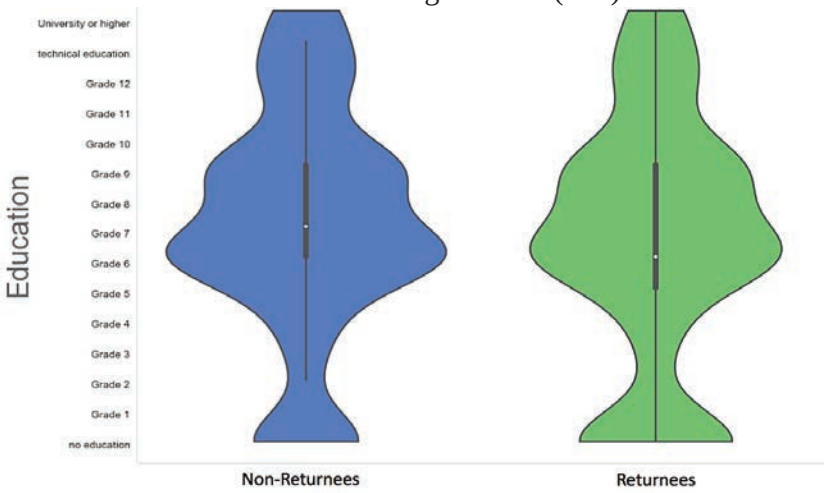
Case Size



Age

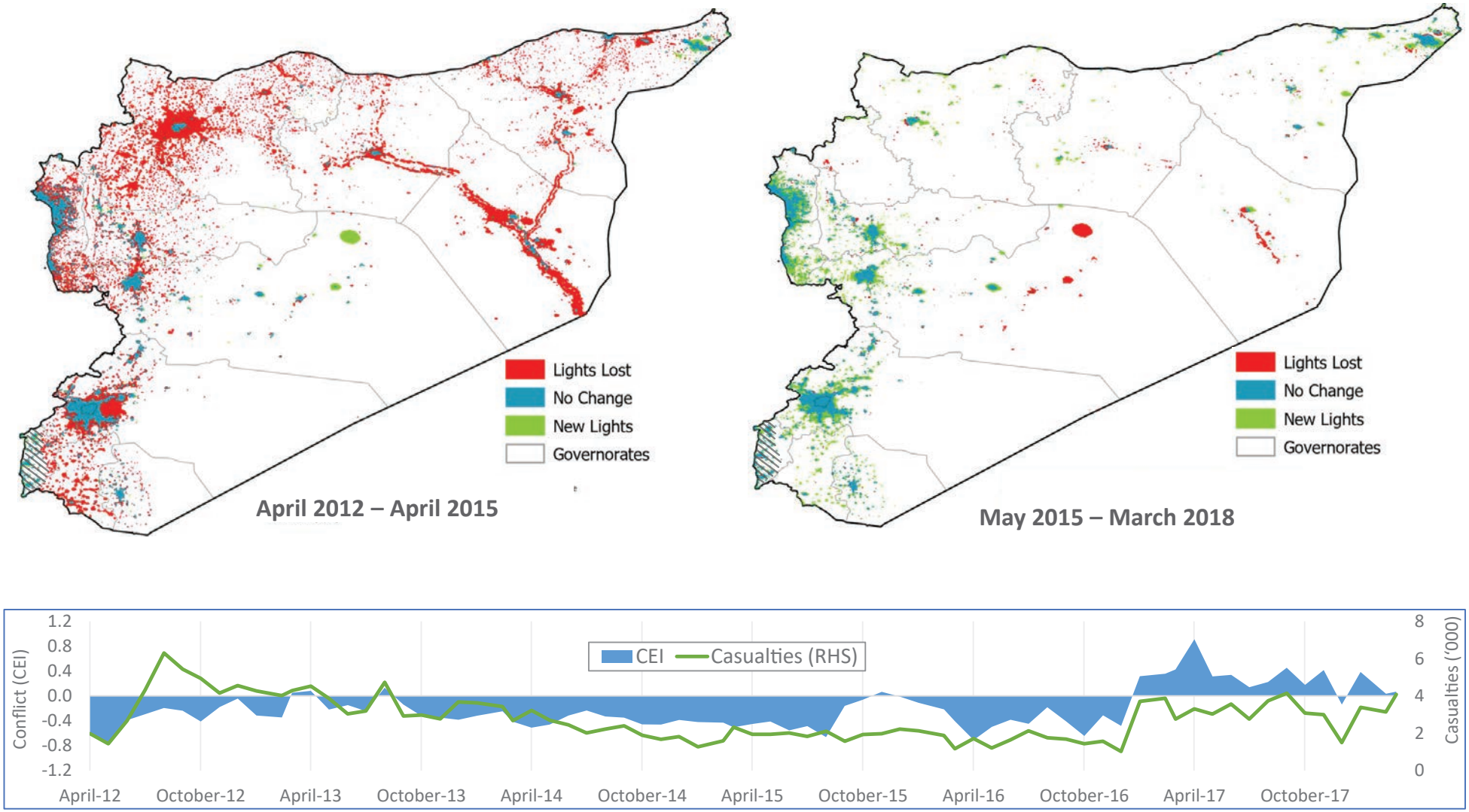


Years of Schooling - Adults (15+)



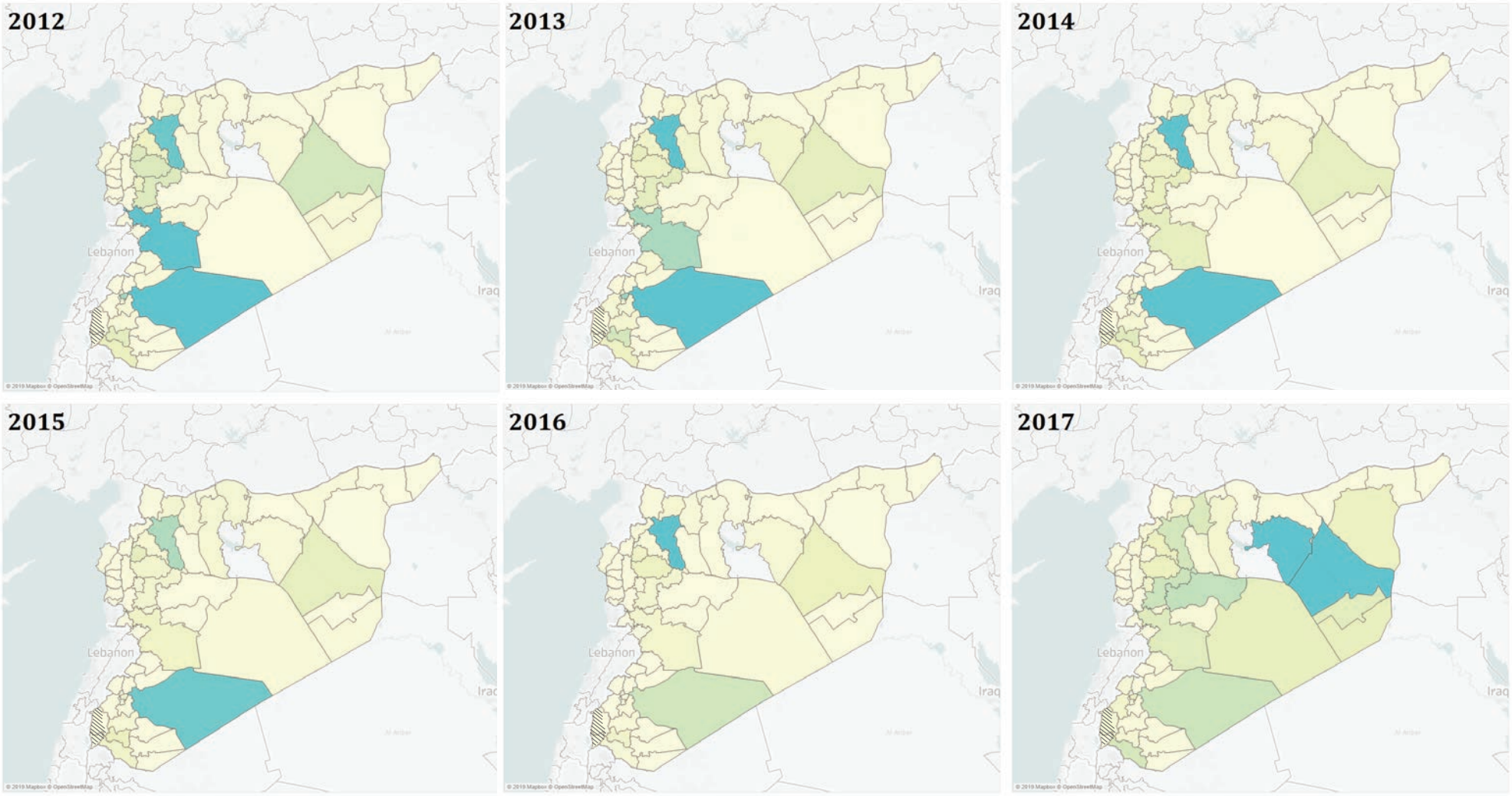
Notes: The violin plot shows summary statistics of a given indicator. The thin vertical lines denote the full range of observations, over which the sample distributions are shown symmetrically on left- and right-hand sides. The thick vertical lines show the range of the middle 50 percent of the observations, and the median values are shown by white dots.

Figure 2: The Evolution of Night Lights, Conflict Driven Casualties, and Conflict Events Index Over Time



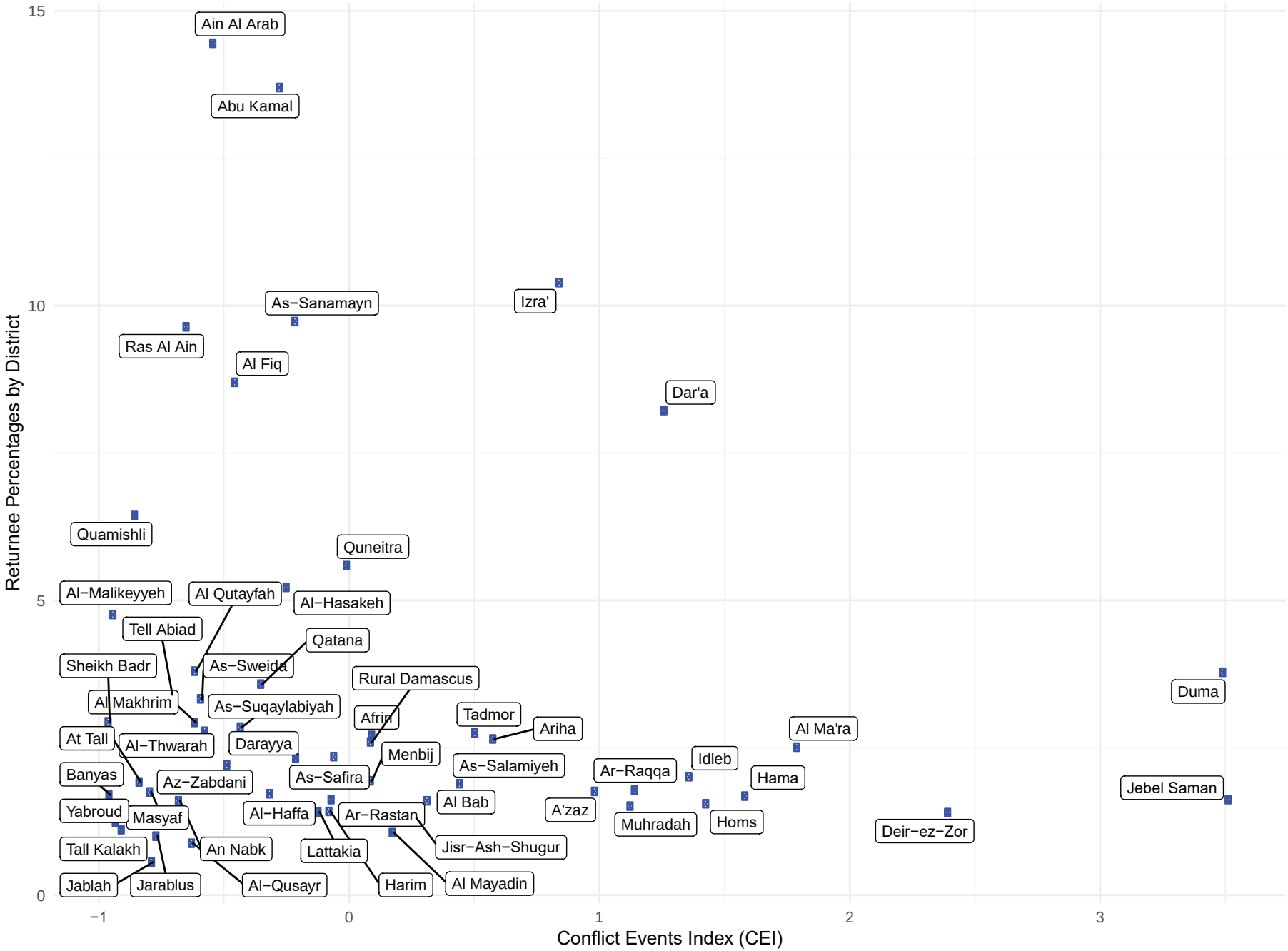
Notes: Night-time low light emissions data are from the Visible Infrared Imaging Radiometer Suite (VIIRS) of the Suomi National Polar Partnership (SNPP). All pixels are equal in size, around 380m by 380m (15 arc-seconds by 15 arc-seconds relative to the origin, the mathematical center of the earth). Casualties show total monthly deaths directly attributed to conflict. The Conflict Events Index (CEI) was computed for each district-month using principal components analysis (PCA) of normalized conflict activity. For this figure, we use the concurrent CEI for that month.

Figure 3: Casualties by District-Year (Jan 2012 – December 2017)



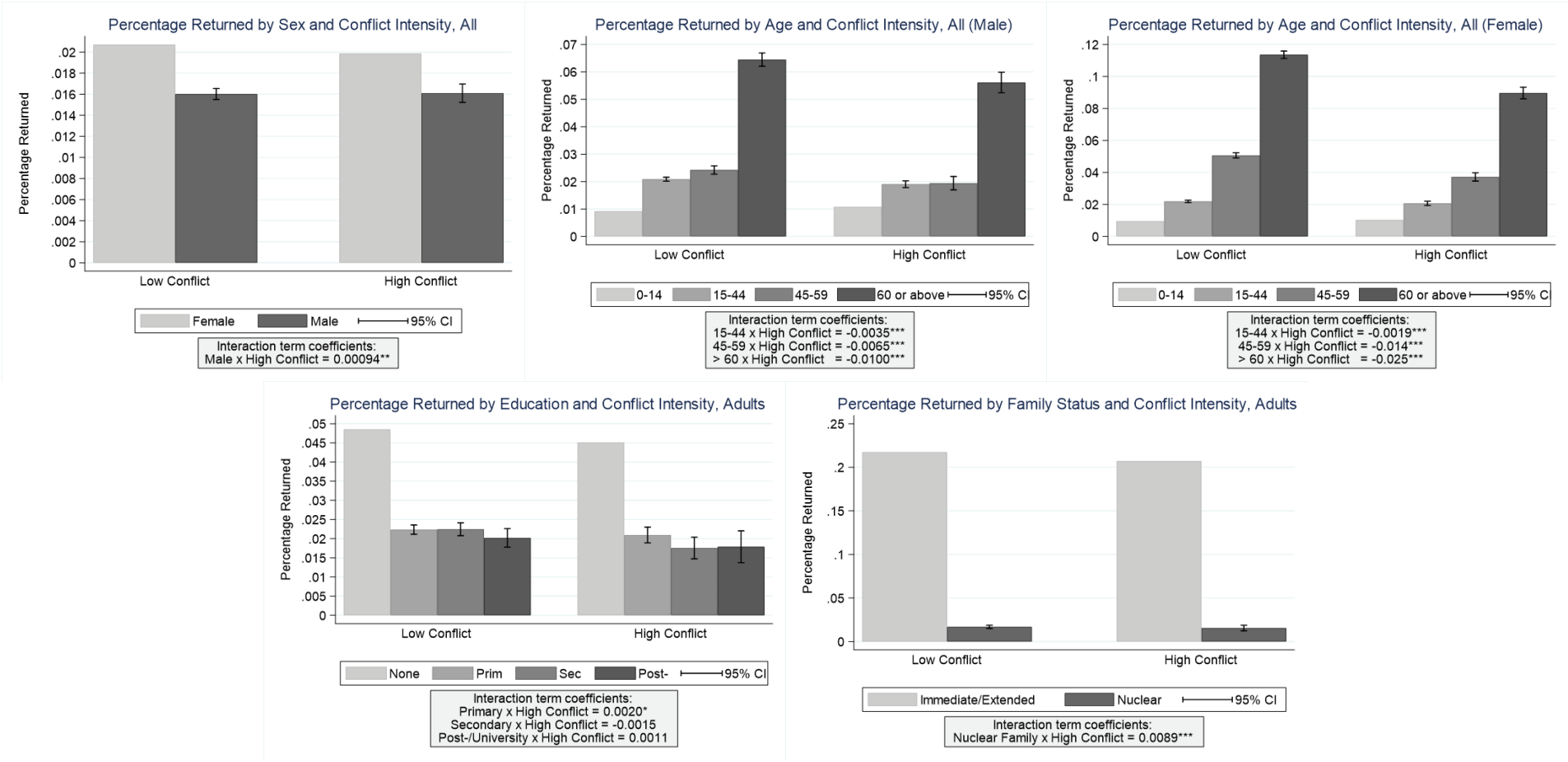
Notes: The casualty data was collected by IPSOS and contains district-level casualties for all districts except Dreikish, Safita and Tartous in Tartous governorate (shaded white in the map).

Figure 4: Conflict by Returnee Percentages (Jan 2012 – June 2018)



Notes: For this figure, we use the mean Conflict Events Index (CEI) for the district between Jan 2012 – June 2018. Refer to the footnote in Figure 2 for the definition of CEI. 'Returnee percentages' reflect the percentage of total refugees from the origin district that returned back to Syria before March 2018.

Figure 5: Demographic Characteristics of Returnees by Conflict Intensity



Notes: Using the average CEI for the district (see footnote in Figure 4 for details), we defined high-conflict districts as those districts where the average CEI fell in top 10 percentile. These districts are Jebel Saman, Deir-ez-Zor, Homs, Al Ma'ra, and Duma. Returnee percentages are as defined in Figure 4. These figures are a visual representation of Table A1-A4. Confidence intervals denote whether the difference to the within-group (i.e. within Low conflict or within High conflict) reference category is statistically significant.

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Figure 6: Gains From Return With and Without Mobility Costs

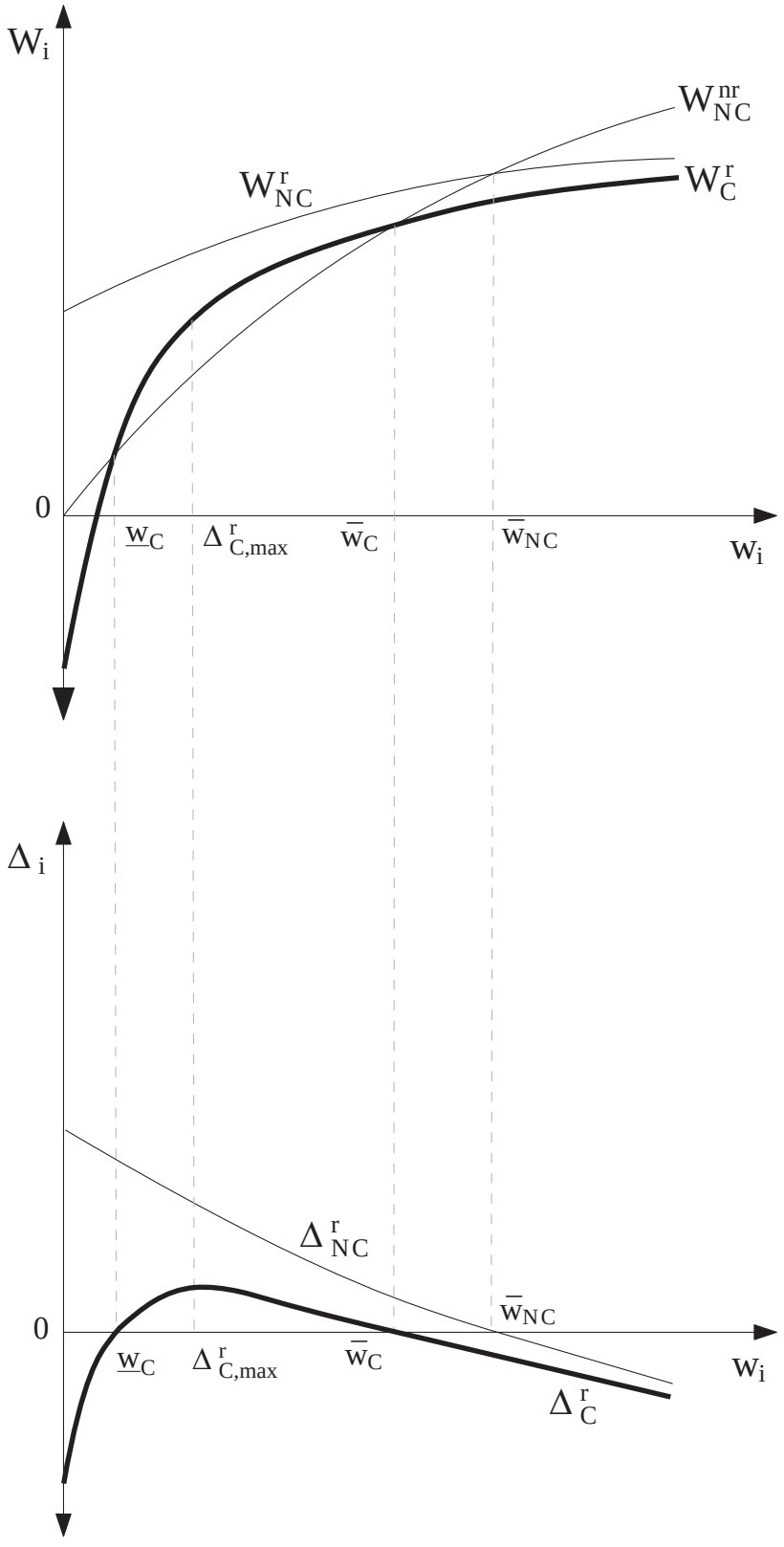

Table 1: Statistics for Registered Refugees

	Refugee Population	Settlement		Returns
		In camp	Out of camp	(As of end-2019)
Jordan	656,213	124,019	532,194	53,058
Lebanon	910,256	-	910,256	53,286
Iraq	247,440	98,798	148,642	38,117

Source: UNHCR (access date: April 13, 2020). The numbers reported here are only those verified or monitored by UNHCR. They do not reflect the entire number of returns which may be significantly higher.

Table 2: Conditions in Syria

	(1)		(2)		(3)		(4)		(5)		(6)	
Δ Conflict Events Index	-0.019	***	-0.0087		-0.023	***	-0.060	**	-0.021	***	-0.051	***
	(0.0053)		(0.026)		(0.0056)		(0.024)		(0.0059)		(0.015)	
Δ Avg Luminosity Index	0.042	***	0.044	***	0.046	***	0.038	***	0.028	**	-0.0063	
	(0.014)		(0.0089)		(0.015)		(0.011)		(0.012)		(0.0074)	
Observations	15448		15448		14292		14292		14292		14292	
Daraa	Yes		Yes		No		No		No		No	
Model	OLS		PQML		OLS		PQML		OLS		PQML	
Area of Control	Yes		Yes		Yes		Yes		Yes		Yes	
District FE	Yes		Yes		Yes		Yes		Yes		Yes	
Year FE	Yes		Yes		Yes		Yes		Yes		Yes	
Month FE	No		No		No		No		Yes		Yes	

Standard errors in parentheses, clustered at the district level.

* p<.1, ** p<.05, *** p<.01

Δ Conflict Events Index and Δ Avg Luminosity Index reflect changes in their respective levels between the quarter prior the month of return and the quarter preceding it.

Table 3: Conditions in Syria

	(1)		(2)		(3)		(4)		(5)		(6)	
Δ Avg Luminosity Index	0.046	***	0.044	***	0.046	***	0.046	***	0.046	***	0.044	***
	(0.015)		(0.011)		(0.016)		(0.011)		(0.016)		(0.012)	
Δ Casualties	-0.00017	***	-0.00044	***								
	(0.000052)		(0.00017)									
Δ Chemical Weapon Use					-0.083	*	-0.35	**				
					(0.049)		(0.18)					
Δ Skirmish and Fighting									-0.022	*	-0.059	*
Observations	14292		14292		14292		14292		14292		14292	
Model	OLS		PQML		OLS		PQML		OLS		PQML	
Area of Control	Yes		Yes		Yes		Yes		Yes		Yes	
District FE	Yes		Yes		Yes		Yes		Yes		Yes	
Year FE	Yes		Yes		Yes		Yes		Yes		Yes	

Standard errors in parentheses, clustered at the district level.

* p<.1, ** p<.05, *** p<.01

Δ Avg Luminosity Index, Δ Casualties, Δ Chemical Weapon Use, and Δ Skirmish and Fighting reflect changes in their respective levels between the quarter prior the month of return and the quarter preceding it.

Table 4: Vignette 3, Condition of House in Syria

	(1)		(2)		(3)	
Family says house intact	0.020		0.020		0.018	
	(0.028)		(0.036)		(0.043)	
Neighbor house destroyed	-0.224	***	-0.219	***	-0.230	***
	(0.028)		(0.036)		(0.045)	
Family house destroyed	-0.229	***	-0.234	***	-0.224	***
	(0.028)		(0.037)		(0.043)	
Observations	1900		1100		800	
Sample	All		Registered		Unregistered	
Mean: Neighbor says house is intact	0.381		0.376		0.387	
SD	0.486		0.485		0.488	

Standard errors in parentheses.

* p<.1, ** p<.05, *** p<.01

The omitted category is "Neighbor says house is intact".

Table 5: Vignette 2, Conditions in Syria

	(1)		(2)		(3)	
Wife not working	0.012		0.029		-0.011	
	(0.022)		(0.028)		(0.034)	
Schools poor resources	-0.187	***	-0.175	***	-0.201	***
	(0.021)		(0.028)		(0.033)	
Observations	950		1100		800	
Sample	All		Registered		Un-registered	
Mean: Wife is working and Schools in Syria Open	0.433		0.401		0.481	
SD	0.496		0.491		0.501	

Standard errors in parentheses.

* p<.1, ** p<.05, *** p<.01

The omitted category is "Wife is working and schools in Syria are open and functioning well".

Table 6: Survival Analysis, ProGres Controls

	(1)		(2)		(3)		(4)		(5)		(6)	
Single	0.47	***	0.47	***	0.47	***	0.48	***	0.48	***	0.48	***
	(0.075)		(0.073)		(0.075)		(0.073)		(0.074)		(0.074)	
Widowed	-0.28	**	-0.26	**	-0.27	**	-0.26	**	-0.28	**	-0.28	**
	(0.12)		(0.10)		(0.12)		(0.10)		(0.11)		(0.11)	
Other	0.0071		0.00053		0.017		0.0097		0.0047		0.0047	
	(0.048)		(0.042)		(0.046)		(0.040)		(0.045)		(0.045)	
45 - 59	0.58	***	0.60	***	0.57	***	0.59	***	0.59	***	0.59	***
	(0.075)		(0.075)		(0.075)		(0.076)		(0.074)		(0.074)	
60 or above	0.78	***	0.81	***	0.78	***	0.81	***	0.81	***	0.81	***
	(0.11)		(0.10)		(0.11)		(0.11)		(0.11)		(0.11)	
Male	0.37	***	0.42	***	0.38	***	0.42	***	0.41	***	0.41	***
	(0.033)		(0.033)		(0.032)		(0.032)		(0.032)		(0.032)	
Principal applicant	-1.24	***	-1.28	***	-1.23	***	-1.28	***	-1.29	***	-1.29	***
	(0.10)		(0.11)		(0.10)		(0.11)		(0.099)		(0.099)	
Extended family	1.82	***	1.81	***	1.81	***	1.80	***	1.84	***	1.84	***
	(0.10)		(0.099)		(0.10)		(0.099)		(0.095)		(0.095)	
Immediate family	1.35	***	1.31	***	1.34	***	1.30	***	1.33	***	1.33	***
	(0.096)		(0.093)		(0.097)		(0.094)		(0.091)		(0.091)	
Primary Education	-0.18	***	-0.17	***	-0.18	***	-0.16	***	-0.17	***	-0.17	***
	(0.039)		(0.039)		(0.038)		(0.037)		(0.038)		(0.038)	
Secondary Education/Vocational	-0.22	***	-0.23	***	-0.21	***	-0.23	***	-0.21	***	-0.21	***
	(0.046)		(0.050)		(0.045)		(0.049)		(0.046)		(0.046)	
Post-/University	-0.25	***	-0.32	***	-0.24	***	-0.32	***	-0.29	***	-0.29	***
	(0.056)		(0.070)		(0.056)		(0.069)		(0.059)		(0.059)	
Case has children	1.17	***	1.22	***	1.17	***	1.22	***	1.23	***	1.23	***
	(0.13)		(0.12)		(0.13)		(0.12)		(0.12)		(0.12)	
Current Size	-0.95	***	-0.97	***	-0.95	***	-0.96	***	-0.98	***	-0.98	***
	(0.062)		(0.065)		(0.062)		(0.064)		(0.069)		(0.069)	
Has special needs	-0.28	***	-0.33	***	-0.27	***	-0.32	***	-0.31	***	-0.31	***
	(0.042)		(0.035)		(0.043)		(0.036)		(0.038)		(0.038)	
Case lives in a camp	0.59	***	0.52	***	0.58	***	0.52	***	0.56	***	0.56	***
	(0.21)		(0.17)		(0.21)		(0.17)		(0.18)		(0.18)	
Observations	48395526		48395526		47446712		47446712		47446712		47446712	
Sample	Adults		Adults		Adults		Adults		Adults		Adults	
Model	Cloglog		Cloglog		Exponential		Exponential		Cox		Cox	
Dummies for ethnicity and religion	Yes		Yes		Yes		Yes		Yes		Yes	
Registration status controls	Yes		Yes		Yes		Yes		Yes		Yes	
District FE	Yes		Yes		Yes		Yes		Yes		Yes	
Year FE	No		Yes		No		Yes		No		Yes	
Country of Asylum FE	Yes		Yes		Yes		Yes		Yes		Yes	

Standard errors in parentheses.

* p<.1, ** p<.05, *** p<.01

The omitted category for marital status is 'Married'; for age is '15-44'; for family status is 'Close family'; and for education is 'No/Informal education'.

Following Constant and Macy (2002), we include a quadratic cloglog specification of the refugee spell in columns (1) and (2).

Columns (3) and (4) estimate a continuous time exponential model and include spell year dummies.

Table 7: Survival Analysis, ProGres controls interacted with a high-conflict dummy

	(1)		(2)		(3)	
45 - 59	0.63	***	0.65	***	0.42	***
	(0.083)		(0.079)		(0.063)	
60 or above	0.88	***	0.86	***	0.66	***
	(0.11)		(0.11)		(0.094)	
High Conflict	-0.32	**	-0.19		-0.60	***
	(0.14)		(0.15)		(0.15)	
45 - 59 * High Conflict	-0.13	*	-0.22	***	0.040	
	(0.067)		(0.081)		(0.065)	
60 or above * High Conflict	-0.21	*	-0.19		-0.18	
	(0.12)		(0.14)		(0.12)	
Principal applicant	-1.26	***	-1.06	***	-1.94	***
	(0.097)		(0.085)		(0.15)	
Extended family	1.70	***	1.99	***	1.07	***
	(0.11)		(0.11)		(0.12)	
Immediate family	1.21	***	1.58	***	0.46	***
	(0.096)		(0.12)		(0.090)	
Extended family * High Conflict	0.61	***	0.61	***	0.60	***
	(0.19)		(0.21)		(0.19)	
Immediate family * High Conflict	0.58	***	0.49	**	0.66	***
	(0.18)		(0.21)		(0.14)	
Primary Education	-0.16	***	-0.21	***	-0.13	***
	(0.046)		(0.052)		(0.040)	
Secondary Education/Vocational	-0.17	***	-0.18	**	-0.11	*
	(0.057)		(0.072)		(0.061)	
Post-/University	-0.25	***	-0.19	***	-0.24	**
	(0.071)		(0.070)		(0.094)	
Primary Education * High Conflict	-0.0021		0.022		0.076	
	(0.097)		(0.089)		(0.098)	
Secondary Education/Vocational * High Conflict	-0.18		-0.088		-0.27	*
	(0.13)		(0.13)		(0.15)	
Post-/University * High Conflict	-0.14		-0.033		-0.19	
	(0.15)		(0.17)		(0.16)	
Observations	43914492		22892109		21022383	
Sample	Adults		Adult women		Adult men	
Model	Cox		Cox		Cox	
ProGres controls	Yes		Yes		Yes	
District FE	Yes		Yes		Yes	
Year FE	No		No		No	
Country of Asylum FE	Yes		Yes		Yes	

Standard errors in parentheses.

* p<.1, ** p<.05, *** p<.01

The omitted category for marital status is 'Married'; for age is '15-44'; for family status is 'Close family'; and for education is 'No/Informal education'. ProGres controls include dummies for ethnicity and religion as well as registration status controls.

Table 8: Survival Analysis, different CoA variables

	(1)		(2)	
Food security PCA index	0.0027	***		
	(0.00068)			
Housing PCA index			0.0023	***
			(0.00042)	
Observations	23510685		22720684	
Sample	Adults		Adults	
Model	Cox		Cox	
ProGres controls	Yes		Yes	
Interactions with high conflict	Yes		Yes	
District FE	Yes		Yes	
Year FE	No		No	
Country of Asylum FE	Yes		Yes	

Standard errors in parentheses.

* p<.1, ** p<.05, *** p<.01

The Food Security PCA Index was computed using prinicpal components analysis (PCA) of normalized food consumption variables. The components include the average number of meals per day, and the average number of days a week a case did not have to borrow food/restrict consumption. The Housing PCA Index was constructed using normalized dummies for whether the case has an acceptable roof and windows, and access to a (private) latrine.

Table 9: Panel Analysis, Different CoA Variables

	(1)	(2)		(3)	(4)
Food security PCA index	0.067	0.24	**		
	(0.069)	(0.11)			
Housing PCA index				-0.017	0.17
				(0.090)	(0.19)
Observations	1944	1944		1944	1944
Model	OLS	PQML		OLS	PQML
Location FE	Yes	Yes		Yes	Yes
Year FE	Yes	Yes		Yes	Yes

Standard errors in parentheses.

* p<.1, ** p<.05, *** p<.01

The Food Security Index and the Housing Index have been defined in Table 8.

Figure A1: Monthly Income by Education, 2018 Household Survey

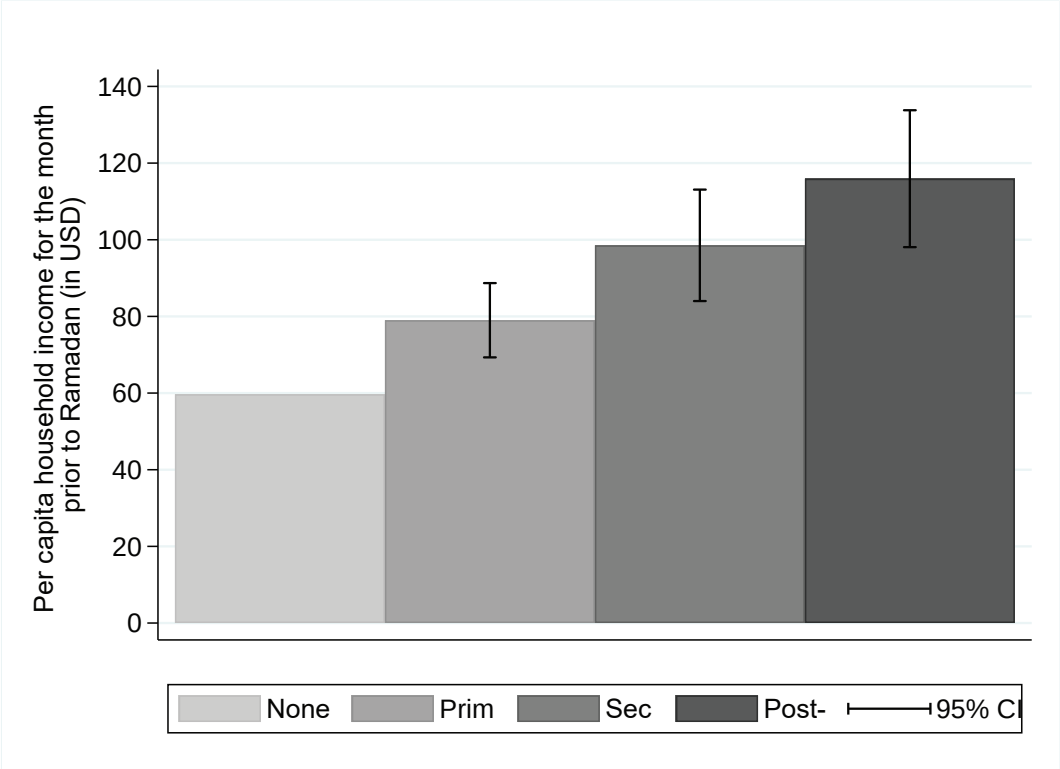

Table A1: Descriptive Statistics, Sex

	(1)	
Male	-0.0047	***
	(0.00027)	
High Conflict District	-0.00086	***
	(0.00031)	
Male * High Conflict District	0.00094	**
	(0.00044)	
Constant	0.021	***
	(0.00018)	
Observations	1590620	
Sample	All	

Standard errors in parentheses.
* p<.1, ** p<.05, *** p<.01

Table A2: Descriptive Statistics, Age

	(1)		(2)	
15-44	0.012	***	0.012	***
	(0.00037)		(0.00041)	
45-49	0.015	***	0.041	***
	(0.00078)		(0.00082)	
60 or above	0.055	***	0.10	***
	(0.0012)		(0.0012)	
High Conflict District	0.0016	***	0.00068	
	(0.00042)		(0.00049)	
15-44 * High Conflict District	-0.0035	***	-0.0019	***
	(0.00063)		(0.00068)	
45-59 * High Conflict District	-0.0065	***	-0.014	***
	(0.0012)		(0.0013)	
60 or above * High Conflict District	-0.0100	***	-0.025	***
	(0.0019)		(0.0018)	
Constant	0.0092	***	0.0096	***
	(0.00025)		(0.00029)	
Observations	772644		817968	
Sample	All (Male)		All (Female)	

Standard errors in parentheses.
* p<.1, ** p<.05, *** p<.01
The omitted category for age is '0-14'.

Table A3: Descriptive Statistics, Education

	(1)	
Primary Education	-0.026	***
	(0.00062)	
Secondary Education/Vocational	-0.026	***
	(0.00086)	
Post-/University	-0.028	***
	(0.0012)	
High Conflict District	-0.0034	***
	(0.00096)	
Primary Education * High Conflict District	0.0020	*
	(0.0011)	
Secondary Education/Vocational * High Conflict District	-0.0015	
	(0.0014)	
Post-/University * High Conflict District	0.0011	
	(0.0021)	
Constant	0.049	***
	(0.00056)	
Observations	823579	
Sample	Adults	

Standard errors in parentheses.
* p<.1, ** p<.05, *** p<.01
The omitted category for education is 'No/Informal Education'.

Table A4: Descriptive Statistics, Relationship status

	(1)	
Nuclear Family	-0.20	***
	(0.00097)	
High Conflict District	-0.010	***
	(0.0016)	
Nuclear Family * High Conflict District	0.0089	***
	(0.0016)	
Constant	0.22	***
	(0.00094)	
Observations	833821	
Sample	Adults	

Standard errors in parentheses.
* p<.1, ** p<.05, *** p<.01